

Air Quality Assessment

College of Haringey, Enfield and North East London, Tottenham

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Executive Summary

Redmore Environmental Ltd was commissioned by Introba Consulting to undertake an Air Quality Assessment in support of the Construction and Engineering Centre at the College of Haringey, Enfield and North East London, Tottenham.

An Air Quality Assessment was undertaken to:

- Assess potential impacts associated with fugitive dust emissions during the construction phase of the proposed development;
- Assess risk of future staff and student exposure to existing air quality issues;
- Assess potential impacts associated with road transport emissions during the operational phase of the proposed development;
- Provide an Air Quality Neutral Assessment; and,
- Identify the requirement for relevant mitigation measures.

Potential construction phase air quality impacts from fugitive dust emissions were assessed as a result of demolition, earthworks, construction and trackout activities. It is considered that the use of the identified site-specific control measures would provide suitable mitigation for a development of this size and nature and reduce potential impacts to an acceptable level.

During the operational phase of the development there is the potential for the exposure of future staff and students to elevated pollution levels. Dispersion modelling was therefore undertaken in order to predict concentrations across the site as a result of emissions from the highway network. Results were subsequently verified using local monitoring data.

The results of the assessment demonstrated that predicted pollutant levels were below the relevant criteria across the development. As such, the site is considered suitable for the proposed end-use from an air quality perspective.

Potential impacts during the operational phase of the development may occur due to road traffic exhaust emissions associated with vehicles travelling to and from the site. These were assessed using standard screening criteria. As the proposals are predicted to lead to a net reduction in vehicle trips from the site due to a reduction in the number of car parking spaces, road traffic exhaust emission impacts were not predicted to be significant.

Potential emissions from the development were assessed in order to determine compliance with the air quality neutral requirements of the London Plan. The energy strategy includes the use of Air Source Heat Pumps and Air Handling Units which do not produce emissions to atmosphere. As such, it is considered air quality neutral with respect to building emissions. The development does not lead to an increase in vehicle movements. As such, it is considered air quality neutral with respect to transport emissions. Based on the assessment results, the overall development was considered to be air quality neutral.

Based on the assessment results, air quality factors are not considered a constraint to planning consent for the proposals.

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1.0 INTRODUCTION

1.1 Instruction

- 1.1.1 Redmore Environmental Ltd was commissioned by Introba Consulting to undertake an Air Quality Assessment in support of the Construction and Engineering Centre at the College of Haringey, Enfield and North East London, Tottenham.

1.2 Site Location and Context

- 1.2.1 The site is located at the College of Haringey, Enfield and North East London, High Road, Tottenham, N15 4RU, at approximate National Grid Reference (NGR): 533596, 189281. The relevant Local Authority (LA) is the London Borough of Haringey (LBoH). Reference should be made to Figure 1 for a map of the site and surrounding area.
- 1.2.2 The proposals comprise the demolition of the existing gym/lecture theatre block and erection of a new Construction and Engineering Centre extending to 2,625m² over five storeys including plant.

1.3 Assessment Scope

- 1.3.1 The development proposals have the potential to cause air quality impacts during construction and operation. As such, an Air Quality Assessment was undertaken to:
- Assess potential impacts associated with fugitive dust emissions during the construction phase of the proposed development;
 - Assess risk of future staff and student exposure to existing air quality issues;
 - Assess potential impacts associated with road transport emissions during the operational phase of the proposed development;
 - Provide an Air Quality Neutral Assessment; and,
 - Identify the requirement for relevant mitigation measures.
- 1.3.2 This is detailed in the following report.

2.0 LEGISLATION AND POLICY

2.1 Legislation

2.1.1 The Air Quality Standards Regulations (2010) and subsequent amendments include Air Quality Limit Values (AQLVs) for the following pollutants:

- Nitrogen dioxide (NO₂);
- Sulphur dioxide;
- Lead;
- Particulate matter with an aerodynamic diameter of less than 10µm (PM₁₀);
- Particulate matter with an aerodynamic diameter of less than 2.5µm (PM_{2.5});
- Benzene; and,
- Carbon monoxide.

2.1.2 Air Quality Target Values were also provided for several additional pollutants. It should be noted that the AQLV for PM_{2.5} stated in the Air Quality Standards Regulations (2010) was amended in the Environment (Miscellaneous Amendments) (EU Exit) Regulations (2020).

2.1.3 The Air Quality Strategy (AQS) was produced by the Department for Environment, Food and Rural Affairs (DEFRA) and published on 28th April 2023¹. The document contains standards, objectives and measures for improving ambient air quality, including a number of Air Quality Objectives (AQOs). These are maximum ambient pollutant concentrations that are not to be exceeded either without exception or with a permitted number of exceedences over a specified timescale. These are generally in line with the AQLVs, although the requirements for the determination of compliance vary.

2.1.4 The Environmental Improvement Plan 2023² was published in January 2023, providing long term and Interim Targets in order to reduce population exposure to PM_{2.5}. The concentration target for 2040 was subsequently adopted in the Environmental Targets (Fine Particulate Matter) (England) Regulations (2023).

¹ AQS: Framework for Local Authority Delivery, DEFRA, 2023.

² Environmental Improvement Plan 2023, DEFRA, 2023.

2.1.5 Table 1 presents the AQOs, AQLVs and Interim Target for pollutants considered within this assessment.

Table 1 Air Quality Objectives/Air Quality Limit Values/Interim Target

Pollutant	Air Quality Objective/Air Quality Limit Value/Interim Target	
	Concentration ($\mu\text{g}/\text{m}^3$)	Averaging Period
NO ₂	40	Annual mean
	200	1-hour mean, not to be exceeded on more than 18 occasions per annum
PM ₁₀	40	Annual mean
	50	24-hour mean, not to be exceeded on more than 35 occasions per annum
PM _{2.5}	20 ^(a)	Annual mean
	12 ^(b)	Annual mean

Note: (a) Current AQLV.

(b) Interim Target to be achieved by end of January 2028.

2.1.6 Table 2 summarises the advice provided in the Greater London Authority (GLA) guidance³ on where the AQOs for pollutants considered within this report apply.

Table 2 Examples of Where the Air Quality Objectives Apply

Averaging Period	Objective Should Apply At	Objective Should Not Apply At
Annual mean	All locations where members of the public might be regularly exposed Building façades of residential properties, schools (including all of playgrounds), hospitals (and their grounds), care homes (and their grounds) etc.	Building façades of offices or other places of work where members of the public do not have regular access Hotels, unless people live there as their permanent residence Gardens of residential properties Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term

³ London Local Air Quality Management (LLAQM), Technical Guidance 2019 (LLAQM.TG (2019)), GLA, 2019.

Averaging Period	Objective Should Apply At	Objective Should Not Apply At
24-hour mean	All locations where the annual mean objective would apply, together with hotels Gardens of residential properties	Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term
1-hour mean	All locations where the annual mean and 24 and 8-hour mean objectives apply. Kerbside sites (for example, pavements of busy shopping streets) Those parts of car parks, bus stations and railway stations etc which are not fully enclosed, where members of the public might reasonably be expected to spend one hour or more Any outdoor locations where members of the public might reasonably be expected to spend one hour or longer	Kerbside sites where the public would not be expected to have regular access

2.2 Local Air Quality Management

- 2.2.1 LAs are required to periodically review and assess air quality within their area of jurisdiction under the system of Local Air Quality Management (LAQM). This review and assessment of air quality involves comparing present and likely future pollutant concentrations against the AQOs. If it is predicted that levels at locations of relevant exposure, as summarised in Table 2, are likely to be exceeded, the LA is required to declare an Air Quality Management Area (AQMA). For each AQMA the LA is required to produce an Air Quality Action Plan, the objective of which is to reduce pollutant concentrations in pursuit of the AQOs.

2.3 Dust

- 2.3.1 The main requirements with respect to dust control from industrial or trade premises not regulated under the Environmental Permitting (England and Wales) Regulations (2016) and subsequent amendments, such as construction sites, is that provided in Section 79 of Part III of the Environmental Protection Act (1990). The Act defines nuisance as:

"any dust, steam, smell or other effluvia arising on industrial, trade or business premises and being prejudicial to health or a nuisance."

2.3.2 Enforcement of the Act, in regard to nuisance, is currently under the jurisdiction of the local Environmental Health Department, whose officers are deemed to provide an independent evaluation of nuisance. If the LA is satisfied that a statutory nuisance exists, or is likely to occur or happen again, it must serve an Abatement Notice under Part III of the Environmental Protection Act (1990). The only defence is to show that the process to which the nuisance has been attributed and its operation are being controlled according to best practicable means.

2.4 National Planning Policy

2.4.1 The revised National Planning Policy Framework⁴ (NPPF) was published in December 2023 and sets out the Government's planning policies for England and how these are expected to be applied.

2.4.2 The purpose of the planning system is to contribute to the achievements of sustainable development. In order to ensure this, the NPPF recognises three overarching objectives including the following of relevance to air quality:

"c) 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."

2.4.3 Chapter 15 of the NPPF details objectives in relation to conserving and enhancing the natural environment. It 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, or being put at unacceptable risk from, or being adversely affected by, unacceptable levels of

⁴ NPPF, Ministry of Housing, Communities and Local Government, 2023.

soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality [...]."

- 2.4.4 The NPPF specifically recognises air quality as part of delivering sustainable development and states 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."

- 2.4.5 The implications of the NPPF have been considered throughout this assessment.

2.5 National Planning Practice Guidance

- 2.5.1 The National Planning Practice Guidance⁵ (NPPG) web-based resource was launched by the Department for Communities and Local Government on 6th March 2014 and updated on 1st November 2019 to support the NPPF and make it more accessible. The air quality pages are summarised under the following headings:

1. What air quality considerations does planning need to address?
2. What is the role of plan-making with regard to air quality?
3. Are air quality concerns relevant to neighbourhood planning?
4. What information is available about air quality?
5. When could air quality considerations be relevant to the development management process?

⁵ <https://www.gov.uk/guidance/air-quality--3>.

6. What specific issues may need to be considered when assessing air quality impacts?
7. How detailed does an air quality assessment need to be?
8. How can an impact on air quality be mitigated?

2.5.2 These were reviewed and the relevant guidance considered as necessary throughout the undertaking of this assessment.

2.6 Regional Planning Policy

2.6.1 The London Plan 2021⁶ is the Spatial Development Strategy for Greater London. It sets out a framework for how London will develop over the next 20-25 years and the Mayor's vision for Good Growth. Review of this document indicated the following of relevance to this report:

"Policy SI 1 - Improving Air Quality

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

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

1. Development proposals should not:

- a) lead to further deterioration of existing poor air quality
- b) create any new areas that exceed air quality limits, or delay the date at which compliance will be achieved in areas that are currently in exceedance of legal limits
- c) create unacceptable risk of high levels of exposure to poor air quality.

2. In order to meet the requirements of 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

⁶ The London Plan March 2021, GLA, 2021.

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.

C. 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:

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

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

D. In order to reduce the impact on air quality during the construction and demolition phase development proposals must demonstrate how they plan to comply with the Non-Road Mobile Machinery Low Emission Zone and reduce emissions from the demolition and construction of buildings following best practice guidance.

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

2.6.2 The requirements of these policies have been considered throughout this Air Quality Assessment.

2.7 **Local Planning Policy**

2.7.1 LBoH's development plan comprises a number of documents including the Strategic Policies 2013 - 2026⁷ and the Development Management Development Plan Document (DPD)⁸.

2.7.2 A review of the Strategic Policies 2013 - 2026 did not indicate any policies of relevance to this assessment.

2.7.3 A review of the Development Management DPD indicated the following policies of relevance to this assessment:

"Policy DM23: Environmental Protection

Air Quality

A All development proposals should consider air quality and be designed to:

a Improve or mitigate the impact on air quality in the Borough; and

b Improve or mitigate the impact on air quality for the occupiers of the building or users of the development.

B Air quality assessments will be required for all major development and other development proposals, where appropriate.

C Where necessary, adequate mitigation must be provided.

[...]."

2.7.4 The above policy was considered as necessary throughout the assessment.

⁷ Strategic Policies 2013 - 2026, LBoH, 2017.

⁸ Development Management DPD, LBoH, 2017.

3.0 METHODOLOGY

3.1 Introduction

3.1.1 The development may lead to the exposure of future staff and students to elevated pollutant levels, as well as cause air quality impacts at sensitive locations during the construction and operational phases. These issues were assessed in accordance with the following methodology.

3.2 Construction Phase Assessment

3.2.1 There is the potential for fugitive dust emissions to occur as a result of construction phase activities. These have been assessed in accordance with the methodology outlined within the Mayor of London's 'The Control of Dust and Emissions during Construction and Demolition Supplementary Planning Guidance'⁹.

3.2.2 Activities on the proposed construction site have been divided into four types to reflect their different potential impacts. These are:

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

3.2.3 The potential for dust emissions was assessed for each activity that is likely to take place and considered three separate dust effects:

- Annoyance due to dust soiling;
- Harm to ecological receptors; and,
- The risk of health effects due to a significant increase in exposure to PM₁₀.

3.2.4 The assessment steps are detailed below.

⁹ The Control of Dust and Emissions During Construction and Demolition Supplementary Planning Guidance, The Mayor of London, 2014.

Step 1 - Screen the Need for an Assessment

3.2.5 Step 1 screens the requirement for a more detailed assessment. Should human receptors be identified within 350m from the boundary, then the assessment proceeds to Step 2. Additionally, should ecological receptors be identified within 50m of the site, then the assessment also proceeds to Step 2.

3.2.6 Should sensitive receptors not be present within the relevant distances then **negligible** impacts would be expected and further assessment is not necessary.

Step 2 - Assess the Risk of Dust Impacts

3.2.7 Step 2 assesses the risk of potential dust impacts. A site is allocated a risk category based on two factors:

- The scale and nature of the works, which determines the magnitude of dust arising as: small, medium or large (Step 2A); and,
- The sensitivity of the area to dust impacts, which can be defined as low, medium or high sensitivity (Step 2B).

3.2.8 The two factors are combined in Step 2C to determine the risk of dust impacts without mitigation applied.

3.2.9 Step 2A defines the potential magnitude of dust emission through the construction phase. The relevant criteria are summarised in Table 3.

Table 3 Construction Dust - Magnitude of Emission

Magnitude	Activity	Criteria
Large	Demolition	• Total volume of building to be demolished greater than 50,000m³ • Potentially dusty material (e.g. concrete) • On-site crushing and screening • Demolition activities more than 20m above ground level

Magnitude	Activity	Criteria
	Earthworks	- Total site area greater than 10,000m² - Potentially dusty soil type (e.g. clay, which will be prone to suspension when dry due to small particle size) - More than 10 heavy earth moving vehicles active at any one time - Formation of bunds greater than 8m in height - More than 100,000 tonnes of material moved
	Construction	- Total building volume greater than 100,000m³ - On site concrete batching - Sandblasting
	Trackout	- More than 50 Heavy Duty Vehicle (HDV) trips per day - Potentially dusty surface material (e.g. high clay content) - Unpaved road length greater than 100m
Medium	Demolition	- Total volume of building to be demolished between 20,000m³ and 50,000m³ - Potentially dusty construction material - Demolition activities 10m to 20m above ground level
	Earthworks	- Total site area 2,500m² to 10,000m² - Moderately dusty soil type (e.g. silt) 5 to 10 heavy earth moving vehicles active at any one time - Formation of bunds 4m to 8m in height - Total material moved 20,000 tonnes to 100,000 tonnes
	Construction	- Total building volume 25,000m³ to 100,000m³ - Potentially dusty construction material (e.g. concrete) - On site concrete batching
	Trackout	10 to 50 HDV trips per day - Moderately dusty surface material (e.g. high clay content) - Unpaved road length 50m to 100m
Small	Demolition	- Total volume of building to be demolished less than 20,000m³ - Construction material with low potential for dust release (e.g. metal cladding or timber) - Demolition activities less than 10m above ground and during wetter months

Magnitude	Activity	Criteria
	Earthworks	- Total site area less than 2,500m² - Soil type with large grain size (e.g. sand) - Less than 5 heavy earth moving vehicles active at any one time - Formation of bunds less than 4m in height - Total material moved less than 20,000 tonnes - Earthworks during wetter months
	Construction	- Total building volume less than 25,000m³ - Construction material with low potential for dust release (e.g. metal cladding or timber)
	Trackout	- Less than 10 HDV trips per day - Surface material with low potential for dust release - Unpaved road length less than 50m

3.2.10 Step 2B defines the sensitivity of the area around the development to potential dust impacts. The sensitivities of specific receptors are summarised in Table 4.

Table 4 Construction Dust - Sensitivities of People and Ecological Receptors

Receptor Sensitivity	Examples	
	Human Receptors	Ecological Receptors
High	- Users expect high levels of amenity - High aesthetic or value property - People expected to be present continuously for extended periods of time - Locations where members of the public are exposed over a time period relevant to the AQO for PM₁₀. e.g. residential properties, hospitals, schools and residential care homes	Internationally or nationally designated site e.g. Special Area of Conservation
Medium	- Users would expect to enjoy a reasonable level of amenity - Aesthetics or value of their property could be diminished by soiling - 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 e.g. parks and places of work	Nationally designated site e.g. Sites of Special Scientific Interest

Receptor Sensitivity	Examples	
	Human Receptors	Ecological Receptors
Low	• Enjoyment of amenity would not reasonably be expected • Property would not be expected to be diminished in appearance • Transient exposure, where people would only be expected to be present for limited periods. e.g. public footpaths, playing fields, shopping streets, farmland, short term car parks and roads	• Locally designated site e.g. Local Nature Reserve

3.2.11 The criteria for determining the sensitivity of the area to dust soiling effects on people and property is summarised in Table 5.

Table 5 Construction Dust - Sensitivity of the Area to Dust Soiling Effects on People and Property

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

3.2.12 Table 6 outlines the criteria for determining the sensitivity of the area to human health impacts.

Table 6 Construction Dust - Sensitivity of the Area to Human Health Impacts

Receptor Sensitivity	Background Annual Mean PM ₁₀ Concentration	Number of Receptors	Distance from the Source (m)				
			Less than 20	Less than 50	Less than 100	Less than 200	Less than 350
High	Greater than 32µg/m ³	More than 100	High	High	High	Medium	Low
		10 - 100	High	High	Medium	Low	Low

Receptor Sensitivity	Background Annual Mean PM ₁₀ Concentration	Number of Receptors	Distance from the Source (m)				
			Less than 20	Less than 50	Less than 100	Less than 200	Less than 350
	28 - 32µg/m ³	1 - 10	High	Medium	Low	Low	Low
		More than 100	High	High	Medium	Low	Low
		10 - 100	High	Medium	Low	Low	Low
		1 - 10	High	Medium	Low	Low	Low
	24 - 28µg/m ³	More than 100	High	Medium	Low	Low	Low
		10 - 100	High	Medium	Low	Low	Low
		1 - 10	Medium	Low	Low	Low	Low
	Less than 24µg/m ³	More than 100	Medium	Low	Low	Low	Low
		10 - 100	Low	Low	Low	Low	Low
		1 - 10	Low	Low	Low	Low	Low
	Medium	-	High	Medium	Low	Low	Low
		-	Medium	Low	Low	Low	Low
Low	-	1 or more	Low	Low	Low	Low	Low

3.2.13 Table 7 outlines the criteria for determining the sensitivity of the area to ecological impacts.

Table 7 Construction Dust - Sensitivity of the Area to Ecological Impacts

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

3.2.14 Step 2C combines the dust emission magnitude with the sensitivity of the area to determine the risk of unmitigated impacts.

3.2.15 Table 8 outlines the risk category from demolition activities.

Table 8 Construction Dust - Dust Risk Category from Demolition Activities

Receptor Sensitivity	Dust Emission Magnitude		
	Large	Medium	Small
High	High	Medium	Medium
Medium	High	Medium	Low
Low	Low	Low	Negligible

3.2.16 Table 9 outlines the risk category from earthworks and construction activities.

Table 9 Construction Dust - Dust Risk Category from Earthworks and Construction Activities

Receptor Sensitivity	Dust Emission Magnitude		
	Large	Medium	Small
High	High	Medium	Low
Medium	Medium	Medium	Low
Low	Low	Low	Negligible

3.2.17 Table 10 outlines the risk category from trackout activities.

Table 10 Construction Dust - Dust Risk Category from Trackout Activities

Receptor Sensitivity	Dust Emission Magnitude		
	Large	Medium	Small
High	High	Medium	Low
Medium	Medium	Low	Negligible
Low	Low	Low	Negligible

Step 3 - Site-specific Mitigation

3.2.18 Step 3 requires the identification of site-specific mitigation measures within the Mayor of London's guidance¹⁰ to reduce potential dust impacts based upon the relevant risk categories identified in Step 2. For sites with **negligible** risk, mitigation measures beyond those required by legislation are not required. However, additional controls may be applied as part of good practice.

Step 4 - Determine Significant Effects

3.2.19 Once the risk of dust impacts has been determined and the appropriate mitigation measures identified, the final step is to determine the significance of any residual impacts. For almost all construction activity, the aim should be to control effects through the use of effective mitigation. Experience shows that this is normally possible. Hence the residual effect will normally be **not significant**.

3.2.20 The determination of significance relies on professional judgement and reasoning should be provided as far as practicable. The Mayor of London's guidance suggests the provision of details of the assessor's qualifications and experience. These are provided in Appendix 2.

3.3 Operational Phase Assessment

Potential Future Exposure

3.3.1 The proposals have the potential to expose future staff and students to elevated pollution levels. In order to assess NO₂, PM₁₀ and PM_{2.5} concentrations across the development site, detailed dispersion modelling was undertaken. Reference should be made to Appendix 1 for a full description of the assessment input data.

3.3.2 The results of the assessment were compared against the Air Pollution Exposure Criteria (APEC) contained within the London Councils Air Quality and Planning Guidance¹¹. These

¹⁰ The Control of Dust and Emissions During Construction and Demolition Supplementary Planning Guidance, The Mayor of London, 2014.

¹¹ London Councils Air Quality and Planning Guidance, London Councils, 2007.

are outlined in Table 11 and allow determination of the significance of predicted pollution levels and associated exposure.

Table 11 Future Exposure Assessment Criteria

Category	Applicable Range		Recommendation
	Annual Mean NO ₂ and PM ₁₀	24-hour PM ₁₀	
APEC - A	Below 5% of the annual mean AQO	> 1-day less than AQO	No air quality grounds for refusal; however, mitigation of any emissions should be considered
APEC - B	Between 5% below or above the annual mean AQO	Between 1-day above or below AQO	May not be sufficient air quality grounds for refusal, however appropriate mitigation must be considered e.g., Maximise distance from pollutant source, proven ventilation systems, parking considerations, winter gardens, internal layout considered and internal pollutant emissions minimised
APEC - C	Above 5% of the annual mean AQO	> 1-day more than AQO	Refusal on air quality grounds should be anticipated, unless the LA has a specific policy enabling such land use and ensure best endeavours to reduce exposure are incorporated. Worker exposure in commercial/industrial land uses should be considered further. Mitigation measures must be presented with air quality assessment, detailing anticipated outcomes of mitigation measures

3.3.3 It should be noted that a significant area of London would fall under APEC - C due to high NO₂ concentrations throughout the city. As such, a presumption against planning consent in these locations may result in large areas of land becoming undevelopable and prevent urban regeneration. The inclusion of suitable mitigation measures to protect future site users is therefore considered an appropriate way to progress sustainable schemes in these locations and has been considered within this assessment.

Potential Development Impacts

3.3.4 The development has the potential to increase concentrations of NO₂, PM₁₀ and PM_{2.5} as a result of road traffic exhaust emissions associated with vehicles travelling to and from the site during the operational phase. A screening assessment was therefore undertaken using the criteria contained within the Institute of Air Quality Management (IAQM) 'Land-

Use Planning & Development Control: Planning for Air Quality¹² guidance to determine the potential for trips generated by the development to affect local air quality.

3.3.5 The following criteria are provided to help establish when an assessment of potential impacts on the local area is likely to be considered necessary:

- The development leads to a change of Light Duty Vehicle (LDV) flows of:
 - More than 100 Annual Average Daily Traffic (AADT) within an AQMA;
 - More than 500 AADT outside of an AQMA;
- The development leads to a change of HDV flows of:
 - More than 25 AADT within an AQMA;
 - More than 100 AADT outside of an AQMA;
- Introduce a new junction that would cause traffic flow to change behaviour with respect to acceleration/deceleration or introduce queueing traffic where there previously wasn't any (such as a roundabout or traffic lights); and,
- Introduce one or more significant combustion processes where there is a risk of impact to relevant receptors.

3.3.6 Should these criteria not be met, then the IAQM guidance¹³ considers air quality impacts associated with a scheme to be **not significant** and no further assessment is required. Where the screening criteria is met, further assessment including atmospheric dispersion modelling of impacts, may be required.

¹² Land-Use Planning & Development Control: Planning for Air Quality, IAQM, 2017.

¹³ Land-Use Planning & Development Control: Planning for Air Quality, IAQM, 2017.

4.0 BASELINE

4.1 Introduction

- 4.1.1 Existing air quality conditions in the vicinity of the proposed development site were identified in order to provide a baseline for assessment. These are detailed in the following Sections.

4.2 Local Air Quality Management

- 4.2.1 As required by the Environment Act (1995), as amended by the Environment Act (2021), LBoH has undertaken Review and Assessment of air quality within their area of jurisdiction. This process has indicated that annual mean concentrations of NO₂ and 24-hour mean concentrations of PM₁₀ are above the AQOs within the borough. One AQMA has therefore been declared. This is described as follows:

"The whole borough."

- 4.2.2 The development is located within the AQMA. As such, there is the potential for the exposure of future staff and students to poor air quality, as well as vehicles travelling to and from the site to increase pollution levels in this sensitive area. This has been considered throughout the assessment.
- 4.2.3 LBoH has concluded that concentrations of all other pollutants considered within the AQS are currently below the relevant AQOs. As such, no further AQMAs have been designated.

4.3 Air Quality Focus Areas

- 4.3.1 Air Quality Focus Areas (AQFAs) have been designated throughout London in locations where the annual mean AQO for NO₂ is exceeded and there is a high level of human exposure. They were defined to address concerns raised by boroughs within the LAQM review process and forecasted air pollution trends.

- 4.3.2 Review of the London Atmospheric Emissions Inventory (LAEI) indicated the site is located within an AQFA. This covers Tottenham Hale Gyratory and A10 High Road to Bruce Grove. This has been considered throughout the assessment.

4.4 **Air Quality Monitoring**

- 4.4.1 Monitoring of pollutant concentrations is undertaken by LBoH throughout their area of jurisdiction. Recent NO₂ results recorded in the vicinity of the development, as provided in the 'LBoH Annual Air Quality Status Report 2022'¹⁴, are shown in Table 12.

Table 12 Monitoring Results

Monitoring Site		Annual Mean NO ₂ Concentration (µg/m ³)			
		2019	2020	2021	2022
HR30	Earlsmead Primary School, N17	39.6	33.12	30.1	32.1
HR36	Holy Trinity CE School, Tottenham	33.9	29.11	29.1	29.3
HR38	Welbourne School N15	24.5	21.36	22.4	23.6

- 4.4.2 As shown in Table 12, annual mean NO₂ concentrations were below the AQO of 40µg/m³ at all monitors in recent years.
- 4.4.3 It is noted that pollutant concentrations recorded during 2020 and 2021 were affected by changes to travel patterns associated with the COVID-19 pandemic. The results should therefore be viewed with caution.
- 4.4.4 LBoH do not undertake monitoring of PM₁₀ or PM_{2.5} concentrations within the vicinity of the site.

4.5 **Background Pollutant Concentrations**

- 4.5.1 Predictions of background pollutant concentrations on a 1km by 1km grid basis have been produced by DEFRA for the entire of the UK to assist LAs in their Review and Assessment of air quality. The proposed development site is located in grid square NGR:

¹⁴ LBoH Annual Air Quality Status Report 2022, LBoH, 2023.

533500, 189500. Data for this location was downloaded from the DEFRA website¹⁵ for the purpose of this assessment and is summarised in Table 13.

Table 13 Background Pollutant Concentrations

Pollutant	Predicted Background Pollutant Concentration (µg/m ³)		
	2019	2024	2025
NO ₂	25.05	20.24	19.64
PM ₁₀	19.87	18.51	18.30
PM _{2.5}	13.01	12.13	11.98

4.5.2 As shown in Table 13, predicted background NO₂ and PM₁₀ concentrations are below the relevant AQOs and AQLV at the proposed development site. Predicted annual mean PM_{2.5} concentrations are above the Interim Target during 2019 and 2024, though levels are below in 2025.

4.6 Sensitive Receptors

4.6.1 A sensitive receptor is defined as any location which may be affected by changes in air quality as a result of a development. Receptors sensitive to potential dust impacts during demolition, earthworks and construction were identified from a desk-top study of the area up to 350m from the development boundary. These are summarised in Table 14.

Table 14 Demolition, Earthworks and Construction Dust Sensitive Receptors

Distance from Site Boundary (m)	Approximate Number of Human Receptors	Approximate Number of Ecological Receptors
Up to 20	More than 100	0
Up to 50	More than 100	0
Up to 100	More than 100	-
Up to 350	More than 100	-

¹⁵ <https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2018>.

- 4.6.2 Receptors sensitive to potential dust impacts from trackout were identified from a desk-top study of the area up to 50m from the road network within 500m of the site access. These are summarised in Table 15.

Table 15 Trackout Dust Sensitive Receptors

Distance from Site Access Route (m)	Approximate Number of Human Receptors	Approximate Number of Ecological Receptors
Up to 20	More than 100	0
Up to 50	More than 100	0

- 4.6.3 There are no ecological receptors within 50m of the development boundary or the access route within 500m of the site entrance. As such, ecological impacts have not been assessed further within this report.
- 4.6.4 Based on the criteria shown in Table 4, the sensitivity of the receiving environment to potential dust impacts was determined as **high**. This was because the identified receptors include the College of North East London Tottenham Centre and residential properties.

5.0 CONSTRUCTION PHASE ASSESSMENT

5.1 Introduction

- 5.1.1 There is the potential for air quality impacts as a result of the construction of the proposed development. These are assessed in the following Sections.

5.2 Step 1 - Screen the Need for an Assessment

- 5.2.1 The undertaking of activities such as demolition, excavation, ground works, cutting, construction and storage of materials has the potential to result in fugitive dust emissions throughout the construction phase. Vehicle movements on the local road network also have the potential to result in the re-suspension of dust from highway surfaces.
- 5.2.2 The potential for impacts at sensitive locations depends significantly on local meteorology during the undertaking of dust generating activities, with the most significant effects likely to occur during dry and windy conditions.
- 5.2.3 The desk-study undertaken to inform the baseline identified a number of sensitive receptors within 350m of the site boundary. As such, a detailed assessment of potential dust impacts was required.

5.3 Step 2a - Define the Potential Dust Emission Magnitude

Demolition

- 5.3.1 Demolition will be undertaken at the start of the construction phase and will involve clearance of the existing gym/lecture theatre. The total building volume to be demolished is less than 20,000m³ with activities taking place between 10m and 20m above ground level. In accordance with the criteria outlined in Table 3, the magnitude of potential dust emissions from demolition is therefore **medium**.

Earthworks

- 5.3.2 Earthworks will primarily involve excavating material, haulage, tipping and stockpiling. The proposed development site covers an area of less than 2,500m², there will be less than five heavy earth moving vehicles on-site at any one time and stockpiles will be less than 4m in height. In accordance with the criteria outlined in Table 3, the magnitude of potential dust emissions from earthworks is therefore **small**.

Construction

- 5.3.3 The total proposed building volume is between 25,000m³ and 100,000m³ and the main construction material will be concrete. In accordance with the criteria outlined in Table 3, the magnitude of potential dust emissions from construction is therefore **medium**.

Trackout

- 5.3.4 Based on the total site area it is anticipated that the unpaved road length will be less than 50m. Additionally, the access route will be comprised of tarmac. In accordance with the criteria outlined in Table 3, the magnitude of potential dust emissions from trackout is therefore **small**.

5.4 Step 2b - Define the Sensitivity of the Area

Dust Soiling

- 5.4.1 Table 14 shows that there are more than 100 high sensitivity receptors within 50m of the site boundary. The sensitivity of the area with respect to dust soiling from demolition, earthworks and construction, as defined using the criteria summarised in Table 5, is therefore considered to be **high**.
- 5.4.2 Table 15 shows that there are more than 100 high sensitivity receptors within 20m of the road network within 500m of the site access. The sensitivity of the area with respect to dust soiling from trackout, as defined using the criteria summarised in Table 5, is therefore considered **high**.

Human Health

- 5.4.3 Table 13 shows the annual mean PM₁₀ background concentration at the site is 20.24µg/m³. As shown in Table 6, where the background annual mean PM₁₀ concentration is below 24µg/m³ and there are more than 100 high sensitivity receptors within 20m of the site boundary, the sensitivity of the area with respect to human health from demolition, earthworks and construction is considered to be **medium**.
- 5.4.4 There are more than 100 high sensitivity receptors within 20m of the road network within 500m of the site access. The sensitivity of the area with respect to human health from trackout, as defined using the criteria summarised in Table 6, is therefore considered to be **medium**.

5.5 Step 2c - Define the Risk of Dust Impacts

- 5.5.1 The derived dust emission magnitude for each activity was combined with the sensitivity of the area to determine the risk of unmitigated impacts in line with the methodology set out in Table 8, Table 9 and Table 10. A summary of the risk from each dust generating activity is provided in Table 16.

Table 16 Summary of Potential Unmitigated Dust Risks

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

- 5.5.2 As indicated in Table 16, the potential risk of dust soiling is **medium** from demolition and construction and **low** from earthworks and trackout. The potential risk of human health impacts is **medium** from demolition and construction, **low** from earthworks and **negligible** from trackout.
- 5.5.3 It should be noted that the potential for impacts depends significantly on the distance between the dust generating activity and receptor location. Risk was predicted based on a worst-case scenario of works being undertaken at the site boundary closest to each

sensitive area. Therefore, actual risk is likely to be lower than that predicted during the majority of the construction phase.

5.6 **Step 3 - Site-specific Mitigation**

5.6.1 The Mayor of London's guidance¹⁶ provides potential mitigation measures to reduce impacts as a result of fugitive dust emissions during the construction phase. These have been adapted for the development site as summarised in Table 17. These may be reviewed prior to the commencement of construction works and incorporated into a Construction Environmental Management Plan if required by the LA.

Table 17 Fugitive Dust Emission Mitigation Measures

Issue	Control Measure
Site management	• Develop and implement a stakeholder communications plan that includes community engagement before work commences on site • Develop a Dust Management Plan • Display the name and contact details of person(s) accountable for air quality 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 the complaints log available to the LA when asked • Carry out regular site inspections, record inspection results, and make an inspection log available to the LA upon request • 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 are being carried out, and during prolonged dry or windy conditions • Record any exceptional incidents, either on or off the site, and the action taken to resolve the situation is recorded in the log book

¹⁶ The Control of Dust and Emissions During Construction and Demolition Supplementary Planning Guidance, The Mayor of London, 2014.

Issue	Control Measure
Preparing and maintaining the site	• Plan site layout: machinery and dust causing activities should be located away from receptors • Fully enclose site specific operations where there is a high potential for dust production and the site is active for an extensive period • Erect solid screens or barriers around dusty activities or the site • Avoid site runoff of water or mud • Keep site fencing, barriers and scaffolding clean using wet methods • Remove materials from site as soon as possible • Cover, seed or fence stockpiles to prevent wind whipping
Operating vehicle/machinery and sustainable travel	• Ensure all on-road vehicles comply with the requirements of the London Low Emission Zone • Ensure all Non-Road Mobile Machinery comply with the relevant standards • 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 • Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials • Implement a Travel Plan that supports and encourages sustainable travel
Operations	• Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques • Ensure an adequate water supply on the site for effective dust/particulate matter mitigation (using recycled water where possible) • Use enclosed chutes and conveyors and covered skips • Minimise drop heights and use fine water sprays wherever appropriate • Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable using wet cleaning methods
Waste management	• Reuse and recycle waste to reduce dust from waste materials, as set out in the Waste Management Plan • Avoid bonfires and burning of waste materials
Demolition	• 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

Issue	Control Measure
Construction	• Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out • Avoid scabbling (roughening of concrete surfaces) if possible • Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos to prevent escape of material
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 site are covered to prevent escape of materials • Implement a wheel washing system, if required

5.7 Step 4 - Determine Significant Effects

- 5.7.1 Assuming the relevant mitigation measures outlined in Table 17 are implemented, the residual impacts from all dust generating activities are predicted to be **not significant**, in accordance with the Mayor of London's guidance¹⁷.

¹⁷ The Control of Dust and Emissions During Construction and Demolition Supplementary Planning Guidance, The Mayor of London, 2014.

6.0 OPERATIONAL PHASE ASSESSMENT

6.1 Introduction

- 6.1.1 There is the potential for air quality impacts as a result of the operation of the proposed development. These are assessed in the following Sections.

6.2 Potential Future Exposure

- 6.2.1 The proposed development has the potential to expose future staff and students to elevated pollution levels. Dispersion modelling was therefore undertaken with the inputs described in Appendix 1 to quantify air quality conditions at the site. Reference should be made to Figures 4 to 7 for graphical representations of the results.
- 6.2.2 Predicted concentrations above 5% of the annual mean AQO are shown in blue on the contour plots. These relate to areas defined as APEC - C within the London Councils Air Quality and Planning Guidance¹⁸. Predicted concentrations between 5% below and 5% above the AQO are shown in green. These relate to areas defined as APEC - B within the guidance. Predicted concentrations below 5% of the annual mean AQO are shown in white on the contour plots. These relate to areas defined as APEC - A within the guidance.
- 6.2.3 As shown in Figure 4, the maximum predicted annual mean NO₂ concentration at the site boundary was 35.48µg/m³, which is classified as APEC - A in accordance London Councils Air Quality and Planning Guidance¹⁹.
- 6.2.4 As shown in Figure 5, the maximum predicted annual mean PM₁₀ concentration at the site boundary was 21.75µg/m³, which is classified as APEC - A in accordance with the London Councils Air Quality and Planning Guidance²⁰.
- 6.2.5 As show in Figure 6, the number of days with PM₁₀ concentrations greater than 50µg/m³ was predicted to be below the permitted number of 35 across the development. Levels

¹⁸ London Councils Air Quality and Planning Guidance, London Councils, 2007.

¹⁹ London Councils Air Quality and Planning Guidance, London Councils, 2007.

²⁰ London Councils Air Quality and Planning Guidance, London Councils, 2007.

are classified as APEC - A in accordance with the London Councils Air Quality and Planning Guidance²¹.

6.2.6 As shown in Figure 7, annual mean PM_{2.5} concentrations were predicted to be below the AQLV of 20µg/m³ across the development. The maximum level was 14.06µg/m³. This is above the Interim Target of 12µg/m³. However, it is anticipated that vehicle exhaust emission rates and background concentrations will improve in future years through local and national policy initiatives. Therefore, annual mean PM_{2.5} concentrations will reduce across the proposed development site by 2028.

6.2.7 Based on the assessment results, the site is considered suitable for the proposed end-use from an air quality perspective without the inclusion of mitigation.

6.3 Potential Development Impacts

6.3.1 The development has been assessed against the IAQM screening criteria²² detailed in Section 3.3. The Transport Statement²³ for the scheme prepared by Ardent, the Transport Consultants for the project, indicates there will be a loss of 17 car parking spaces as a result of the proposals and will therefore lead to a net reduction in vehicle trips. As such, air quality impacts associated with the scheme are predicted to be **not significant**.

²¹ London Councils Air Quality and Planning Guidance, London Councils, 2007.

²² Land-Use Planning & Development Control: Planning for Air Quality, IAQM, 2017.

²³ Tottenham Centre, London Borough of Haringey, Transport Statement, Ardent, 2024.

7.0 AIR QUALITY NEUTRAL ASSESSMENT

7.1 Introduction

7.1.1 The London Plan²⁴ requires that all developments are 'air quality neutral' to ensure proposals do not lead to further deterioration of existing poor air quality. In order to support the policy, guidance²⁵ has been produced by the GLA. The document provides a methodology for determining potential emissions from a development and benchmark values for comparison purposes.

7.1.2 There are two sets of benchmarks which cover the main sources of air pollution from new developments. These are:

- Building Emissions Benchmark (BEB) - emissions from equipment used to supply heat and energy to the buildings; and,
- Transport Emissions Benchmark (TEB) - emissions from private vehicles travelling to and from the development.

7.1.3 A development must meet both benchmarks separately in order to be Air Quality Neutral. Where one or both benchmarks are exceeded, appropriate action is required, either by on-site mitigation measures or by way of off-setting.

7.1.4 The Air Quality Neutral Assessment for the proposed development is provided in the following Sections.

7.2 Building Emissions

7.2.1 The guidance²⁶ indicates that where developments include new heating systems, they can be assumed to meet the BEB if they include the following:

- Heat pump or other zero-emission heat source.

²⁴ The London Plan - The Spatial Development Strategy for Greater London, GLA, 2021.

²⁵ London Plan Guidance: Air Quality Neutral, GLA, 2023.

²⁶ London Plan Guidance: Air Quality Neutral, GLA, 2023.

- 7.2.2 It is confirmed that heating and hot water will be provided through Air Source Heat Pumps (ASHPs) and Air Handling Units (AHUs). These do not produce emissions to atmosphere. As such, the proposals are considered to be air quality neutral from a building emissions perspective and no further mitigation is required.

7.3 Transport Emissions

- 7.3.1 The guidance²⁷ states the following in respect to the TEB:

"Developments, including major developments, that do not include additional emissions sources are assumed to be Air Quality Neutral and meet the Air Quality Neutral benchmarks [...] This would include, for example, [...] developments that do not lead to an increase in motor vehicle movements [...]"

- 7.3.2 The proposed development will not generate an increase in vehicle movements. As such, the proposals are considered to be air quality neutral from a transport emissions perspective and no further mitigation is required.

7.4 Summary

- 7.4.1 Potential emissions from the development were assessed in order to determine compliance with the air quality neutral requirements of the London Plan.
- 7.4.2 The building energy strategy includes the use of ASHPs and AHUs, which do not produce emissions to atmosphere. As such, the development is air quality neutral from a building emissions perspective.
- 7.4.3 The development does not lead to an increase in motor vehicle movements. As such, the development is air quality neutral from a transport emissions perspective.
- 7.4.4 Based on the above, the development is considered air quality neutral in accordance with the GLA guidance²⁸.

²⁷ London Plan Guidance: Air Quality Neutral, GLA, 2023.

²⁸ London Plan Guidance: Air Quality Neutral, GLA, 2023.

8.0 CONCLUSION

- 8.1.1 Redmore Environmental Ltd was commissioned by Introba Consulting to undertake an Air Quality Assessment in support of the Construction and Engineering Centre at the College of Haringey, Enfield and North East London, Tottenham.
- 8.1.2 The development may lead to the exposure of future staff and students to elevated pollutant levels, as well as cause air quality impacts at sensitive locations during the construction and operational phases. As such, an Air Quality Assessment was undertaken in order to determine baseline conditions at the site, consider its suitability for the proposed end-use and assess potential impacts associated with the scheme.
- 8.1.3 During the construction phase of the development there is the potential for air quality impacts as a result of fugitive dust emissions from the site. These were assessed in accordance with the Mayor of London's methodology. Site-specific dust control measures were subsequently determined based on the identified risk ratings. Subject to implementation, residual air quality impacts from dust generated by demolition, earthworks, construction and trackout activities are predicted to be **not significant**.
- 8.1.4 The proposal has the potential to expose future staff and students to elevated pollution levels. Dispersion modelling was therefore undertaken using ADMS-Roads in order to predict concentrations as a result of emissions from the highway network. Results were subsequently verified using local monitoring data.
- 8.1.5 The results of the dispersion modelling assessment indicated that predicted annual mean NO₂ and PM₁₀ concentrations were categorised as APEC - A in accordance with the London Councils Air Quality and Planning Guidance. Predicted annual mean PM_{2.5} concentrations were below the AQLV at all locations across the development. As such, the site is considered suitable for the proposed end-use from an air quality perspective.
- 8.1.6 Potential impacts during the operational phase of the proposed development may occur due to road traffic exhaust emissions associated with vehicles travelling to and from the site. These were assessed against the screening criteria provided within the IAQM guidance. This indicated road traffic exhaust impacts were predicted to be **not significant**.

8.1.7 Potential emissions from the development were assessed in order to determine compliance with the air quality neutral requirements of the London Plan. The building energy strategy includes the use of ASHPs and AHUs, which do not produce emissions to atmosphere. Additionally, the development will not generate any additional vehicle movements. Based on the assessment results, the development was considered to be air quality neutral.

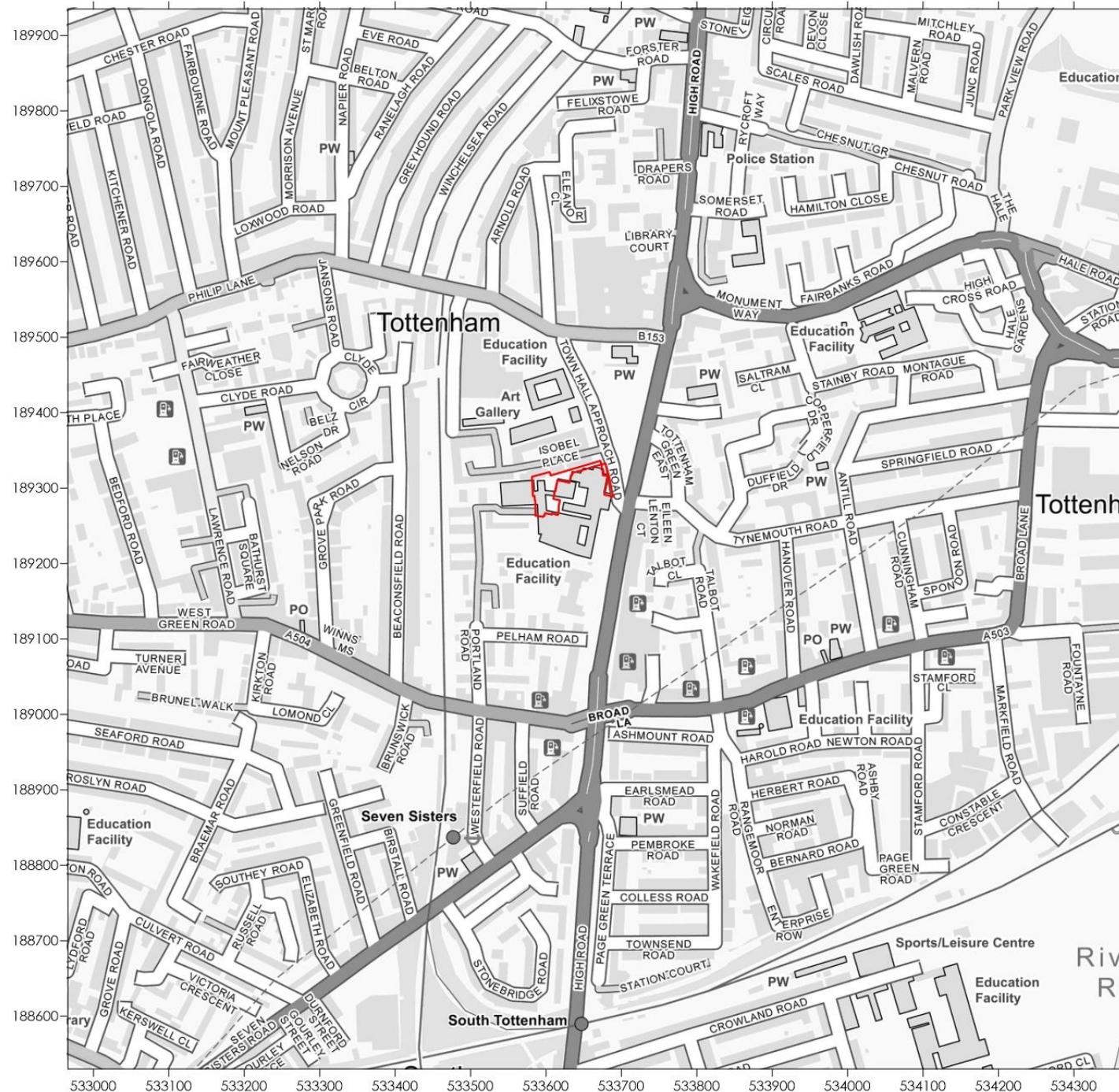
8.1.8 Based on the assessment results, air quality factors are not considered a constraint to planning consent for the development.

9.0 **ABBREVIATIONS**

AADT	Annual Average Daily Traffic
ADM	Atmospheric Dispersion Modelling
AHU	Air Handling Unit
APEC	Air Pollution Exposure Criteria
AQFA	Air Quality Focus Area
AQLV	Air Quality Limit Value
AQMA	Air Quality Management Area
AQO	Air Quality Objective
AQS	Air Quality Strategy
ASHP	Air Source Heat Pump
BEB	Building Emissions Benchmark
CERC	Cambridge Environmental Research Consultants
DEFRA	Department for Environment, Food and Rural Affairs
DfT	Department for Transport
DPD	Development Plan Document
GLA	Greater London Authority
HDV	Heavy Duty Vehicle
HGV	Heavy Goods Vehicle
IAQM	Institute of Air Quality Management
LA	Local Authority
LAEI	London Atmospheric Emissions Inventory
LAQM	Local Air Quality Management
LBoH	London Borough of Haringey
LGV	Light Goods Vehicle
NB	Northbound
NGR	National Grid Reference
NO ₂	Nitrogen dioxide
NO _x	Oxides of nitrogen
NPPF	National Planning Policy Framework
NPPG	National Planning Practice Guidance
PM ₁₀	Particulate matter with an aerodynamic diameter of less than 10µm
PM _{2.5}	Particulate matter with an aerodynamic diameter of less than 2.5µm
SB	Southbound
SP	Slow Phase

TEB	Transport Emissions Benchmark
Z0	Roughness length

Figures



Legend



Site Boundary

Title

Figure 1 - Site Location Plan

Project

Air Quality Assessment
College of Haringey, Enfield and
North East London, Tottenham

Project Reference

7689

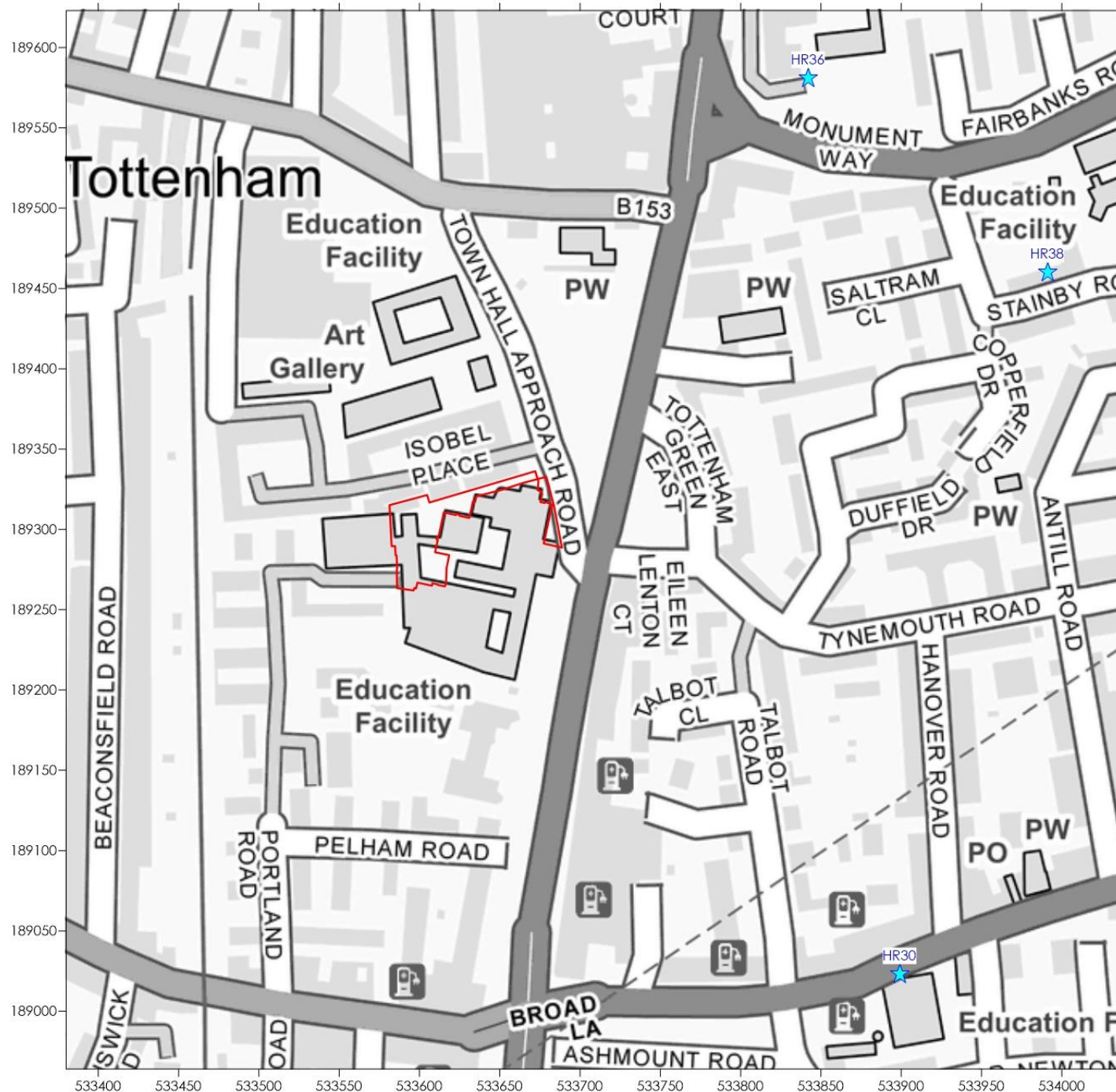
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Legend

-  Site Boundary
-  Monitor

Title

Figure 2 - Monitoring Locations

Project

Air Quality Assessment
College of Haringey, Enfield and
North East London, Tottenham

Project Reference

7689

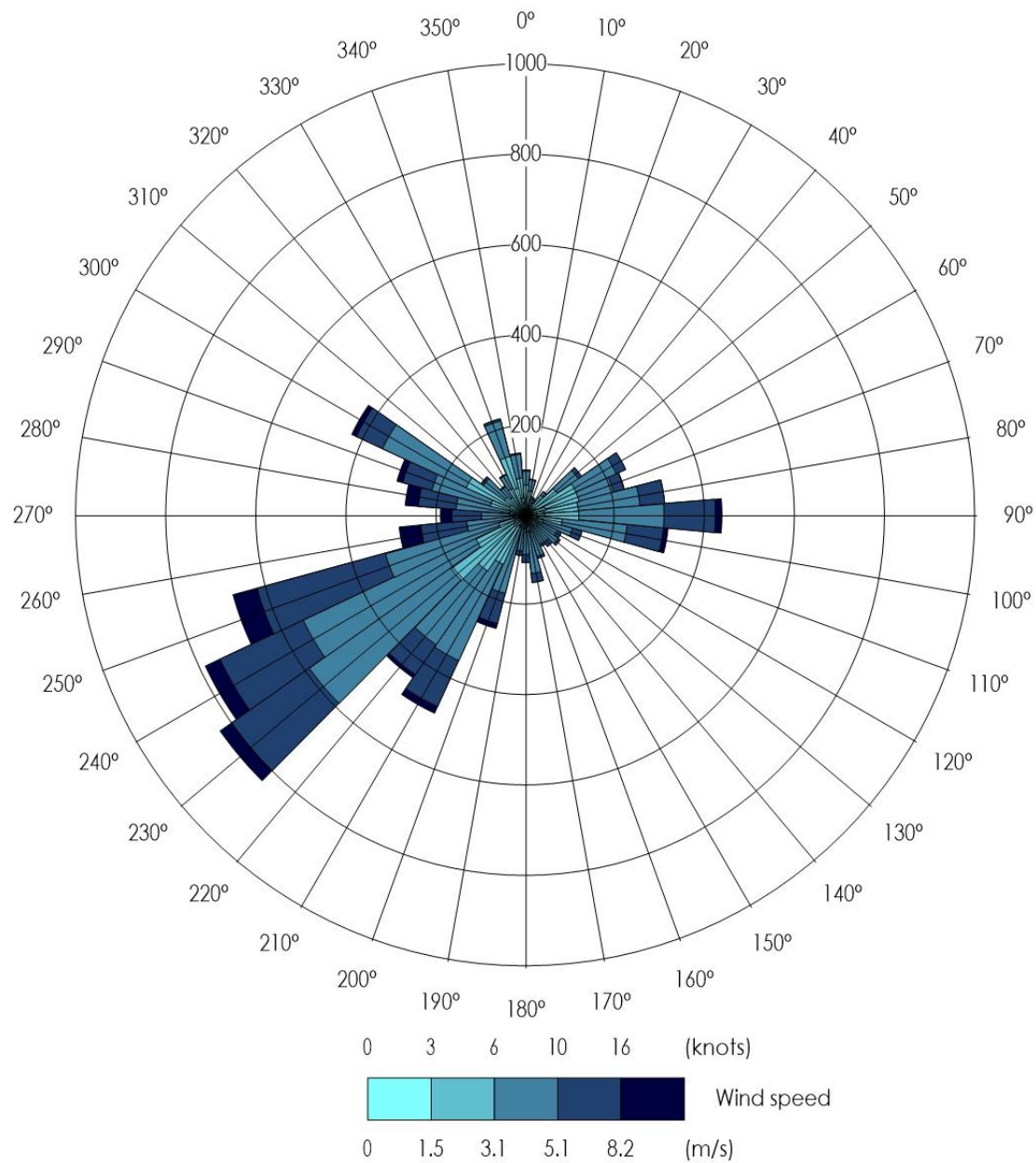
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Title

Figure 3 - Wind Rose of 2019
London City Airport Meteorological
Data

Project

Air Quality Assessment
College of Haringey, Enfield and
North East London, Tottenham

Project Reference

7689

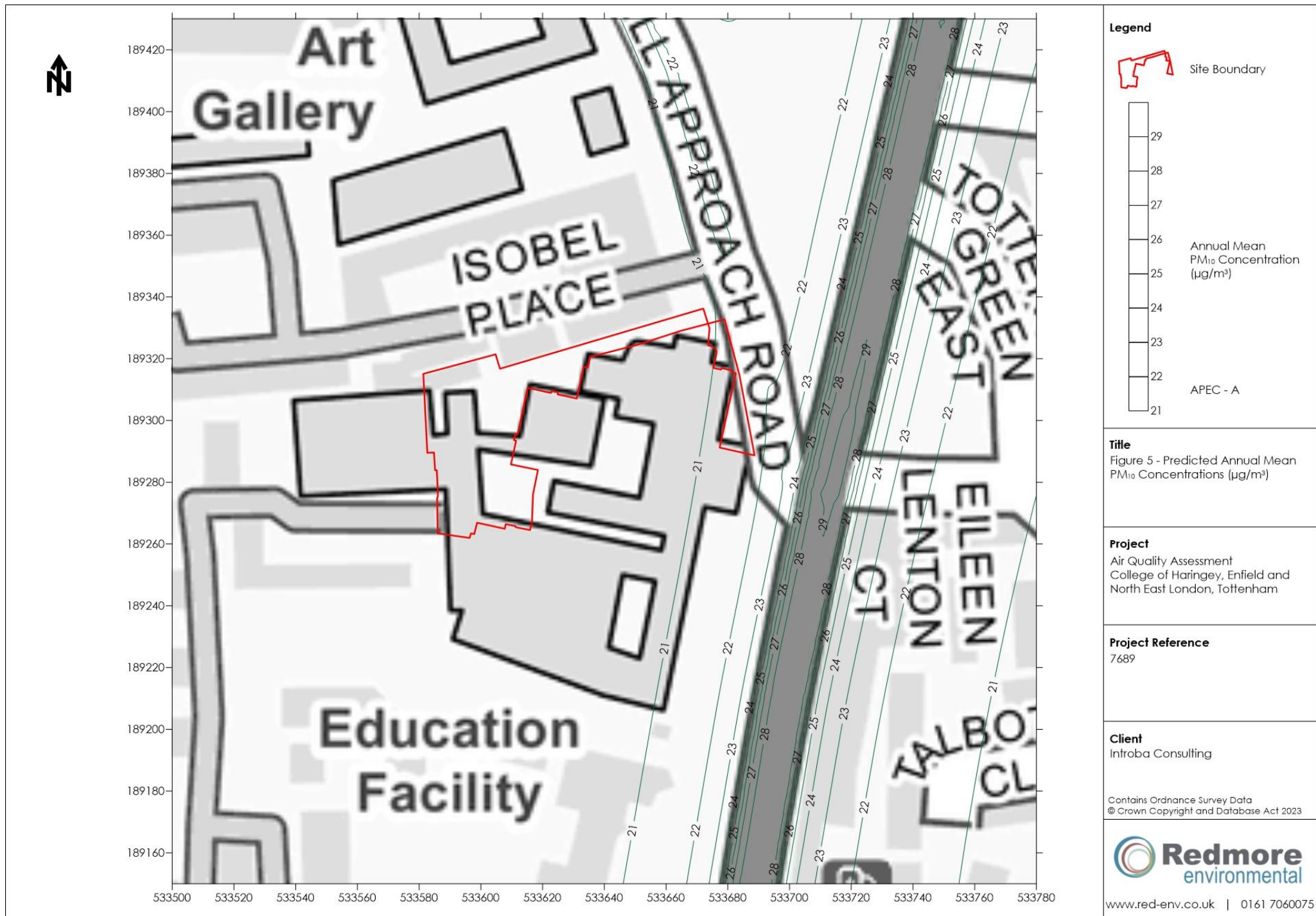
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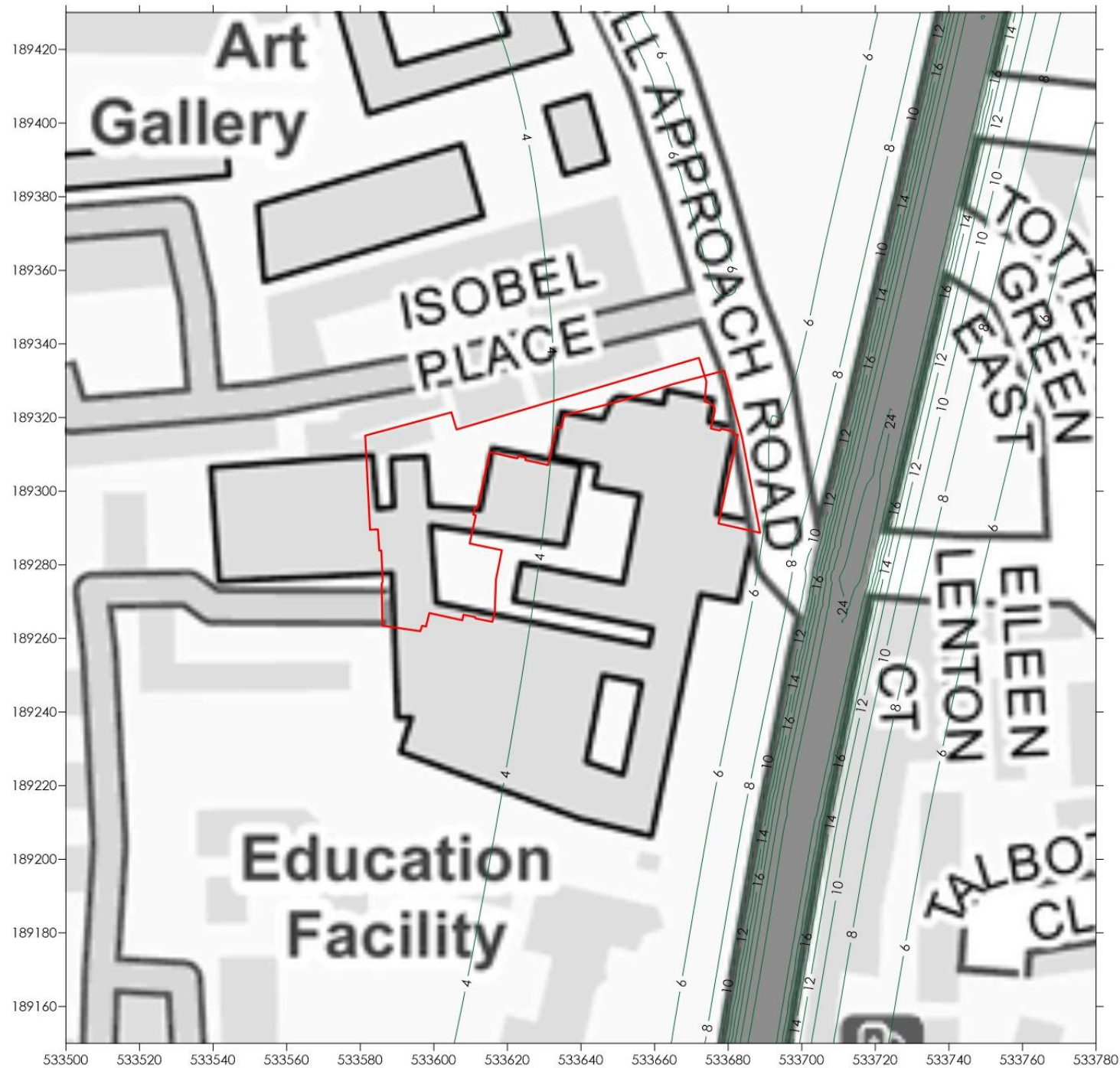
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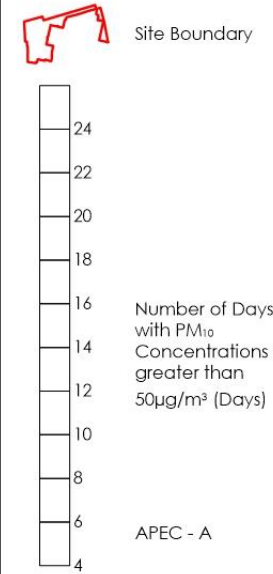
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Figure 6 - Predicted Number of Days with PM₁₀ Concentrations greater than 50µg/m³ (Days)

Project

Air Quality Assessment
College of Haringey, Enfield and North East London, Tottenham

Project Reference

7689

Client

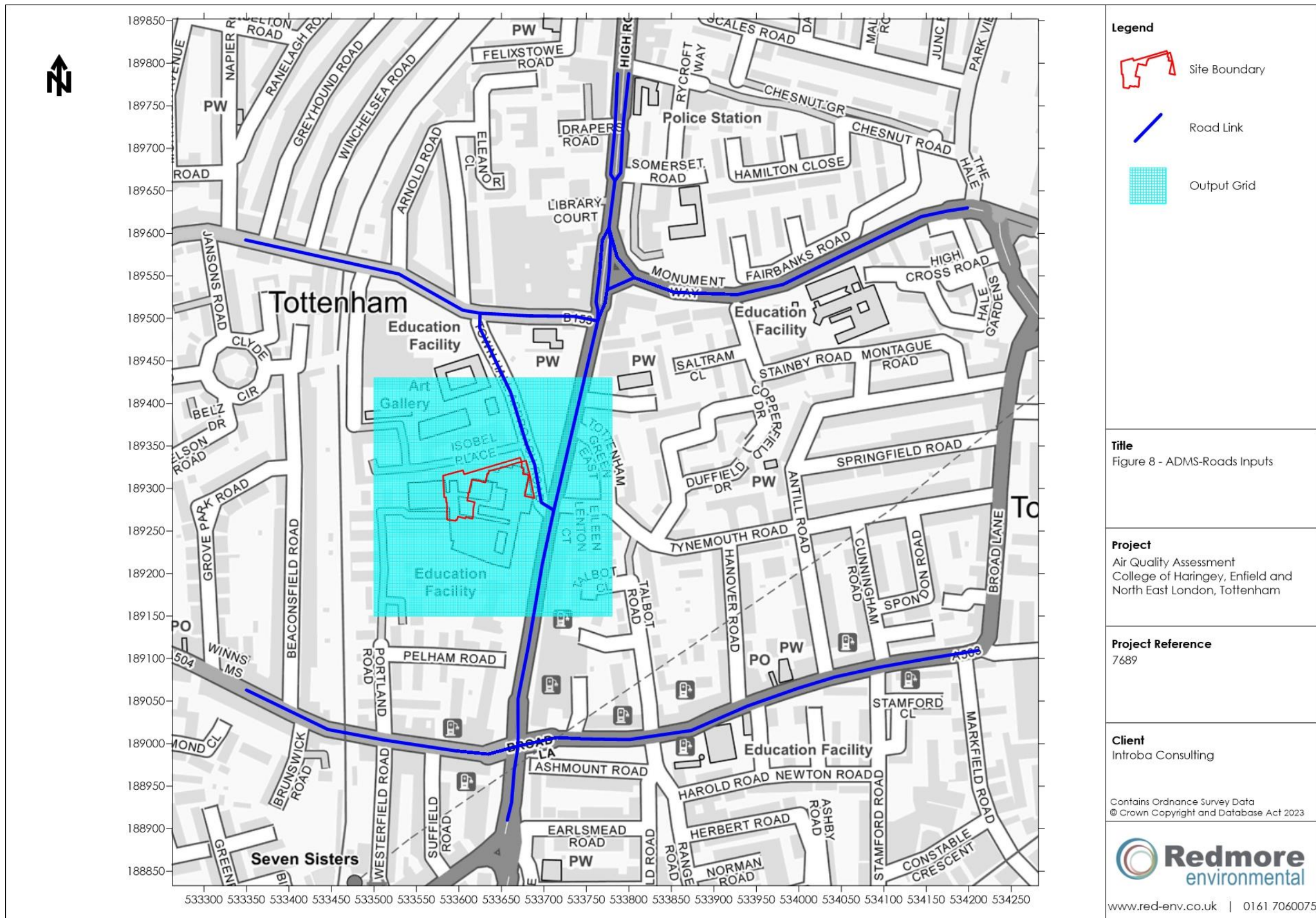
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Appendix 1 - Assessment Input Data

Introduction

The proposed development has the potential to expose future staff and students to elevated pollutant levels. In order to assess NO₂, PM₁₀ and PM_{2.5} concentrations across the site, detailed dispersion modelling was undertaken in accordance with the following methodology.

Modelling was undertaken for 2019 to allow verification against recent monitoring results and 2025 to represent likely conditions in the opening year of the scheme.

Dispersion Model

Dispersion modelling was undertaken in order to predict NO₂, PM₁₀ and PM_{2.5} concentrations across the site using the ADMS-Roads dispersion model (version 5.0.1.3). ADMS-Roads is developed by Cambridge Environmental Research Consultants (CERC) and is routinely used throughout the world for the prediction of pollutant dispersion from road sources. Modelling predictions from this software package are accepted within the UK by the Environment Agency and DEFRA.

The model requires input data that details the following parameters:

- Assessment area;
- Traffic flow data;
- Vehicle emission factors;
- Spatial co-ordinates of emissions;
- Street width;
- Meteorological data;
- Roughness length (z_0); and,
- Monin-Obukhov length.

The relevant inputs are detailed in the following Sections.

Assessment Area

Ambient concentrations were predicted over the area NGR: 533500, 189150 to 533780, 189430. One Cartesian grid was included within the model to produce data suitable for contour plotting using the Surfer software package.

It should be noted that although the grid only covered the proposed site, road links were extended in order to ensure the impact of all relevant vehicle emissions in the vicinity of the development were considered.

Reference should be made to Figure 8 for a graphical representation of the assessment grid extents.

Traffic Flow Data

Baseline traffic data for use in the assessment was obtained from the latest version of the LAEI, 2019²⁹. The LAEI was produced by the GLA and provides traffic flows throughout London for a number of scenarios. It should be noted that the LAEI is referenced in GLA guidance³⁰ as being a suitable source of data for air quality assessments and is therefore considered to provide a reasonable estimate of traffic flows in the vicinity of the site.

The baseline traffic data was converted to the opening year of the development utilising a factor obtained from TEMPro (Version 8.0). This software package has been developed by the Department for Transport (DfT) to calculate future traffic growth throughout the UK.

Road widths and vehicle speeds were estimated from aerial photography and UK highway design standards. A summary of the traffic data is provided in Table A1.1.

²⁹ LAEI 2019 - London Datastore.

³⁰ London Local Air Quality Management (LLAQM), Technical Guidance 2019 (LLAQM.TG (19)), GLA, 2019.

Table A1.1 Traffic Data

Link		24-hour AADT Flow		Road Width (m)	Average Vehicle Speed (km/h)
		2019	2025		
L1	B153 Philip Lane, west of Town Hall Approach Road	10,640	11,198	9.8	30
L2	B153 Philip Lane, east of Town Hall Approach Road, Slow Phase (SP)	10,640	11,198	10.0	20
L3	A10 High Road, north of B153 Philip Lane, northbound (NB), SP	16,848	17,731	9.1	20
L4	A10 High Road, NB, north of Monument Way	16,848	17,731	4.7	30
L5	A10 High Road, north of Monument Way	24,457	25,739	14.7	30
L6	A10 High Road, NB, north of Somerset Road	14,302	15,051	7.5	30
L7	A10 High Road, southbound (SB), north of Somerset Road	11,529	12,133	7.5	30
L8	A10 High Road, slip onto Monument Way, SP	27,000	28,415	4.6	20
L9	A10 High Road, SB at Monument Way, SP	17,871	18,807	5.8	20
L10	A10 High Road, SB, south of Monument Way	17,871	18,807	5.8	30
L11	Monument Way approach to A10 High Road, SP	17,804	18,737	9.8	20
L12	Monument Way, SP	43,122	45,382	12.6	20
L13	Monument Way	43,122	45,382	12.0	30
L14	A10 High Road, south of B153 Philip Lane, SP	43,540	45,821	15.5	20
L15	A503 Broad Lane, SP	16,830	17,712	9.9	20
L16	A503 Broad Lane	16,830	17,712	7.3	30
L17	A504 West Green Road, SP	9,826	10,341	8.0	20
L18	A504 West Green Road	9,826	10,341	8.0	20
L19	A10, SP	48,424	50,961	20.0	20
L20	Town Hall Approach Road, north of Isobel Place	6,045	6,362	6.0	20
L21	Town Hall Approach Road, south of Isobel Place	651	685	3.8	20

Fleet composition data as a proportion of total flows on each link for cars, taxis, Light Goods Vehicles (LGV), Heavy Goods Vehicles (HGV), buses and coaches and motorcycles are summarised in Table A1.2.

Table A1.2 Fleet Composition Data

Link	Proportion of Fleet (%)						
	Car	Taxi	LGV	Rigid HGV	Artic HGV	Bus and Coach	Motorcycle
L1	73.1	2.3	15.0	2.0	0.1	4.6	3.0
L2	73.1	2.3	15.0	2.0	0.1	4.6	3.0
L3	61.0	0.7	12.1	4.0	0.8	17.9	3.4
L4	61.0	0.7	12.1	4.0	0.8	17.9	3.4
L5	65.0	0.7	12.1	4.5	0.9	13.0	3.7
L6	65.7	0.7	13.0	4.3	0.9	11.6	3.7
L7	65.9	0.8	11.2	4.1	0.9	13.4	3.7
L8	68.5	1.6	17.5	4.5	1.0	3.2	3.7
L9	57.7	1.8	13.1	3.7	0.8	19.5	3.4
L10	57.7	1.8	13.1	3.7	0.8	19.5	3.4
L11	69.7	2.3	15.5	3.3	0.7	4.9	3.6
L12	70.3	1.9	17.0	3.6	0.8	2.8	3.7
L13	70.3	1.9	17.0	3.6	0.8	2.8	3.7
L14	59.6	1.5	15.9	4.6	1.0	13.8	3.5
L15	62.4	1.9	16.8	6.4	1.4	7.4	3.7
L16	62.4	1.9	16.8	6.4	1.4	7.4	3.7
L17	68.1	1.9	14.7	5.7	1.2	4.5	3.8
L18	68.1	1.9	14.7	5.7	1.2	4.5	3.8
L19	64.4	1.8	17.4	5.7	1.2	5.8	3.7
L20	67.6	4.3	8.5	6.7	0.6	8.7	3.7
L21	0.0	39.6	0.0	0.0	0.0	60.4	0.0

Reference should be made to Figure 8 for a graphical representation of the road link locations.

Emission Factors

The emission factors were calculated using the relevant traffic flows and the Emissions Factor Toolkit (version 12.0.1). This has been produced by DEFRA and incorporates COPERT 5.6 vehicle emission factors and fleet information.

There is current uncertainty over NO₂ concentrations within the UK, with the implementation of new vehicle emission standards not resulting in the previously expected reduction in roadside levels. Therefore, 2019 emission factors were utilised in preference to the scheme opening year in order to provide robust model outputs. As predictions for 2019 were verified, it is considered the results are a robust indication of worst-case concentrations for the future year.

Meteorological Data

Meteorological data used in the assessment was taken from London City Airport meteorological station over the period 1st January 2019 to 31st December 2019 (inclusive). London City Airport is located at NGR: 542739, 180487, which is approximately 12.7km south-east of the development. It is anticipated that conditions would be reasonably similar over a distance of this magnitude. The data was therefore considered suitable for an assessment of this nature.

All meteorological records used in the assessment were provided by Atmospheric Dispersion Modelling (ADM) Ltd, which is an established distributor of data within the UK. Reference should be made to Figure 3 for a wind rose of utilised meteorological data.

Roughness Length

The z_0 is a modelling parameter applied to allow consideration of surface height roughness elements. A z_0 of 1.0m was used to describe the modelling extents. This value is considered appropriate for the morphology of the area and is suggested within ADMS-Roads as being suitable for 'cities, woodlands'.

A z_0 of 0.1m was used to describe the meteorological site. This value is considered appropriate for the morphology of the area due to the large expanse of surrounding flat land use, such as

runways, grassland and open water, and is suggested within ADMS-Roads as being suitable for 'root crops'.

Monin-Obukhov Length

The Monin-Obukhov length provides a measure of the stability of the atmosphere. A minimum Monin-Obukhov length of 100m was used to describe the modelling extents and meteorological site. This value is considered appropriate for the nature of both areas and is suggested within ADMS-Roads as being suitable for 'large conurbations > 1 million'.

Background Concentrations

Background annual mean NO₂, PM₁₀ and PM_{2.5} concentrations for use in the assessment were obtained from the DEFRA mapping study for the grid square containing the site, as shown in Table 13.

Similarly to emission factors, background concentrations from 2019 were utilised throughout the assessment in preference to the development opening year. This provided a robust assessment and is likely to overestimate pollutant concentrations during the operation of the proposal.

NO_x to NO₂ Conversion

Predicted annual mean NO_x concentrations were converted to NO₂ concentrations using the spreadsheet (version 8.1) provided by DEFRA, which is the method detailed within DEFRA³¹ and GLA guidance³².

Short Term PM₁₀ Concentrations

The number of days with PM₁₀ concentrations greater than 50µg/m³ was calculated based on predicted annual mean concentrations and the methodology outlined within DEFRA³³ and GLA guidance³⁴.

³¹ Local Air Quality Management Technical Guidance (TG22), DEFRA, 2022.

³² London Local Air Quality Management (LLAQM), Technical Guidance 2019 (LLAQM.TG (19)), GLA, 2019.

³³ Local Air Quality Management Technical Guidance (TG22), DEFRA, 2022.

³⁴ London Local Air Quality Management (LLAQM), Technical Guidance 2019 (LLAQM.TG (19)), GLA, 2019.

Verification

The predicted results from a dispersion model may differ from measured concentrations for a large number of reasons, including:

- Estimates of background concentrations;
- Uncertainties in source activity data such as traffic flows and emission factors;
- Variations in meteorological conditions;
- Overall model limitations; and,
- Uncertainties associated with monitoring data, including locations.

Model verification is the process by which these and other uncertainties are investigated and where possible minimised. In reality, the differences between modelled and monitored results are likely to be a combination of all of these aspects.

For the purpose of the assessment, model verification was undertaken for 2019 using traffic data, meteorological data and monitoring results from this year. The choice of 2019 as the verification year aligns with the IAQM position statement 'Use of 2020 and 2021 Monitoring Datasets'³⁵, which states:

"If you are carrying out an air quality study that includes validation against monitoring data, use 2019 monitoring data as the last typical year"

LBoH undertook monitoring of NO₂ concentrations at three locations within the vicinity of roads included in the model during 2019. Review of the data indicated that HR38C - Welbourne School recorded levels below background. As such, it was removed from the verification process. The results for the remaining monitors were obtained and the road contributions to total NO_x concentrations calculated following the methodology contained within DEFRA guidance³⁶. The monitored annual mean NO₂ concentrations and calculated road NO_x concentrations are summarised in Table A1.3.

³⁵ Use of 2020 and 2021 Monitoring Datasets, IAQM, 2021.

³⁶ Local Air Quality Management Technical Guidance (TG22), DEFRA, 2022.

Table A1.3 Verification - Monitoring Results

Monitoring Location		Monitored NO ₂ Concentration (µg/m ³)	Calculated Road NO _x Concentration (µg/m ³)
HR30	Earlsmead Primary School, N17	39.60	32.43
HR36	Holy Trinity CE School, Tottenham	33.90	19.03

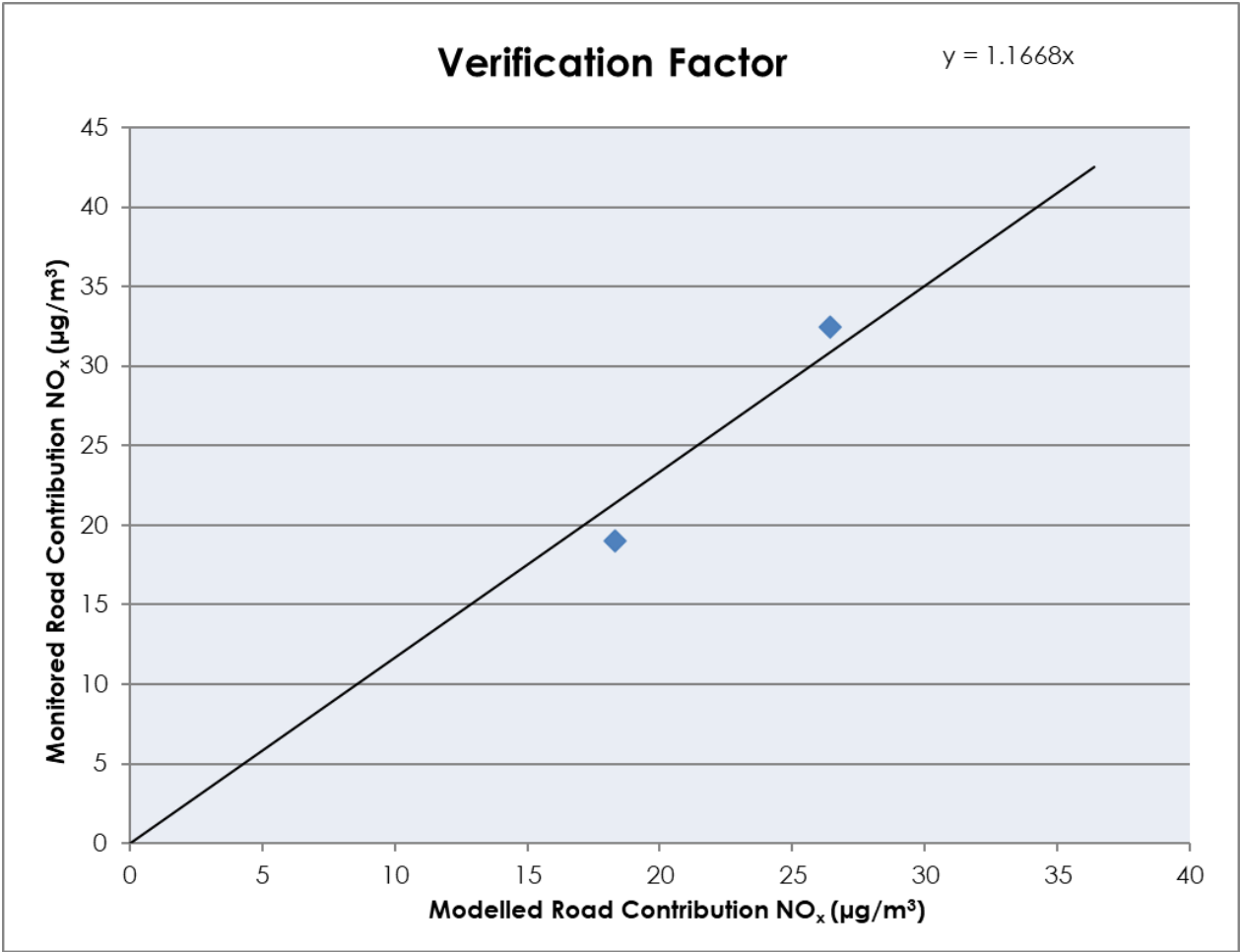
The annual mean road NO_x concentrations predicted from the dispersion model and the road NO_x concentrations calculated from the monitoring results are summarised in Table A1.4.

Table A1.4 Verification - Modelling Results

Monitoring Location		Calculated Road NO _x Concentration (µg/m ³)	Modelled Road NO _x Concentration (µg/m ³)
HR30	Earlsmead Primary School, N17	32.43	26.41
HR36	Holy Trinity CE School, Tottenham	19.03	18.31

The monitored and modelled road NO_x concentrations were graphed and the equation of the trendline based on linear progression through zero calculated. This indicated a verification factor of 1.1668 was required to be applied to all NO_x modelling results, as shown in Graph 1.

Graph 1 NO_x Verification Factor



Monitoring of PM₁₀ and PM_{2.5} concentrations is not undertaken within the assessment extents. The NO_x verification factor was therefore used to adjust model predictions of these species in lieu of more accurate data in accordance with GLA guidance³⁷.

³⁷ London Local Air Quality Management (LLAQM), Technical Guidance 2019 (LLAQM.TG (19)), GLA, 2019.

Appendix 2 - Curricula Vitae

KEY EXPERIENCE:

Jethro is a Chartered Environmentalist and Director of Redmore Environmental with specialist experience in the air quality and odour sectors. His key capabilities include:

- Production and management of Air Quality, Dust and Odour Assessments for a wide-range of clients from the retail, residential, infrastructure, commercial and industrial sectors.
- Production and co-ordination of Environmental Permit applications for a variety of industrial sectors.
- Detailed dispersion modelling of road vehicle and industrial emissions using ADMS-Roads, ADMS-5, AERMOD-PRIME and BREEZE-ROADS. Studies have included impact assessment of ground level pollutant and odour concentrations and assessment of suitability of development sites for proposed end-use.
- Project management and co-ordination of Environmental Impact Assessments and scoping reports for developments throughout the UK.
- Provision of expert witness services at Planning Inquiries.
- Design and project management of pollutant monitoring campaigns.
- Co-ordination and management of large-scale multi-disciplinary projects and submissions.

Provision of expert advice to local government and international environmental bodies, as well as involvement in production of industry guidance.

SELECT PROJECTS SUMMARY:

Industrial and Agricultural

Discovery Park, Sandwich - Air Quality Assessment including dispersion modelling of gas fired steam generating boilers in support of a Medium Combustion Plant (MCP) Environmental Permit Application.

St Thomas House, Ellesmere Port - Air Quality Assessment including dispersion modelling of two biomass boilers firing wood pellets.

Herriard Anaerobic Digester - H1 Screening Assessment in accordance with Environment Agency guidance.

Halls Farm, Bude - Ammonia and Odour Assessments in support of a proposed farm expansion, including the construction of a cattle slurry lagoon and livestock housing

London Luton Airport - Air Quality Assessment including dispersion modelling of gas fired boilers in support of a MCP Environmental Permit Application.

Rectory Farm, Aldborough - Odour Assessment in support of the development of livestock housing.

Ashfields, Tilbury - Dust Assessment in support of the extraction of Pulverised Fuel Ash associated with the former Tilbury Power Station.

Poplar Farm, Bedfield - Dust Assessment and Management Plan for an aggregate processing facility.

Crown Chicken, Kenninghall - Air Quality, Odour and Dust Environmental Impact Assessment (EIA) in support of a farm expansion.

Newport Chalk Pit - Air Quality Assessment in support of a recycling and restoration project.

Residential

Jack Chase Way, Caister - Air Quality EIA in support of a planning application for circa 725 dwellings.

New Road, Tintwistle - Odour Assessment including dispersion modelling of the Tintwistle Sewage Treatment Works in order to determine suitability of adjacent land for residential use

St Nicholas Circle, Leicester - Air Quality Assessment including dispersion modelling of road traffic sources to determine suitability of the site for student accommodation.

Land East and West of A140, Long Stratton - Air Quality EIA for a large scale residential development.

Meadley Square, Knaresborough - Odour Assessment including site surveys and a risk assessment to determine potential for loss of amenity to future occupants due to adverse odours generated by an adjacent takeaway.

Main Street, Port Rush - Kitchen Odour Impact Assessment in support of a proposed restaurant with residential apartments above

Commercial and Retail

Downtown Grantham Designer Outlet - Air Quality EIA in support of the development of a retail outlet

North Acton Road, London - Air Quality Assessment in support of the development of a seven storey building to include a café and commercial floor space.

Great Homer Street, Liverpool - Investigative Odour Survey at an existing McDonalds restaurant.

Ashdown Business Park, Kent - Air Quality Assessment in support of a Premier Inn Hotel and Drive-Thru Costa Coffee.

Sandbrook Park, Rochdale - Air Quality Assessment in support of 14 business/industrial units.

KEY EXPERIENCE:

Emily is a Senior Environmental Consultant with specialist experience in the air quality sector. Her key capabilities include:

- Production of Air Quality Assessments in accordance with Department for Environment, Food and Rural Affairs (DEFRA) methodologies for a range of residential, commercial and industrial sectors.
- Detailed dispersion modelling of road vehicle exhaust emissions using ADMS-Roads. Studies have included assessment of road traffic exhaust emissions on sensitive receptors and exposure of new residents to poor air quality.
- Advanced canyon modelling to evaluate the impact of altered urban topography on air quality in built up areas.
- Assessment of construction dust impacts from a range of development sizes.
- Definition of baseline air quality and identification of sensitive areas across the UK.
- Production of air quality mitigation strategies specifically tailored to address issues at individual sites.
- Air quality monitoring at industrial sites to quantify pollutant concentrations
- Odour surveys to assess amenity and suitability of sites for potential future development for residential use.

SELECT PROJECTS SUMMARY:

Bowlers Yard, Manchester

Air Quality Assessment in support of an eleven storey residential development to provide circa 65 units on land known as Bowlers Yard, Manchester. The site was located in an Air Quality Management Area (AQMA) and concerns were raised regarding the exposure of future occupants to poor air quality due to road traffic emissions. Detailed dispersion modelling was undertaken using ADMS-roads to assess PM_{2.5}, PM₁₀ and NO₂ concentrations across the site. Results indicated that pollution levels were below the air quality objectives across the development.

Freemasons Arms Hotel, Heywood

Air Quality Assessment to support a residential-led development in an AQMA. Detailed dispersion modelling was undertaken with the inclusion of advanced canyon modelling to evaluate the impact of the urban topography within the locality on the dispersion of traffic related pollutants. Predicted concentrations of NO₂ were found to exceed air quality criteria at the building façade fronting Market Place at first floor level. As such, mitigation was specified for the affected units to ensure future residents would not be exposed to poor air quality.

Griffin Road, London

Air Quality Assessment in support of a residential development located in an AQMA. Detailed dispersion modelling was undertaken using ADMS-roads to assess PM₁₀ and NO₂ concentrations across the site. Results indicated that pollution levels were classified as APEC - A in accordance with the London Councils Air Quality and Planning Guidance.

High Street, Dudley

Odour Impact Assessment in support of a proposed residential-led development. Due to the location of the site, being above an existing hot food takeaway, odour surveys were required to assess the level of odour across the development. A risk assessment was also undertaken in accordance with the relevant odour guidance. An appropriate ventilation system was identified on the basis of the assessment results.

East Common Lane, Selby

Air Quality Assessment in support of an industrial development on land associated with Access 63 Business Park, East Common Lane Selby. Due to the size of the development it was possible that traffic generated from the scheme may cause negative impacts on sensitive receptors nearby. NO₂ and PM₁₀ concentrations were quantified at specific receptor points to ensure there would be no significant increases in pollution levels. Results revealed negligible impacts.

Wharton Road, Winsford

Air Quality Assessment in support of a residential development of circa 138 units on land off Wharton Road, Winsford. Using sensitive receptors, located in areas where increased road traffic may affect NO₂ concentrations, a comparison was made between overall concentrations with and without the development in place. Results revealed pollutant concentrations were below the relevant standards across the site and impacts not significant.

KEY EXPERIENCE:

Emily is an Associate Director with specialist experience in the air quality sector. Her key capabilities include:

- Production of Air Quality Assessments in accordance with Department for Environment, Food and Rural Affairs (DEFRA) methodologies for a range of residential, commercial and industrial sectors.
- Detailed dispersion modelling of road vehicle and industrial emissions using ADMS-Roads and ADMS-5. Studies have included impact assessment of ground level pollutant and odour concentrations and assessment of suitability of development sites for proposed end-use.
- Project management and co-ordination of Environmental Impact Assessments and scoping reports for developments throughout the UK.
- Assessment of fugitive dust impacts from a range of mineral extraction developments.
- Assessment of petrol stations to address benzene concentrations and their impact on adjacent developments.
- Production of air quality mitigation strategies specifically tailored to address issues at individual sites.
- Assessment of potential effects associated with network realignment schemes and highway developments.

SELECT PROJECTS SUMMARY:

Broad Street, Birmingham

Air Quality Assessment in support of a residential-led development on land at Broad Street, Birmingham. The proposals were located adjacent to a section of the Midland Metro Westside which runs along Broad Street. Consideration was made to the potential for re-alignment of the local road network as a result of the Metro to effect pollution levels at the development. The assessment indicated NO₂ concentrations exceeded air quality criteria from ground to third floor level as a result of road vehicle exhaust emissions. Mitigation was therefore specified for the affected units.

Home Farm, Forest Road, Warfield

Ecological Air Quality Assessment in support of a residential development. Natural England held concerns regarding potential impacts at sensitive ecological designations as a result of traffic exhaust emissions associated with the development. The predicted change in NO_x and ammonia concentrations and nitrogen and acid deposition was below the relevant criteria at all locations within the ecological designations. Impacts were therefore not considered to be significant.

Saltcoats Road, Stevenston

Air Quality Assessment in support of an educational campus and associated energy centre. Impacts associated with emissions from the proposed gas and biomass boilers were assessed through detailed dispersion modelling. This indicated impacts on annual mean NO₂ and PM₁₀ concentrations were predicted to be not significant.

Blackthorn & Piddington

Environmental Impact Assessment in support of a railway embankment scheme on land at the Network Railway Embankment between Piddington and Blackthorn. Due to the extensive stabilisation works a Fugitive Dust Emissions Assessment was undertaken in addition to consideration of road vehicle exhaust emissions. Due to the location of the site in relation to nearby sensitive receptors, potential impacts associated with construction works were not considered to be significant.

Blackmoorfoot Road, Huddersfield

Air Quality in support of a residential-led development in close proximity to an operational minerals facility. Due to the presence of the Johnsons Wellfield Quarry to the south of the site a Fugitive Dust Emissions Assessment was undertaken to determine potential impacts. Dispersion modelling of road vehicle exhaust emissions was also undertaken in support of the scheme. Results indicated the overall significance of fugitive dust emissions from the quarry and air quality impacts associated with operation of the development itself were not significant.

Lockwood Bar, Huddersfield

Air Quality Assessment for the proposed highway realignment scheme along Lockwood Road, Huddersfield. Changes in pollution levels were considered at sensitive receptors as a result of variations to road geometry and associated redistribution of vehicle trips across the local area. Results of the dispersion modelling study indicated air quality impacts as a result of the scheme were not significant.