REC
a spectris company

AIR QUALITY ASSESSMENT
219 – 223 COLD HARBOUR LANE, LAMBETH

REC REFERENCE: AQ103204R1

REPORT PREPARED FOR: COLD HARBOUR LANE LTD

DATE: JUNE 2019

DELIVERING ENVIRONMENTAL
AND RISK MANAGEMENT SOLUTIONS

Issue/revision	Issue 1	Revision 1	Revision 2	Revision 3
Remarks		Updates to text		
Date	20/05/2019	21/06/2019		
Prepared by	Lewis Ellison	Lewis Ellison		
Signature				
Position	Air Quality Consultant	Air Quality Consultant		
Checked by	Joshua Davies	Joshua Davies		
Signature				
Position	Senior Air Quality Consultant	Senior Air Quality Consultant		
Verified by	Joshua Davies	Joshua Davies		
Signature				
Position	Senior Air Quality Consultant	Senior Air Quality Consultant		
Project number	AQ103204	AQ103204r1		

Osprey House, Pacific Quay, Broadway, Manchester, M50 2UE
Tel – 0161 868 1300 Fax – 0161 868 1301
www.recltd.co.uk

EXECUTIVE SUMMARY

Resource and Environmental Consultants Limited was commissioned by Cold Harbour Lane Ltd to undertake an Air Quality Assessment in support of the proposed redevelopment of 219 – 223 Cold Harbour Lane, Lambeth.

The proposals comprise the redevelopment of the existing unit to provide a mixed use seven storey development consisting of 13 residential units, A1 and B1 floor space, and associated infrastructure.

The site is located within an area identified by London Borough of Lambeth as experiencing elevated pollutant concentrations. Subsequently there is the potential for the proposals to introduce future site users into an area of high pollutant concentrations as well as to cause adverse impacts during the construction and operational phases. As such, an Air Quality Assessment was required to quantify pollution levels across the site, consider its suitability for the proposed end-use and assess potential impacts as a result of the development.

Potential construction phase air quality impacts from fugitive dust emissions were assessed as a result of construction and trackout activities from the site. These were assessed in accordance with the Greater London Authority methodology. Assuming appropriate mitigation measures are implemented, air quality impacts during the construction phase are considered to be acceptable for a development of this size and nature.

Dispersion modelling was undertaken in order to quantify pollutant concentrations at the site and to assess the potential for future users to be exposed to poor air quality. This indicated that pollutant levels were below the standards at all sensitive locations across the development site and as such did not exceed the air quality objectives.

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. A screening assessment was therefore undertaken to determine the potential for trips generated by the development to affect local air quality. This indicated that impacts were anticipated to be not significant.

Based on the assessment results the site is considered suitable for the proposed end use subject to the inclusion of relevant mitigation measures, and complies with the London Plan, the London Borough of Lambeth Local Plan and relevant Greater London Authority legislation.

TABLE OF CONTENTS

APPENDICES

1. INTRODUCTION

1.1 Background

Resource and Environmental Consultants Ltd was commissioned by Cold Harbour Lane Ltd to undertake an Air Quality Assessment in support of the proposed redevelopment at 219 – 223 Cold Harbour Lane, Lambeth

The proposals comprise the redevelopment of the existing unit to provide a mixed use seven storey development consisting of 13 residential units, A1 and B1 floor space and associated infrastructure.

1.2 Site Location and Context

The site is located at 219 – 223 Cold Harbour Lane, Lambeth at approximate National Grid Reference (NGR): 531900, 175770. Reference should be made to Figure 1 within Appendix I for a location plan.

The proposed development site is located within the London Borough of Lambeth (LBoL) Air Quality Management Area (AQMA) which has been declared for exceedances of the annual and 1 hour mean Air Quality Objective (AQO) for nitrogen dioxide (NO_2) and the annual and 24-hour mean AQOs for particulate matter with an aerodynamic diameter of less than 10µm (PM_{10}). Subsequently, the development has the potential to introduce future site users to poor air quality. Additionally, the proposals have the potential to cause impacts on existing pollution levels at nearby sensitive receptors within the AQMA during the construction and operational phases.

An Air Quality Assessment is therefore required in order to define baseline conditions, assess site suitability for the proposed end-use and consider potential impacts as a result of the development. This is detailed within the following report.

1.3 Limitations

This report has been produced in accordance with REC's standard terms of engagement. REC has prepared this report solely for the use of the Client and those parties with whom a warranty agreement has been executed, or with whom an assignment has been agreed. Should any third party wish to use or rely upon the contents of the report, written approval must be sought from REC; a charge may be levied against such approval.

2. LEGISLATION AND POLICY

2.1 European Legislation

European Union (EU) air quality legislation is provided within Directive 2008/50/EC, which came into force on 11th June 2008. This Directive consolidated previous legislation which was designed to deal with specific pollutants in a consistent manner and provided new air quality objectives for particulate matter with an aerodynamic diameter of less than 2.5µm ($PM_{2.5}$). The consolidated Directives include:

- Directive 99/30/EC - the First Air Quality "Daughter" Directive - sets ambient Air Quality Limit Values (AQLVs) for NO_2, oxides of nitrogen (NO_x), sulphur dioxide, lead and PM_{10};
- Directive 2000/69/EC - the Second Air Quality "Daughter" Directive - sets ambient AQLVs for benzene and carbon monoxide; and
- Directive 2002/3/EC - the Third Air Quality "Daughter" Directive - seeks to establish long-term objectives, target values, an alert threshold and an information threshold for concentrations of ozone in ambient air.

The fourth daughter Directive was not included within the consolidation and is described as:

- Directive 2004/107/EC - sets health-based limits on polycyclic aromatic hydrocarbons, cadmium, arsenic, nickel and mercury, for which there is a requirement to reduce exposure to as low as reasonably achievable.

2.2 UK Legislation

The Air Quality Standards (Amendment) Regulations (2016) came into force on 31st December 2016. These Regulations amend the Air Quality Standards Regulations 2010 and transpose the EU Directive 2008/50/EC into UK law. AQLVs were published in these regulations for 7 pollutants, as well as Target Values for an additional 6 pollutants.

Part IV of the Environment Act (1995) requires UK government to produce a national Air Quality Strategy (AQS) which contains standards, objectives and measures for improving ambient air quality. The most recent AQS was produced by the Department for Environment, Food and Rural Affairs (DEFRA) and published in July 2007[1]. The AQS sets out AQOs that are maximum ambient pollutant concentrations that are not to be exceeded either without exception or with a permitted number of exceedances over a specified timescale. These are generally in line with the AQLVs, although the requirements for compliance vary slightly.

Table 1 presents the AQOs for pollutants considered within this assessment.

Table 1 Air Quality Objectives

Pollutant	Air Quality Objective	
	Concentration (µg/m³)	Averaging Period
NO_2	40	Annual mean
	200	1-hour mean; not to be exceeded more than 18 times a year

[1] The Air Quality Strategy for England, Scotland, Wales and Northern Ireland, DEFRA, 2007.

Pollutant	Air Quality Objective	
	Concentration (µg/m^3)	Averaging Period
PM_{10}	40	Annual mean
	50	24-hour mean; not to be exceeded more than 35 times a year
$PM_{2.5}$	25	Annual Mean

Table 2 summarises the advice provided in Greater London Authority (GLA) guidance LLAQM.TG (16)[2] on where the AQOs for pollutants considered within this report apply.

Table 2 Examples of Where the Air Quality Objectives Apply

Averaging Period	Objectives Should Apply At	Objectives Should Not Apply At
Annual mean	All locations where members of the public might be regularly exposed Building façades of residential properties, schools, hospitals, care homes 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
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-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

2.3 Local Air Quality Management

Under Section 82 of the Environment Act (1995) (Part IV), Local Authorities (LAs) are required to periodically review and assess air quality within their area of administration under the system of Local Air Quality Management (LAQM). This review and assessment of air quality involves considering

[2] London Local Air Quality Management Technical Guidance 2016 LLAQM.TG (16), GLA, 2016.

present and likely future air quality against the AQOs. If it is predicted that levels at sensitive locations where members of the public are regularly present for the relevant averaging period are likely to be exceeded, the LA is required to declare an AQMA. For each AQMA the LA is required to produce an Air Quality Action Plan (AQAP), the objective of which is to reduce pollutant concentrations in pursuit of the AQOs.

2.4 Dust

The main requirements with respect to dust control from industrial or trade premises not regulated under the Environmental Permitting (England and Wales) Regulations (2018) are those 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."*

Enforcement of the Act, in regard to nuisance, is currently under the administration 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). Enforcement can insist that there be no dust beyond the boundary of the works. 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 practice measures.

2.5 National Planning Policy

2.5.1 National Planning Policy Framework

The National Planning Policy Framework3 (NPPF) was published on 24th July 2018 (updated in 19th February 2019) and sets out the Government's core policies and principles with respect to land use planning, including air quality. The document includes the following considerations which are relevant to this assessment:

> *"Planning policies and decisions should contribute to and enhance the natural and local environment by:*
>
> *[…]*
>
> *Preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality.*
>
> *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*

[3] National Planning Policy Framework, Department for Communities and Local Government, 2018.

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."

The implications of the NPPF have been considered throughout this assessment

2.5.2 National Planning Practice Guidance

The National Planning Practice Guidance[4] (NPPG) web-based resource was launched by the Department for Communities and Local Government on 6th March 2014 to support the NPPF and make it more accessible. The relevant air quality sections are highlighted below:

Paragraph 001 states that: *"Defra carries out an annual national assessment of air quality using modelling and monitoring to determine compliance with EU Limit Values" and "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". The role of Local Authorities under LAQM are stated and that Air Quality Action Plans should "identify measures that will be introduced in pursuit of the objectives"*

Paragraph 005 states that *"Whether or not air quality is relevant to a planning decision will depend on the proposed development and its location. Concerns could arise if the development is likely to generate air quality impact in an area where air quality is known to be poor. They could also arise where the development is likely to adversely impact upon the implementation of air quality strategies and action plans and/or, in particular, lead to a breach of EU legislation*

Paragraph 007 states that *"Assessments should be proportional to the nature and scale of development proposed and the level of concern about air quality". In terms of mitigation, it states that "Mitigation options where necessary will be location specific, will depend on the proposed development and should be proportionate to the likely impact".*

Paragraph 009 shows a flow chart highlighting how the assessment of air quality impacts should fit into the development management process. It makes it clear that air quality impact risks, AQLVs and AQOs should be considered in the decision-making process.

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

2.6 Local Planning Policy

2.6.1 The London Plan

The Minor Alterations to The London Plan[5] was published in March 2016 and sets out a fully integrated economic, environmental, transport and social framework for the development of the capital until 2031. London boroughs' local plans need to be in general conformity with the London Plan, and its policies guide decisions on planning applications by councils and the Mayor.

The London Plan policies relating to air quality are outlined below:

[4] http://planningguidance.planningportal.gov.uk/
[5] The London Plan, Minor Alterations to the London Plan, Greater London Authority, March 2016.

- ***Policy 3.2 Improving health and addressing health inequalities***
- ***Policy 5.3 - Sustainable design and construction***
- ***Policy 7.14 - Improving air quality***

These policies have been considered throughout the completion of this Air Quality Assessment.

2.6.2 The Draft London Plan

The Draft New London Plan sets out the proposed development strategy for London from 2019 to 2041. It was consulted from 29th November 2017 until 2nd March 2018. A review of the Draft New London Plan indicated the following policy in relation to air quality:

- ***Draft Policy SI1 Improving air quality***

This policy has been considered throughout the undertaking of this Air Quality Assessment. However, it should be noted that the plan carries limited weight in the determination of this application.

2.6.3 Local Planning Policy

LBoL current Local Plan was adopted on 23rd September 2015 and sets out and delivers the council's long-term aims and aspirations for the borough and provides a consistent basis for deciding planning applications from 2015 to 2030. A review of the Local Plan indicated the following policy in relation to air quality that is relevant to this assessment:

> ***"Policy Q2 – Amenity***
>
> *Development will be supported if:*
>
> *[…]*
>
> *(V) Adequate outdoor amenity space is provided free from excessive noise or disturbance, pollution or odour, oppressive enclosure, wind/downdraught and overshadowing"*

Reference has been made to this policy during the undertaking of this Air Quality Assessment by assessing pollutant concentrations across the development site.

3. METHODOLOGY

The proposed development has the potential to cause air quality impacts during the construction and operational phases in addition to exposing future site users to elevated pollution levels.

3.1 Construction Phase Assessment

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 GLA document 'The Control of Dust and Emissions during Construction and Demolition Supplementary Planning Guidance'[6].

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

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

The 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 PM_{10}.

The assessment steps are detailed below.

3.1.1 Step 1

Step 1 screens the requirement for a more detailed assessment. Should human receptors be identified within 350m from the site boundary or 50m from the construction vehicle route up to 500m from the site entrance, then the assessment should proceed to Step 2. Additionally, should ecological receptors be identified within 50m of the boundary site or 50m from the construction vehicle route up to 500m from the site entrance, then the assessment should also proceed to Step 2.

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

3.1.2 Step 2

Step 2 assesses the risk of potential dust impacts. A site is allocated to 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).

[6] The Control of Dust and Emissions During Construction and Demolition Supplementary Planning Guidance, GLA, 2016.

The two factors are combined in Step 2C to determine the risk of dust impacts without the application of best practice mitigation measures.

3.1.3 Step 3

Step 3 requires the identification of site-specific mitigation measures within the GLA guidance 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.

3.1.4 Step 4

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'.

The determination of significance relies on professional judgement and reasoning should be provided as far as practicable. This has been considered throughout the assessment when defining predicted impacts.

The relevant GLA[6] construction phase assessment criteria are provided in Appendix III, which details the magnitude of dust emissions, as well as the sensitivity of the surrounding area with regards to dust soiling and to human health impacts. The GLA[6] guidance also suggests the provision of details of the assessor's qualifications and experience. These are provided in Appendix IV.

3.2 Operational Phase Impact Assessment

3.2.1 Future Exposure

The proposed development includes sensitive land uses and is located within an AQMA and adjacent to the local highway network. As such, the proposals have the potential to introduce new receptors into an area of existing poor air quality. Detailed dispersion modelling was therefore undertaken to quantify NO_2, PM_{10} and $PM_{2.5}$ concentrations across the site and determine suitability for the proposed end-use. Reference should be made to Appendix II for details of the assessment inputs.

The results of the dispersion modelling assessment were compared against the Air Pollution Exposure Criteria (APEC) contained within the London Councils Air Quality and Planning Guidance[7] from the London Air Pollution Planning and the Local Environment (APPLE) working group. These are outlined in Table 3.

Table 3 Air Pollution Exposure Criteria

Category	Applicable Range	Recommendation
APEC - A	Below 5% of the annual mean 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	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	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

It should be noted that significant areas of London would fall under APEC - C due to high NO_2 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 users is therefore considered a suitable way to progress sustainable schemes in these locations and has been considered within this assessment.

3.2.2 Road Vehicle Exhaust Emissions

The development has the potential to impact on existing air quality as a result of road traffic exhaust emissions, such as NO_2, PM_{10} and $PM_{2.5}$ associated with vehicles travelling to and from the site. A screening assessment was therefore undertaken using the criteria contained within the Environmental Protection UK (EPUK) and Institute of Air Quality Management (IAQM) 'Land-Use Planning & Development Control: Planning for Air Quality (2017)'[8] guidance documents to determine the potential for trips generated by the development to affect local air quality.

[7] London Councils Air Quality and Planning Guidance, London Councils, 2007.
[8] Land-Use Planning & Development Control: Planning for Air Quality, EPUK and IAQM, January 2017 Update.

The EPUK and IAQM guidance8 document states the following criteria to help establish when an air quality assessment is likely to be considered necessary:

- Proposals that will cause a change in Light Duty Vehicle (LDV) flows of more than 100 AADT within or adjacent to an AQMA or more than 500 elsewhere;
- Proposals that will cause a change in HDV flows of more than 25 AADT within or adjacent to an AQMA or more than 100 elsewhere;
- Proposals that would realign roads within an AQMA by more than 5m;
- Proposals that will introduce new junctions or remove existing junctions near relevant receptors;
- Proposals that will introduce or change a bus station or change flows of buses by more than 25 AADT within an AQMA or more than 100 AADT elsewhere;
- Proposals which will include an underground car park with extraction system which will be within 20m of a relevant receptor and have more than 100 movements per day;

Should these criteria not be met, then the EPUK and IAQM guidance[8] documents consider air quality impacts associated with a scheme to be **not significant** and no further assessment is required. Should screening of the traffic data indicate that any the above criteria are met, then potential impacts at sensitive receptor locations can be assessed by calculating the predicted change in NO_2 and PM_{10} concentrations as a result of the proposed development. The significance of predicted impacts can then be determined in accordance with the methodology outlined in the EPUK and IAQM guidance[8].

4. BASELINE

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

4.1 Local Air Quality Management

As required by the Environment Act (1995), LBoL has undertaken Review and Assessment of air quality within their area of administration. This process has indicated that annual and 1-hour mean concentrations of NO_2 and annual and 24-hour mean PM_{10} are above the AQOs within the borough. As such, one AQMA has been declared, and described as:

"Lambeth AQMA – The Whole Borough."

The proposed development is located within the Lambeth AQMA. Subsequently, there is potential for the development to introduce future residents to an area experiencing elevated pollutant concentrations, as well as cause adverse impacts to air quality within this area. This has been considered within this report.

LBoL has concluded that concentrations of all other pollutants considered within the AQS are currently below the relevant AQOs and as such no further AQMAs have been designated.

4.2 Air Quality Monitoring

LBoL undertakes monitoring of pollutant concentrations using both periodic and continuous techniques throughout their area of administration. A review of the most recent Air Quality Annual Status Report[9] indicates that there is three automatic analyzers operated by LBoL, the closest of which is Brixton Road (Kerb side), located approximately 850m west of the site, located at the approximate NGR: 531070, 175593. Due to the location of the automatic analyser and distance between of the development site from the automatic analyser, similar pollutant concentrations would not be expected and as such, this monitoring station has not been considered further within this assessment.

LBoL also utilise passive diffusion tubes to monitor NO_2 concentrations throughout the borough. A review of the most recent monitoring data available indicated that there are 2 diffusion tubes located in the vicinity of the site. Recent monitoring results from the locations are shown in Table 4. Exceedances of the AQO are shown in bold.

Table 4 Diffusion Tube Monitoring Results

Site ID	Site Name	Type	NGR (m)		2018 Annual Mean NO_2 Concentration ($\mu g/m^3$)
			X	Y	
DT 48	202 Cold Harbour Lane	Roadside	531956	175849	**44.9**
DT 49	Shakespeare Road/Loughborough Park	Roadside	531853	175650	37.5

[9] Royal Borough of Greenwich - Air Quality Annual Status Report for 2016, April 2017.

As indicated in Table 4, the annual mean AQO for NO_2 was exceeded at one of the nearby diffusion tube locations in 2018. Reference should be made to Figure 2 within Appendix I for a graphical representation of the monitoring locations.

4.3 Background Pollutant Concentrations

The total concentration of a pollutant is comprised of explicit local emission sources (such as roads and industrial sources) and the background component. The background component consists of indeterminate sources which are transported into an area from further away by meteorological conditions. Background pollutant concentration is therefore the ambient level of pollution that is not affected by local sources of pollution.

In reality, it is not usually practical to obtain a true representation of background levels in urban areas due to corruption by local sources; background levels used in assessments may contain a mixture of both sources.

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: 531500, 175500. Background data was downloaded from the DEFRA website[10] for the purpose of this assessment and is summarised in Table 5 for the verification year (2018) and the predicted development opening year (2022).

Table 5 Predicted Background Pollutant Concentrations

Pollutant	Predicted Background Concentration (µg/m3)	
	2018	2022
NO_x	46.9	32.6
NO_2	28.8	21.7
PM_{10}	18.7	17.5
$PM_{2.5}$	12.7	11.8

As shown in Table 5, background concentrations of NO_2 did not exceed the relevant AQOs. Comparison with the monitoring results indicates the impact that vehicle exhaust emissions from the highway network have on pollutant concentrations at roadside locations.

The predicted background concentrations of annual mean NO_2 concentration of 28.8ug/m^3, and PM_{10} concentration of 18.7µg/m^3 was used in the dispersion modelling assessment to represent annual mean pollutant levels at the proposed development site.

4.4 Construction Phase Sensitive Receptors

Receptors sensitive to potential dust impacts during construction were identified from a desk-top study of the area up to 350m from the development boundary. These are summarised in Table 6.

[10] http://laqm.defra.gov.uk/review-and-assessment/tools/background-maps.html.

Table 6 Demolition, Earthworks and Construction Dust Sensitive Receptors

Distance from Site Boundary (m)	Approximate Number of Human Receptors	Approximate Number of Ecological Receptors
Less than 20	10 - 100	0
20 - 50	More than 100	0
50 - 100	More than 100	-
100 - 350	More than 100	-

Reference should be made to Figure 3 for a graphical representation of construction dust buffer zones.

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 7. The exact construction vehicle access routes were not available for the purpose of this assessment as they will depend on sourcing of materials. This is likely to be decided by the contractor. However, it was assumed construction traffic would access the site from the A2217 and the B222 to ensure the maximum potential trackout distance was considered.

Table 7 Trackout Dust Sensitive Receptors

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

Reference should be made to Figure 4 for a graphical representation of trackout dust buffer zones.

There are no ecological receptors within 50m of the site or trackout boundary. As such, ecological impacts have not been assessed further within this report.

A number of additional factors have been considered when determining the sensitivity of the surrounding area. These are summarised in Table 8.

Table 8 Additional Area Sensitivity Factors

Guidance	Comment
Whether there is any history of dust generating activities in the area	The proposal is located in a predominantly residential area. As such, there is likely to have been a history of dust generating activities due to redevelopment in the locality, as well as dust generated from commuting activities.

Guidance	Comment
The likelihood of concurrent dust generating activity on nearby sites	A review of the Lambeth Planning Portal indicated several large scale developments within 500m of the development site including: - 19/00505/DET – Erection of two buildings to provide 460sqm Office space and 780sqm Light Industrial space, including studio spaces, workshops, food business incubator and co-working office space. As such, there is currently a potential risk of concurrent dust generation from nearby developments
Pre-existing screening between the source and the receptors	There is no pre-existing screening surrounding the site
Conclusions drawn from analysing local meteorological data which accurately represent the area: and if relevant the season during which works will take place	The wind direction is predominantly from the south-west and east of the development, as shown in Figure 5 within Appendix I. As such, properties to the north-east and west of the proposed development would be most affected by dust emissions
Conclusions drawn from local topography	The topography of the area appears to be predominantly flat. As such, there are no constraints to dust dispersion
Duration of the potential impact, as a receptor may become more sensitive over time	Currently it is unclear as to the duration of the construction phase. However, given the 2022 opening year, the development is unlikely to extend over two years
Any known specific receptor sensitivities which go beyond the classifications given in the document.	No specific receptor sensitivities identified during the baseline

5. ASSESSMENT

5.1 Construction Phase Assessment

5.1.1 Step 1 – Screening

The undertaking of activities such as demolition excavation, ground works, cutting, construction, concrete batching and storage of materials has the potential to result in fugitive dust emissions throughout the construction phase. Vehicle movements both on-site and on the local road network also have the potential to result in the re-suspension of dust from haul road and highway surfaces.

The desk-study detailed in Section 3.1 identified a number of highly sensitive receptors within 350m of the site boundary, and within 50m of the anticipated trackout routes. As such, a detailed assessment of potential dust impacts was required, and summarised in the below sections.

Reference should be made to Appendix III for details of the relevant GLA[5] construction phase assessment criteria, which were utilised in conjunction with site specific information.

5.1.2 Step 2A – Magnitude

The scale and nature of the works was determined to assess the magnitude of dust arising from each construction phase activity. The determination of magnitude was based upon the criteria detailed in Appendix III, with the outcome of Step 2A is summarised below in **Table 9**.

Demolition

The proposed development will include partial and localised demolition/structural alteration works to existing buildings for the upward extension. The volume of buildings to be demolished is likely to be less than 20,000m^3. With this considered the magnitude of potential dust emissions related to demolition activities is ***small***.

Earthworks

The proposed development site is estimated to cover an approximate area less than 2,500m^2. Based on this information the magnitude of potential dust emissions related to earthwork activities is therefore considered ***small***.

Construction

The proposals comprise extending the existing first floor to the rear and adding five storeys on top of the existing building to provide 13 residential units and A1/B1 floor space, given the scale of the development the total building volume is likely to be less than 25,000m^3. The magnitude of potential dust emissions related to construction activities is therefore considered ***small***.

Trackout

Information on the number of HDV trips to be generated during the construction phase of the development was not available at the time of assessment. Similarly, the surface material and unpaved road length was not known at this stage of the project. Based on the site area, it is anticipated that there will be no unpaved road. The magnitude of potential dust emissions from trackout is therefore

small.

Table 9 Dust Emission Magnitude

Magnitude of Activities			
Demolition	**Earthworks**	**Construction**	**Trackout**
Small	Small	Small	Small

5.1.3 Step 2B – Sensitivity

The next step (Step 2B) is to determine the sensitivity of the surrounding area, based on general principles such as amenity and aesthetics, as well as human exposure sensitivity.

Dust Soiling

As shown in Table 6 and Table 7, the desk top study indicated there are ***10 - 100*** sensitive receptors within 20m of the proposed development boundary, and ***more than 100*** within 20m of the anticipated trackout routes. Based on the assessment criteria detailed in Appendix III, the sensitivity of the receiving environment to potential dust soiling impacts was considered to be ***high*** *for all construction phase activities*. This is because users would expect to enjoy a reasonable level of amenity and residents would be expected to be present for extended periods of time

Human Health

The annual mean concentration of PM_{10} is less than 24 µg/m^3 as detailed in Table 5. Given the presence of ***10 - 100*** sensitive receptors within 20m of the proposed development boundary, ***more than 100*** within 20m of the anticipated trackout routes and based on the assessment criteria detailed in Appendix III, the area is considered to be of ***low*** for earthworks, demolition and construction activities and ***medium*** for trackout activities.

There are no ecological receptors within 50m of the site or trackout boundary. As such, ecological impacts have not been assessed further within this report.

The sensitivity of the receiving environment to specific potential dust impacts, based on the criteria detailed in Appendix III is summarised in **Table 10**

Table 10 Sensitivity of the Surrounding Area

Potential Impact	Sensitivity of the Surrounding Area			
	Demolition	**Earthworks**	**Construction**	**Trackout**
Dust Soiling	High	High	High	High
Human Health	Low	Low	Low	Medium

5.1.4 Step 2C – Risk

Both the magnitude and sensitivity factors are combined in Step 2C to determine the risk of dust impacts without the application of best practice mitigation measures.

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. A summary of the risk from each dust generating activity is provided in Table 11.

Table 11 Summary of Potential Unmitigated Dust Risks

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

5.1.5 Step 3 – Mitigation

Following the identification of specific risk categories, the GLA[5] guidance provides a number of potential mitigation measures to reduce impacts during each activity of the construction phase. These measures have been adapted for the development site as summarised in Table 12. The mitigation measures outlined in Table 12 can be reviewed prior to the commencement of construction works incorporated into the existing the strategies as applicable.

Table 12 Fugitive Dust 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 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 complaint 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 and dust 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 the action taken to resolve the situation is recorded in the log book.
Preparing and maintaining the site	• Plan site layout: machinery and dust causing activities should be located away from receptors. • Erect solid screens or barriers around dust activities or the site

Issue	Control Measure
	boundary that are, at least, as high as any stockpiles on site. • Fully enclosure site or specific operations where there is a high potential for dust production and the site is active for an extensive period. • 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 from site as soon as possible. • Cover, seed or fence stockpiles to prevent wind whipping. • Carry out regular dust soiling checks of buildings within 100m of site boundary and cleaning to be provided if necessary • Agree monitoring locations with the Local Authority • Where possible, commence baseline monitoring at least three months before phase begins. • Put in place real-time dust and air quality pollutant monitors across the site and ensure they are checked regularly
Operating vehicle/machinery and sustainable travel	• Ensure all on-road vehicles comply with the requirements of the London Low Emission Zone. • Ensure all non-road mobile machinery (NRMM) comply with the standards set within this guidance. • Ensure all vehicles switch off engines when stationary – no idling vehicles. • Avoid the use of diesel- or petrol-powered generators and use mains electricity or battery powered equipment where possible. • Impose and signpost a maximum-speed-limit of 10mph on surfaced haul routes and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate). • Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials. • Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing).
Operations	• Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems. • Ensure an adequate water supply on the site for effective dust/particulate matter mitigation (using recycled water where possible). • Use enclosed chutes, conveyors and covered skips. • Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate • Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable

Issue	Control Measure
	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.
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.
Construction	• Avoid scabbling (roughening of concrete surfaces) if possible • Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place
Trackout	• Regularly use a water-assisted dust sweeper on the access and local roads, as necessary, to remove any material tracked out of the site • Avoid dry sweeping of large areas • Ensure vehicles entering and leaving sites are covered to prevent escape of materials • Implement a wheel washing system at a suitable location near site exit

5.1.6 Step 4 – Residual Impacts

Assuming the relevant mitigation measures outlined in Table 12 are fully implemented, the residual effect from all dust generating activities is predicted to be **not significant**, in accordance with the GLA guidance.

5.2 Operational Phase Assessment

Given the proposed developments location with the Lambeth AQMA there is potential to expose future site users to elevated pollution levels. This was assessed through dispersion modelling, with the results presented in the following Sections.

Reference should be made to Appendix II for full assessment input details.

5.2.1 Nitrogen Dioxide – Annual Mean

Annual mean NO_2 concentrations were predicted across the development site at a height of 1.5m, 5.5m and 8.4m to represent exposure across the ground, first and second floor level during the development opening year (2022), as shown in Figures 6, 7 and 8 within Appendix I.

Annual mean NO_2 concentrations across the ground, first and second floor level are summarized in Table 13.

Table 13 Predicted Annual Mean NO_2 Concentrations at the Development Site

Height	Predicted 2022 Annual Mean NO_2 Concentration Range (µg/m^3)	APEC Category
Ground Floor (1.5m)	33.75 – 46.20	A – C
First Floor (5.5m)	32.47 – 40.15	A – B
Second Floor (8.4m)	31.52 – 32.14	A

Table 13 indicates that predicted NO_2 concentrations did exceed the annual mean AQO at locations across the proposed development site on the ground floor and first floor level heights. It should be noted that there are no sensitive land uses across the ground floor of the development and NO_2 concentrations remained below the AQO at proposed sensitive land uses the first floor level with concentrations ranging from 33.18 – 33.90. Therefore pollutant concentrations across sensitive land uses are classified as APEC - A (no air quality grounds for refusal) as in accordance with the London Councils Air Quality and Planning Guidance[5]. It should also be noted that in line with Policy Q2 of the local plan, all outdoor amenity spaces remained below the AQO.

Additionally, background NO_2 levels are likely to be lower at elevated heights due to increased distance from emission sources, such as the local road network. Therefore, predicted concentrations at heights above the second floor level are considered to be acceptable in regards to pollutant exposure and have not been assessed further.

Based on the results of the dispersion modelling assessment, the site is considered to be suitable for the proposed use without the implementation of mitigation techniques to protect future site users from elevated annual mean NO_2 concentrations.

5.2.2 Nitrogen Dioxide - 1-Hour Mean

Predicted 99.79th percentile of hourly mean NO_2 concentrations were predicted across the development site at a height of 1.5m to represent exposure across the ground floor level during the development opening year (2022), as shown in Figure 9. The predicted concentrations are summarised in Table 14 for the development opening year.

Table 14 Predicted 1-Hour Mean NO_2 Concentrations

Floor Height	Predicted 2022 Hourly 99.79th %ile NO_2 Concentration Range (µg/m^3)
Ground Floor (1.5m)	70.47 – 96.93

As indicated in Table 14, there are no predicted exceedances of the hourly AQO across the entire development site.

Similar to annual mean NO_2, it is considered that 1-hour mean NO_2 concentrations are likely to be lower at elevated heights due to increased distance from emission sources, such as road. Therefore, predicted concentrations at elevations above the ground floor level have not been included within this assessment.

Based on the results of the dispersion modelling assessment, the site is considered to be suitable for the proposed use without the implementation of mitigation techniques to protect future site users from elevated 1-hour mean NO_2 concentrations.

5.2.3 Particulate Matter (PM_{10}) - Annual Mean

Annual Mean PM_{10} concentrations were modelled across the development site at ground floor (1.5m) level for the development opening year (2022), as shown in Figure 10 within Appendix I.

The predicted concentrations for the development opening year across the development site are summarised in Table 15.

Table 15 Predicted Annual Mean PM_{10} Concentrations

Floor	Predicted 2022 Annual Mean PM_{10} Concentration Range (µg/m^3)	APEC Category
Ground Floor (1.5m)	12.31 – 20.68	A

Table 15 indicates that annual mean PM_{10} concentrations did not exceed the annual mean AQO across the proposed development site on the ground floor level and are classified as APEC - A across the development. In accordance with the London Councils Air Quality and Planning Guidance[7] there is no requirement for further mitigation measures.

Similar to NO_2, it is considered that PM_{10} concentrations are likely to be lower at elevated heights due to increased distance from emission sources, such as road. Therefore, predicted concentrations at elevations above the ground floor level have not been included within this assessment.

Based on the results of the dispersion modelling assessment, the site is considered to be suitable for the proposed use without the implementation of mitigation techniques to protect future site users from elevated annual mean PM_{10} concentrations.

1.1.1 Particulate Matter – 24-hour mean

The predicted number of days with 24-hour mean PM_{10} concentrations greater than 50µg/m3 was predicted across the development at 1.5m for the development opening year (2022), as shown in Figure 12. The predicted concentrations for the DS scenarios at the proposed units are summarised in Table 16 for the development opening year.

Table 16 Predicted 24 Hour Mean PM_{10} Concentrations

Floor Height	Predicted Number Of Days With PM_{10} Concentrations Greater than 50µg/m^3 2022	APEC Category
1.5m	2.61 – 4.35	A

As indicated in Table 16, the predicted number of days is below the permitted number of 35 at all locations on the development site. The proposed development is therefore categorised as APEC-A in accordance with the London Councils Air Quality and Planning Guidance

Based on the results of the dispersion modelling assessment, the site is considered to be suitable for the proposed use without the implementation of mitigation techniques to protect future site users from elevated 24-hour mean PM_{10} concentrations.

5.2.4 Particulate Matter ($PM_{2.5}$) – Annual Mean

$PM_{2.5}$ has not been modelled within the assessment as the predicted concentrations relating to annual mean PM_{10} remain below the AQO for $PM_{2.5}$ (25µg/m^3).

Since PM_{10} contains all particulate matter with an aerodynamic diameter of less than 10µm, $PM_{2.5}$ is effectively accounted for within these predictions; and at worst could be considered that $PM_{2.5}$ concentrations would be equal to the predicted PM_{10} concentrations.

5.2.5 Road Traffic Exhaust Emissions

Any additional vehicle movements associated with the proposed development will generate exhaust emissions, such as NO_2, PM_{10} and $PM_{2.5}$ on the local and regional road networks.

Based on the information provided, the development will result in no additional AADT flows. Therefore, it is not anticipated the development will result in a change of AADT flows of more than 100, or produce over 25 HDV movements per day. Furthermore, it is not considered that average speeds on the local road network will be significantly affected.

As such, potential air quality impacts associated with operational phase road vehicle exhaust emissions are likely to be **not significant**, in accordance with the EPUK and IAQM[11] screening criteria shown in Section 3; and have not been considered further during the preparation of the assessment.

5.3 Air Quality Neutral Assessment

The proposals comprise the redevelopment of the site to incorporate a mixed use seven storey development consisting of 13 residential units, A1 and B1 floor space. As stated above, the development will not result in a change of AADT flows in regards to traffic generation and subsequently will not increase development emissions when compared to the current situation. The development is also proposed to have no on site energy generation and as such is not anticipated to produce combustion emissions.

As such it is not expected that the development will impact the total emissions generated by the site, and therefore, an Air Quality Neutral Assessment is not deemed necessary.

[11] Land-Use Planning & Development Control: Planning for Air Quality, EPUK and IAQM, January 2017.

6. CONCLUSION

REC Ltd was commissioned by Cold Harbour Lane Ltd to undertake an Air Quality Assessment in support of the proposed redevelopment of the land to the rear of 219 – 223 Cold Harbour Lane, Lambeth.

The proposals comprise the extending the existing first floor to the rear and adding five storeys on top of the existing building to create 13 new residential properties with retail and office uses in the existing ground and first floors.

The site is located within the Lambeth AQMA as such, there is the potential to introduce future users to poor air quality as well as to cause adverse impacts during the operational and construction phases. As such, an Air Quality Assessment was required to quantify pollution levels across the site, consider its suitability for the proposed end-use and assess potential impacts as a result of the development.

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 GLA methodology. Assuming good practice dust control measures are implemented, the residual potential air quality impacts from dust generated by demolition, earthworks, construction and trackout activities was predicted to be **not significant**.

Dispersion modelling was also undertaken in order to quantify pollutant concentrations at the site. Concentrations of NO_2 were predicted at ground, first and second floor levels. This indicated that concentrations of NO_2 across the proposed development at sensitive locations were categorised as APEC - A. Concentrations of PM_{10} were also predicted at ground floor level. This indicated that concentrations of PM_{10} across the proposed development are also categorised as APEC - A. The location is therefore considered suitable for the proposed end-use without the inclusion of mitigation methods to protect future users from poor air quality.

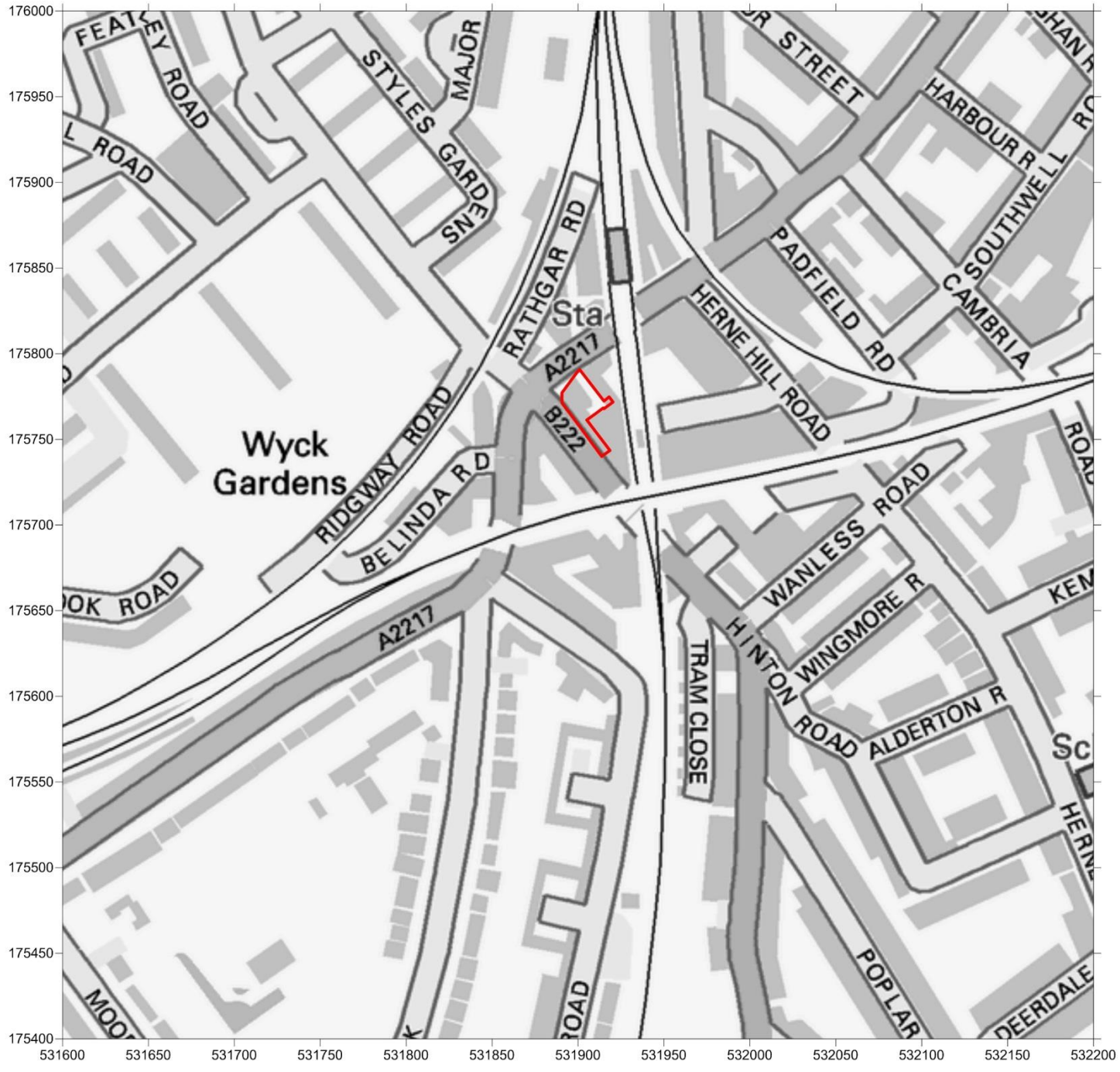
Potential impacts during the operational phase of the development may occur due to road traffic exhaust emissions associated with vehicles travelling to and from the site. An assessment was therefore undertaken using the EPUK and IAQM screening criteria to determine the potential for trips generated by the development to affect local air quality. This indicated that impacts are likely to be **not significant** throughout the operational phase.

Based on the assessment results the site is considered suitable for the proposed end use subject to the inclusion of relevant mitigation measures, and complies with the London Plan, the LBoL Local Plan and relevant GLA legislation.

7. ABBREVIATIONS

AADT	Annual Average Daily Traffic
ADM	Atmospheric Dispersion Modelling
AQAP	Air Quality Action Plan
AQLV	Air Quality Limit Value
AQMA	Air Quality Management Area
AQO	Air Quality Objectives
AQS	Air Quality Strategy
CERC	Cambridge Environmental Research Consultants
DEFRA	Department for Environment, Food and Rural Affairs
DfT	Department for Transport
EPUK	Environmental Protection UK
EU	European Union
GLA	Greater London Authority
HDV	Heavy Duty Vehicle
IAQM	Institute of Air Quality Management
LA	Local Authority
LBoL	London Borough of Lambeth
LLAQM	London Local Air Quality Management
NGR	National Grid Reference
NO_2	Nitrogen dioxide
NO_x	Oxides of nitrogen
NPPF	National Planning Policy Framework
NPPG	National Planning Practice Guidance
$PM_{2.5}$	Particulate matter with an aerodynamic diameter of less than 2.5µm
PM_{10}	Particulate matter with an aerodynamic diameter of less than 10µm
REC	Resource and Environmental Consultants
TEB	Transport Emissions Benchmark
TEMPRO	Trip End Model Presentation Program
z_0	Roughness Length

APPENDIX I FIGURES



Legend

Site Boundary

Title

Figure 1

Site Location

Project

Air Quality Assessment
219 - 223 Coldharbour lane, Lambeth, London

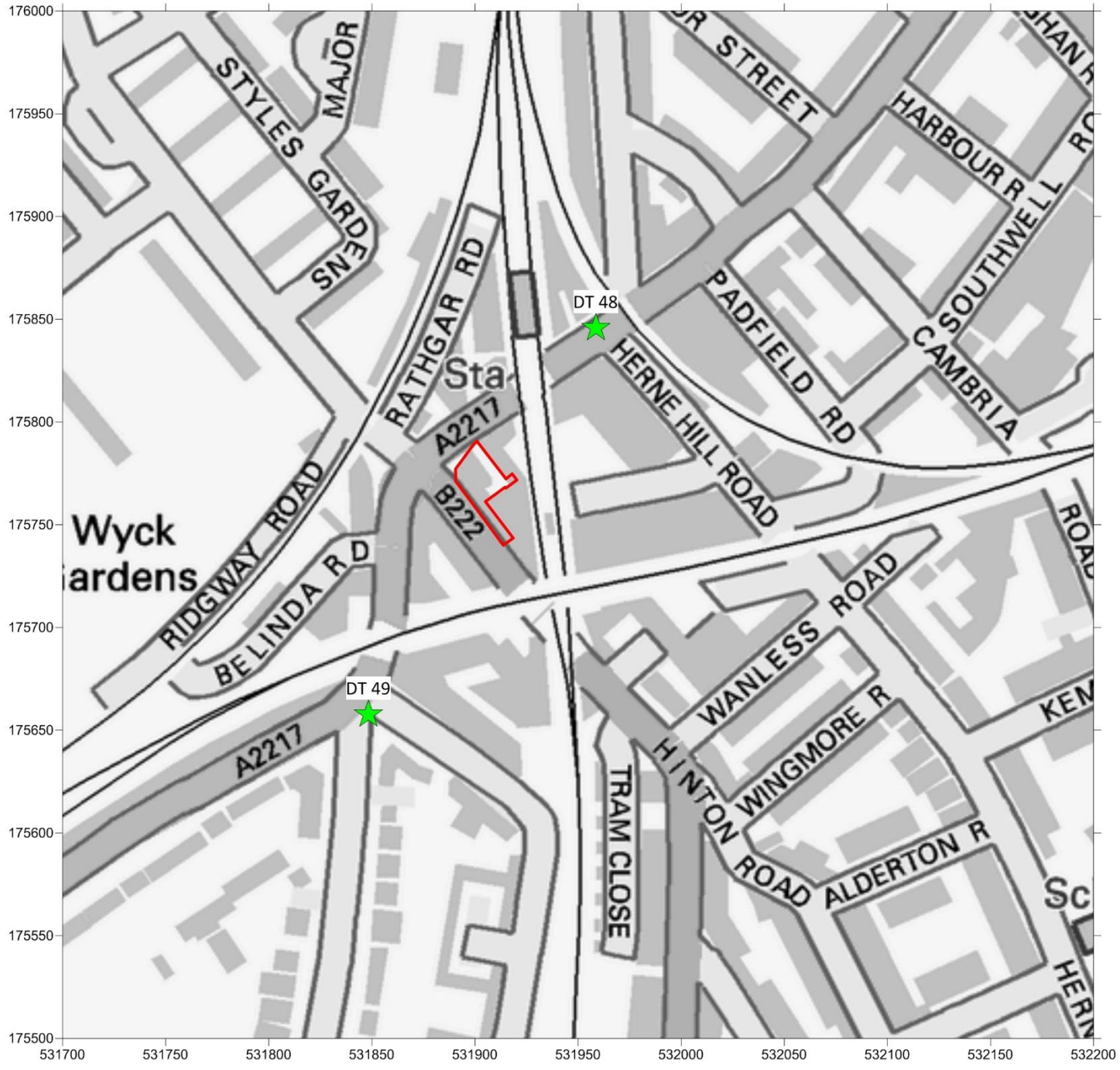
Project Number

AQ103204

Client

Cold Harbour Lane Ltd

REC
Resource and Environmental Consultants Ltd
Osprey House, Broadway, Manchester M50 2UE
Tel – 0161 868 1300 Fax – 0161 868 1301
www.recltd.co.uk



Legend

Site Boundary

Automatic Analyser Monitoring Location

Title

Figure 2

Diffusion Tube Monitoring Locations

Project

Air Quality Assessment
219 - 223 Coldharbour lane, Lambeth, London

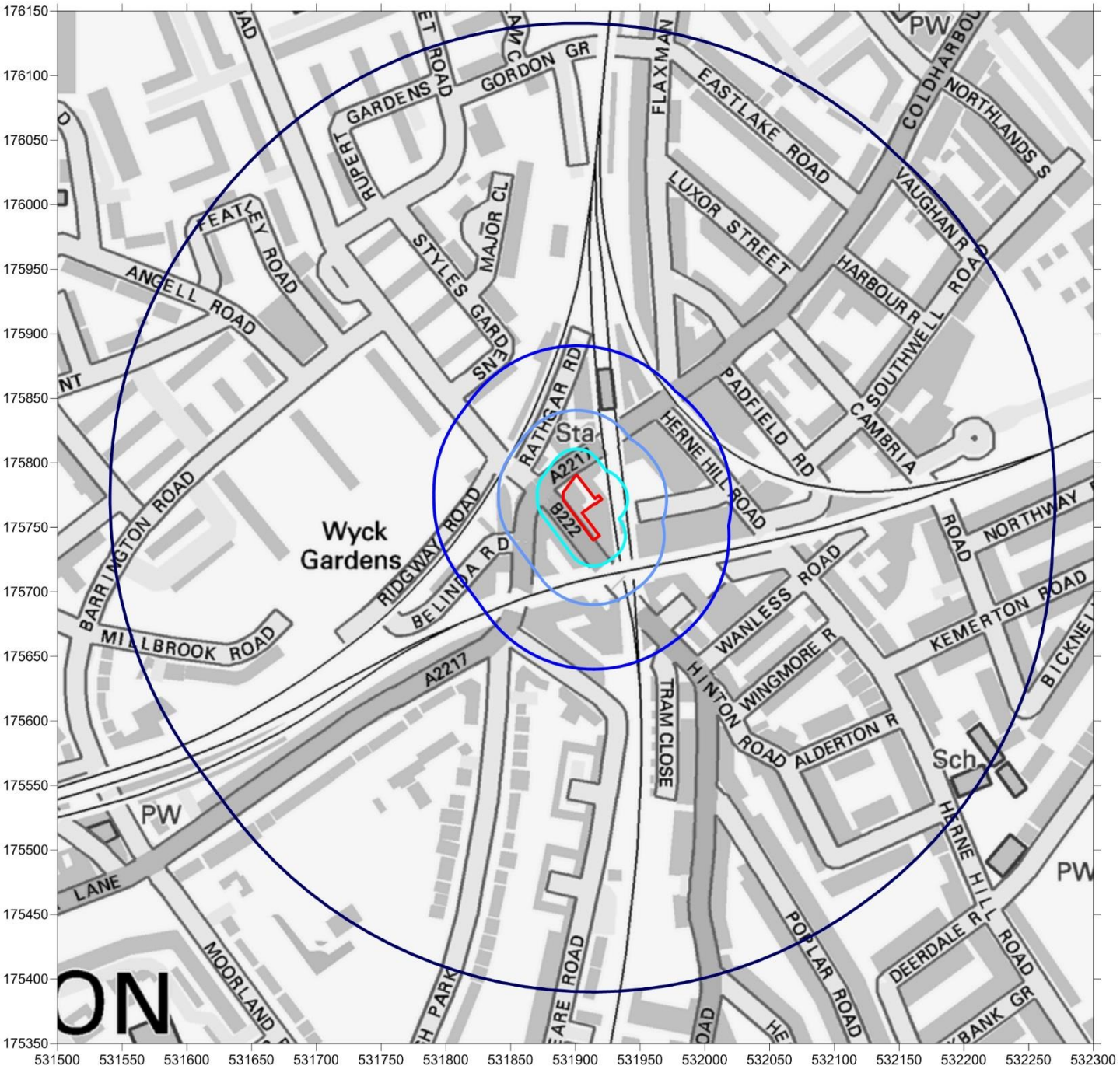
Project Number

AQ103204

Client

Cold Harbour Lane Ltd

REC
Resource and Environmental Consultants Ltd
Osprey House, Broadway, Manchester M50 2UE
Tel – 0161 868 1300 Fax – 0161 868 1301
www.recltd.co.uk



Legend

- Site Boundary
- 20m from Site Boundary
- 50m from Site Boundary
- 100m from Site Boundary
- 350m from Site Boundary

Title

Figure 3

Demolition, Earthworks and Construction Dust Buffer Zones

Project

Air Quality Assessment
219 - 223 Coldharbour lane, Lambeth, London

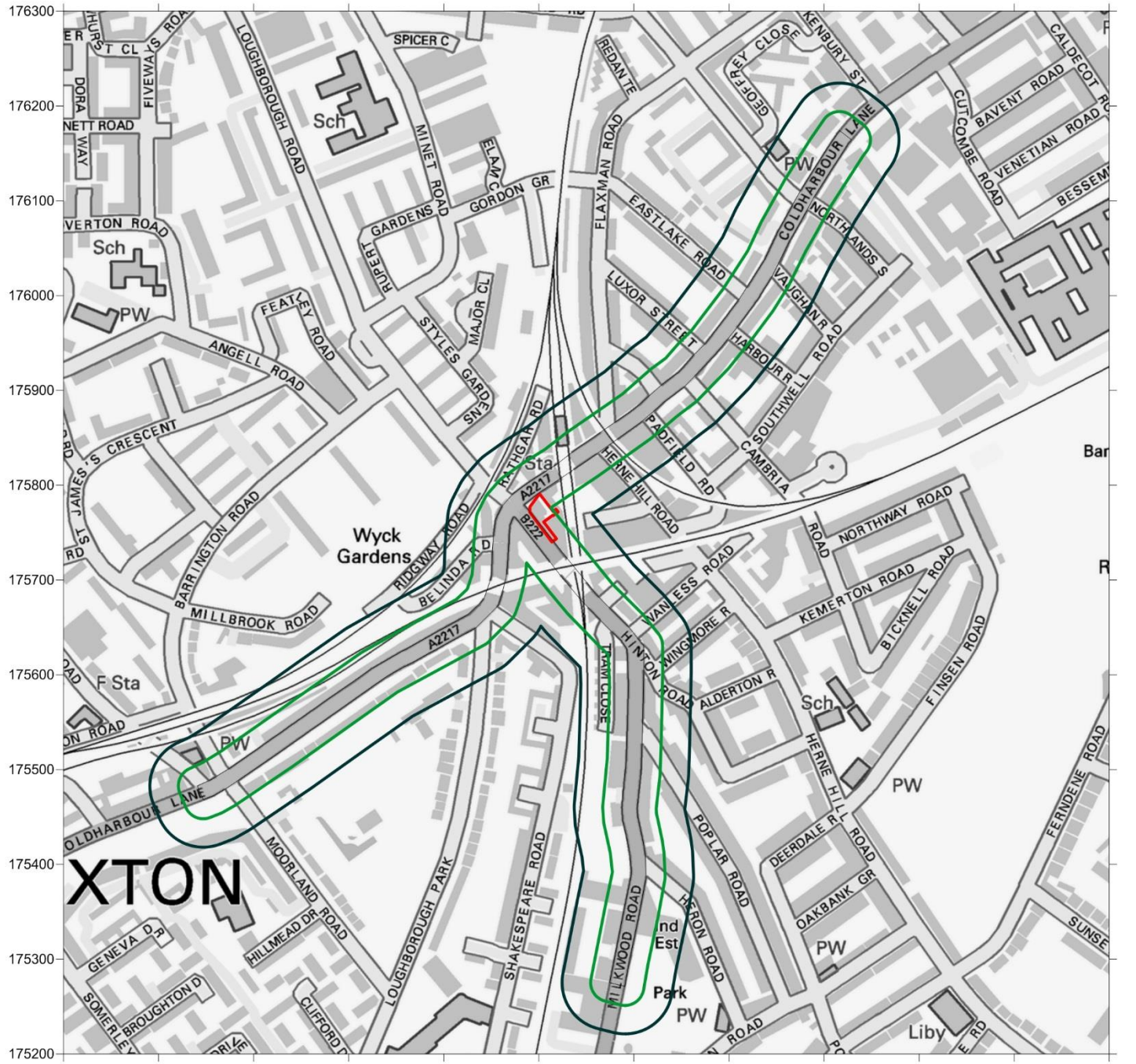
Project Number

AQ103204

Client

Cold Harbour Lane Ltd

REC
Resource and Environmental Consultants Ltd
Osprey House, Broadway, Manchester M50 2UE
Tel – 0161 868 1300 Fax – 0161 868 1301
www.recltd.co.uk



Legend

- Site Boundary
- 20m from Site Access Route
- 50m from Site Access Route

Title

Figure 4

Trackout Dust Buffer Zones

Project

Air Quality Assessment
219 - 223 Coldharbour lane, Lambeth, London

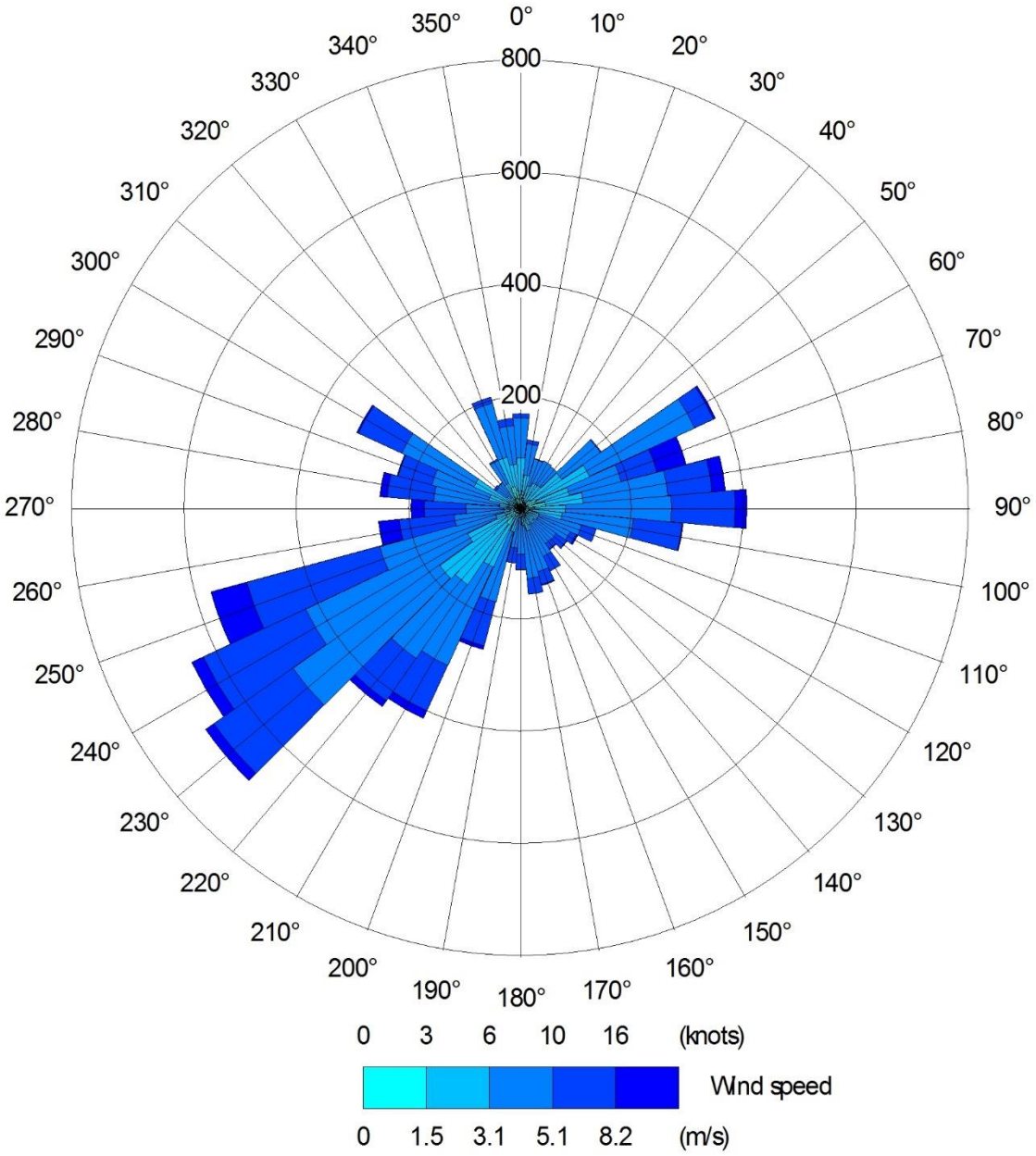
Project Number

AQ103204

Client

Cold Harbour Lane Ltd

REC
Resource and Environmental Consultants Ltd
Osprey House, Broadway, Manchester M50 2UE
Tel – 0161 868 1300 Fax – 0161 868 1301
www.recltd.co.uk



Title

Figure 5

Wind Rose
London City Airport
Meteorological Station 2018

Project

Air Quality Assessment
219 - 223 Coldharbour lane, Lambeth, London

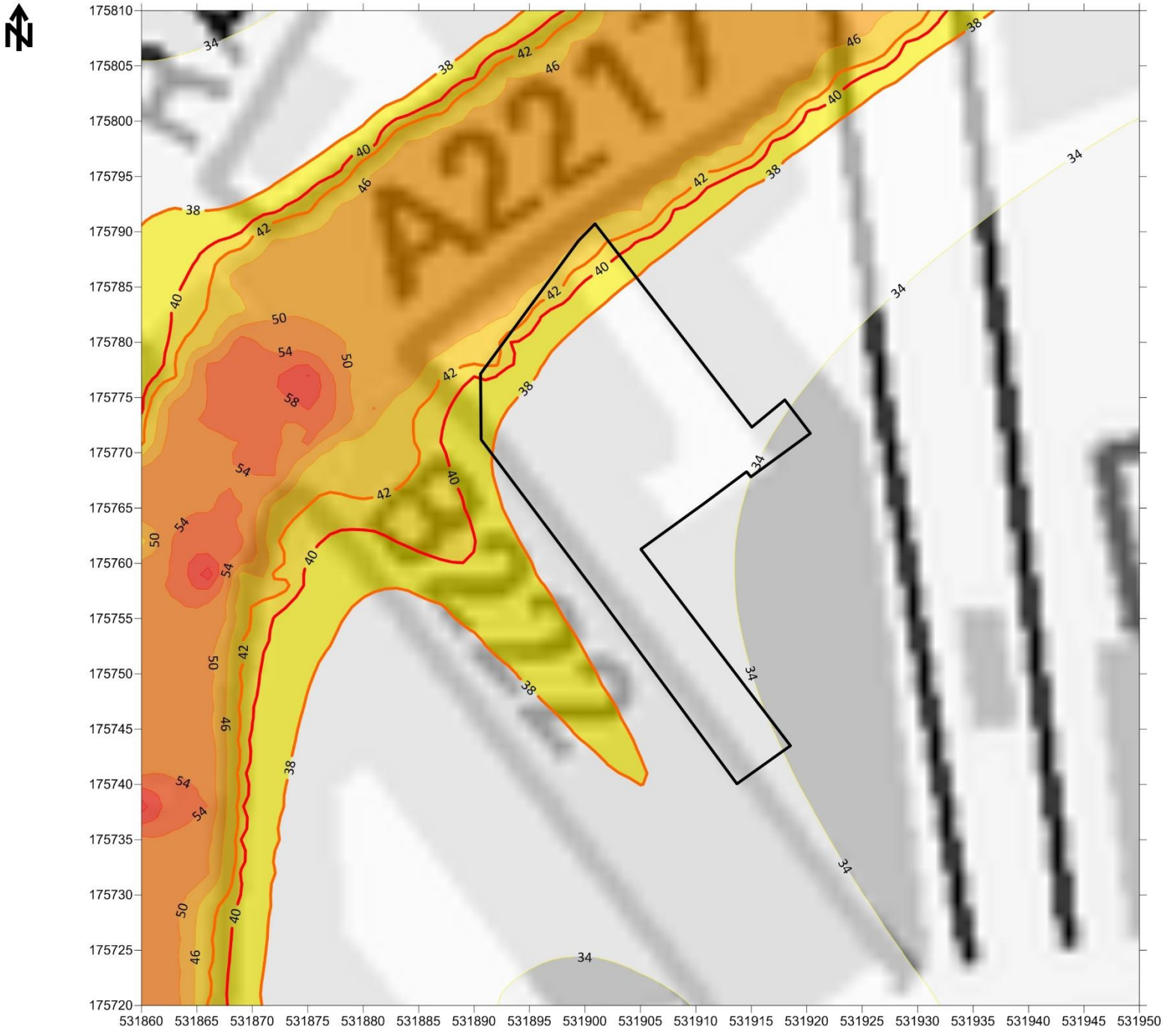
Project Number

AQ103204

Client

Cold Harbour Lane Ltd

REC
Resource and Environmental Consultants Ltd
Osprey House, Broadway, Manchester M50 2UE
Tel – 0161 868 1300 Fax – 0161 868 1301
www.recltd.co.uk



Legend

Site Boundary

Predicted Annual Mean NO_2 Concentration (µg/m³)

62
58
54
50
46
42
40
38
34

Title

Figure 6

Predicted Annual Mean NO_2 Concentrations (µg/m³) 2022 DS
Z = 1.5m

Project

Air Quality Assessment
219 - 223 Coldharbour lane, Lambeth, London

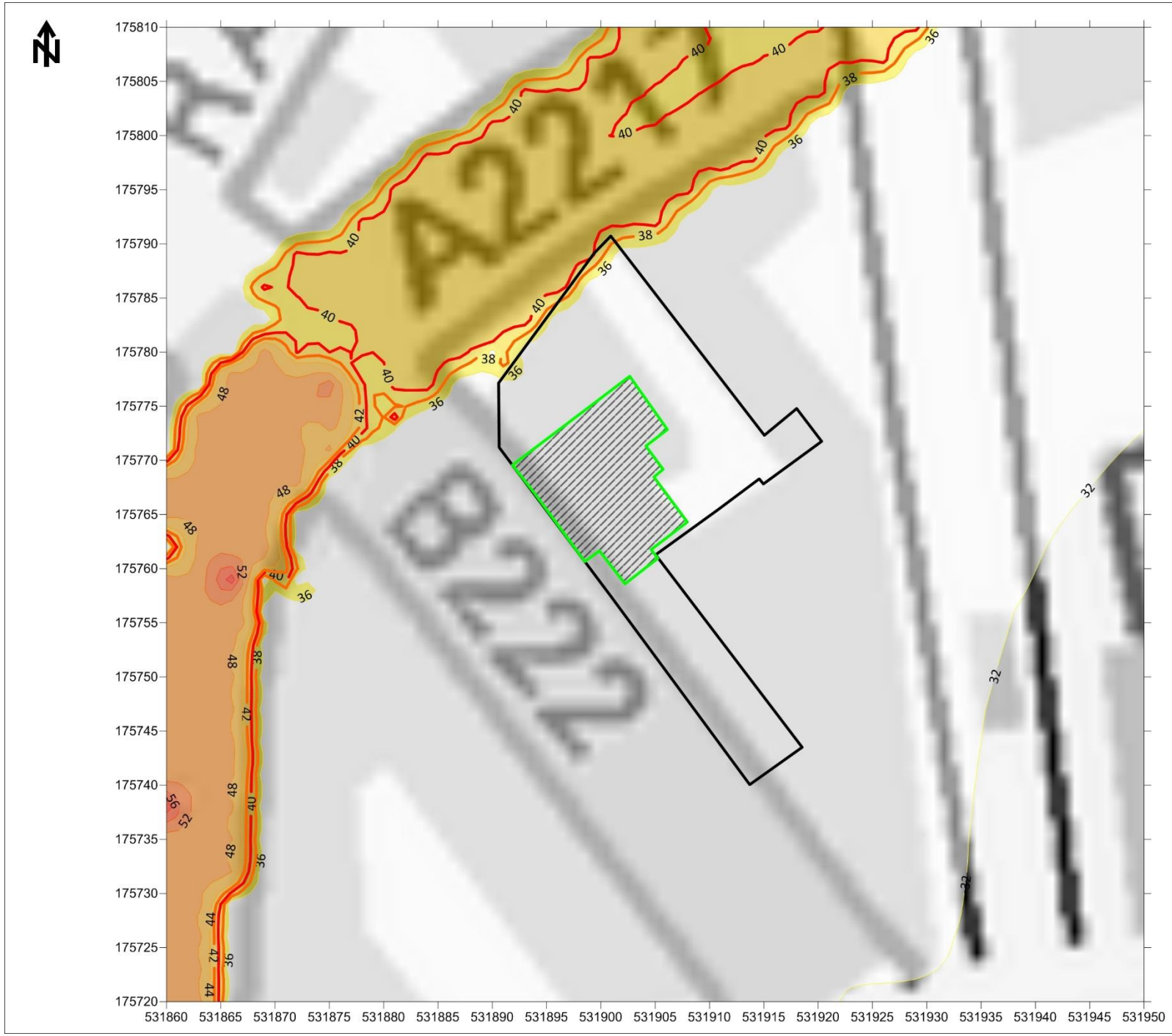
Project Number

AQ103204

Client

Cold Harbour Lane Ltd

REC
Resource and Environmental Consultants Ltd
Osprey House, Broadway, Manchester M50 2UE
Tel – 0161 868 1300 Fax – 0161 868 1301
www.recltd.co.uk



Legend

Site Boundary

Predicted Annual Mean NO_2 Concentration (µg/m³)

60
56
52
48
44
42
40
38
36
32

Title

Figure 7

Predicted Annual Mean NO_2 Concentrations (µg/m³) 2022 DS
Z = 5.5m

Project

Air Quality Assessment
219 - 223 Coldharbour lane, Lambeth, London

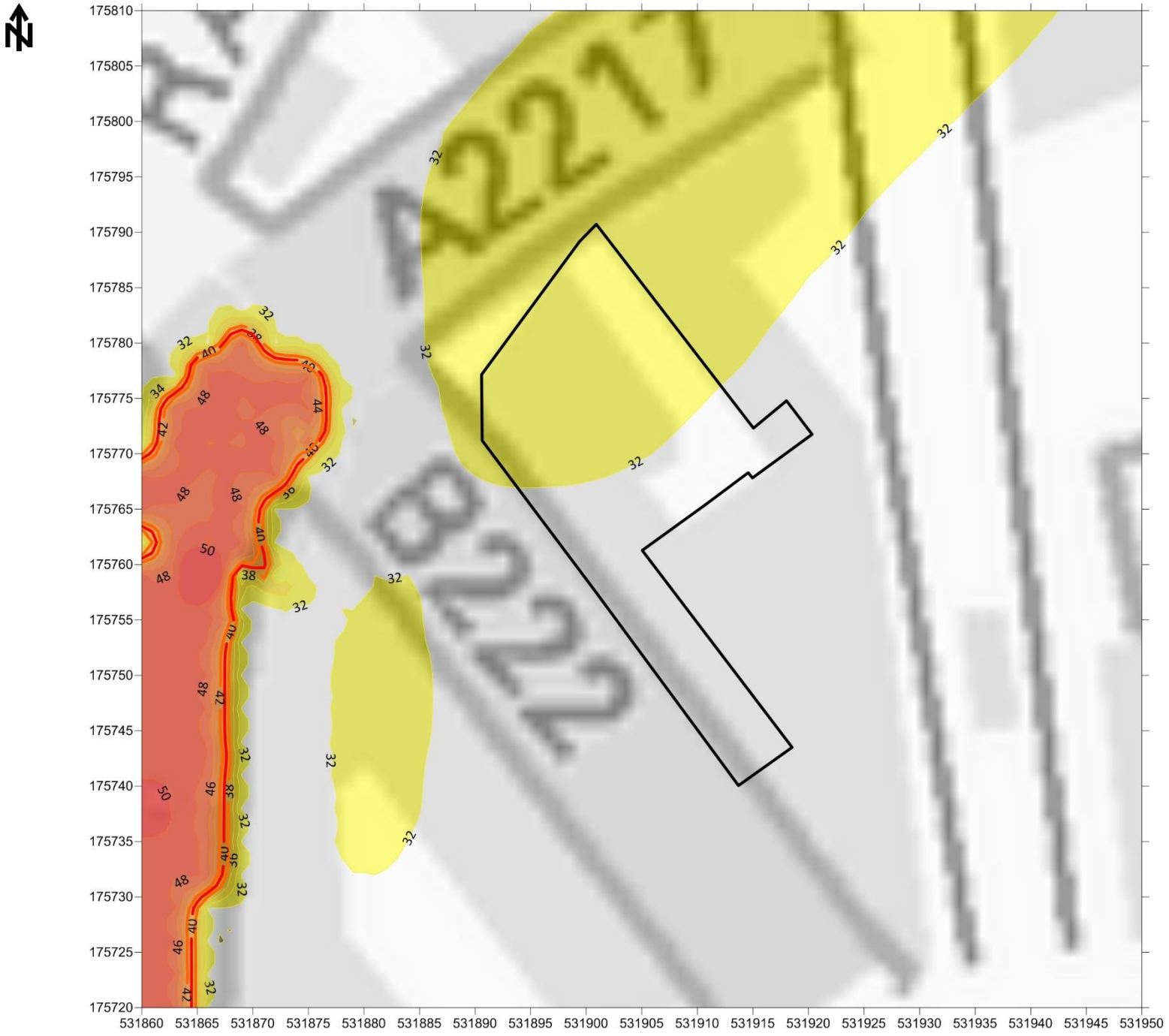
Project Number

AQ103204

Client

Cold Harbour Lane Ltd

REC
Resource and Environmental Consultants Ltd
Osprey House, Broadway, Manchester M50 2UE
Tel – 0161 868 1300 Fax – 0161 868 1301
www.recltd.co.uk



Legend

Site Boundary

Predicted Annual Mean NO_2 Concentration (µg/m³)

50
48
46
44
42
40
38
36
34
32
31

Title

Figure 8

Predicted Annual Mean NO_2 Concentrations (µg/m³) 2022 DS
Z = 8.4m

Project

Air Quality Assessment
219 - 223 Coldharbour lane, Lambeth, London

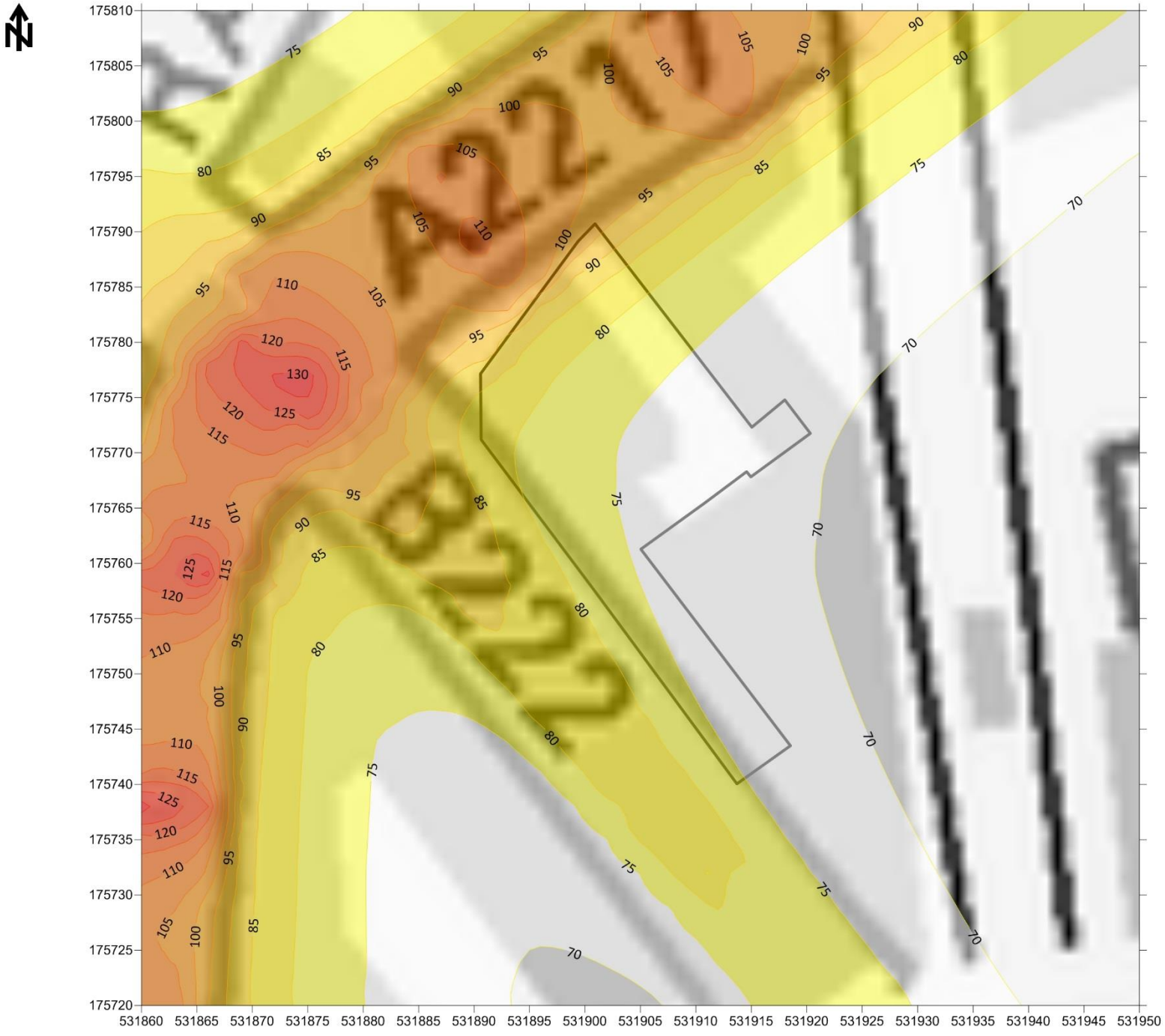
Project Number

AQ103204

Client

Cold Harbour Lane Ltd

REC
Resource and Environmental Consultants Ltd
Osprey House, Broadway, Manchester M50 2UE
Tel – 0161 868 1300 Fax – 0161 868 1301
www.recltd.co.uk



Legend

Site Boundary

130
125
120
115
110
105
100
95
90
85
80
75
70

Predicted 1-Hour Mean NO_2 Concentration (µg/m³)

Title

Figure 9

Predicted 1-Hour Mean NO_2 Concentrations (µg/m³) 2022 DS
Z = 1.5m

Project

Air Quality Assessment
219 - 223 Coldharbour lane, Lambeth, London

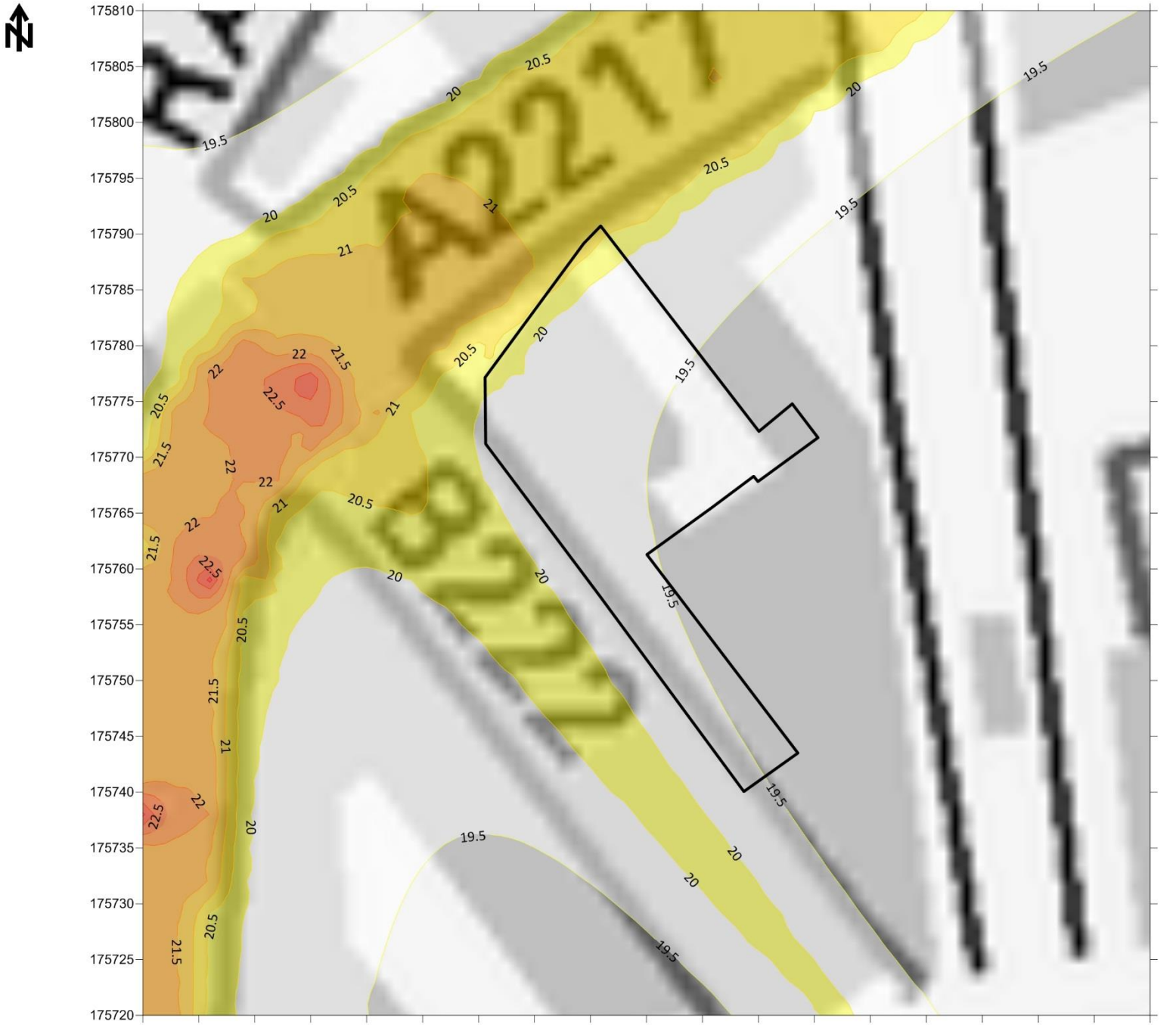
Project Number

AQ103204

Client

Cold Harbour Lane Ltd

REC
Resource and Environmental Consultants Ltd
Osprey House, Broadway, Manchester M50 2UE
Tel – 0161 868 1300 Fax – 0161 868 1301
www.recltd.co.uk



Legend

Site Boundary

Predicted Annual Mean PM_{10} Concentration (µg/m³)

23.5
23
22.5
22
21.5
21
20.5
20
19.5

Title

Figure 10

Predicted Annual Mean PM_{10} Concentrations (µg/m³) 2022 DS
Z = 1.5m

Project

Air Quality Assessment
219 - 223 Coldharbour lane, Lambeth, London

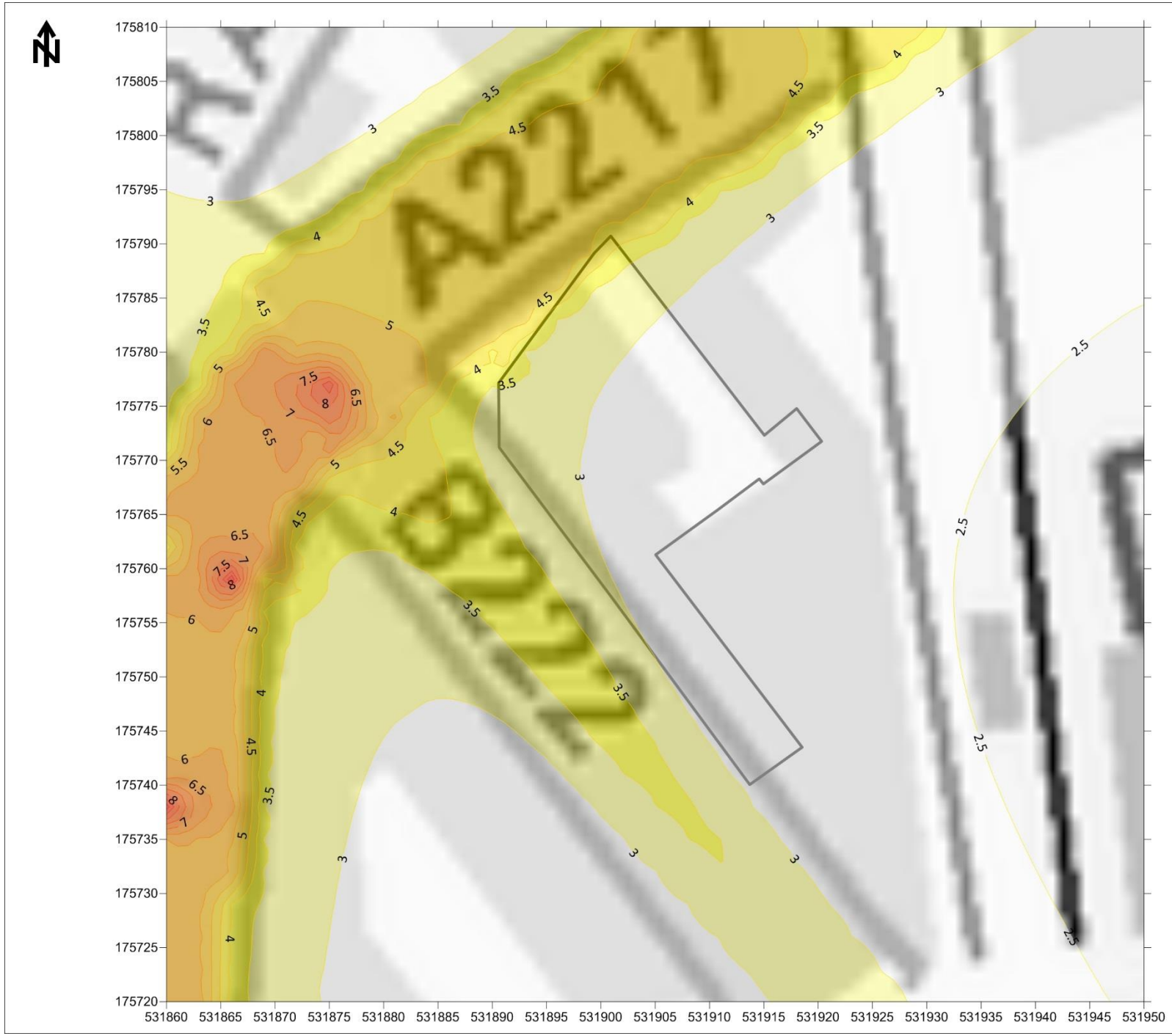
Project Number

AQ103204

Client

Cold Harbour Lane Ltd

REC
Resource and Environmental Consultants Ltd
Osprey House, Broadway, Manchester M50 2UE
Tel – 0161 868 1300 Fax – 0161 868 1301
www.recltd.co.uk



Legend

Site Boundary

9.5
9
8.5
8
7.5
7
6.5
6
5.5
5
4.5
4
3.5
3
2.5

Predicted Number of Days with PM_{10} Concentrations Greater than 50µg/m³

Title

Figure 11

Predicted Number of Days with PM_{10} Concentrations Greater the 50µg/m³
2022
z = 1.5m

Project

Air Quality Assessment
219 - 223 Coldharbour lane, Lambeth, London

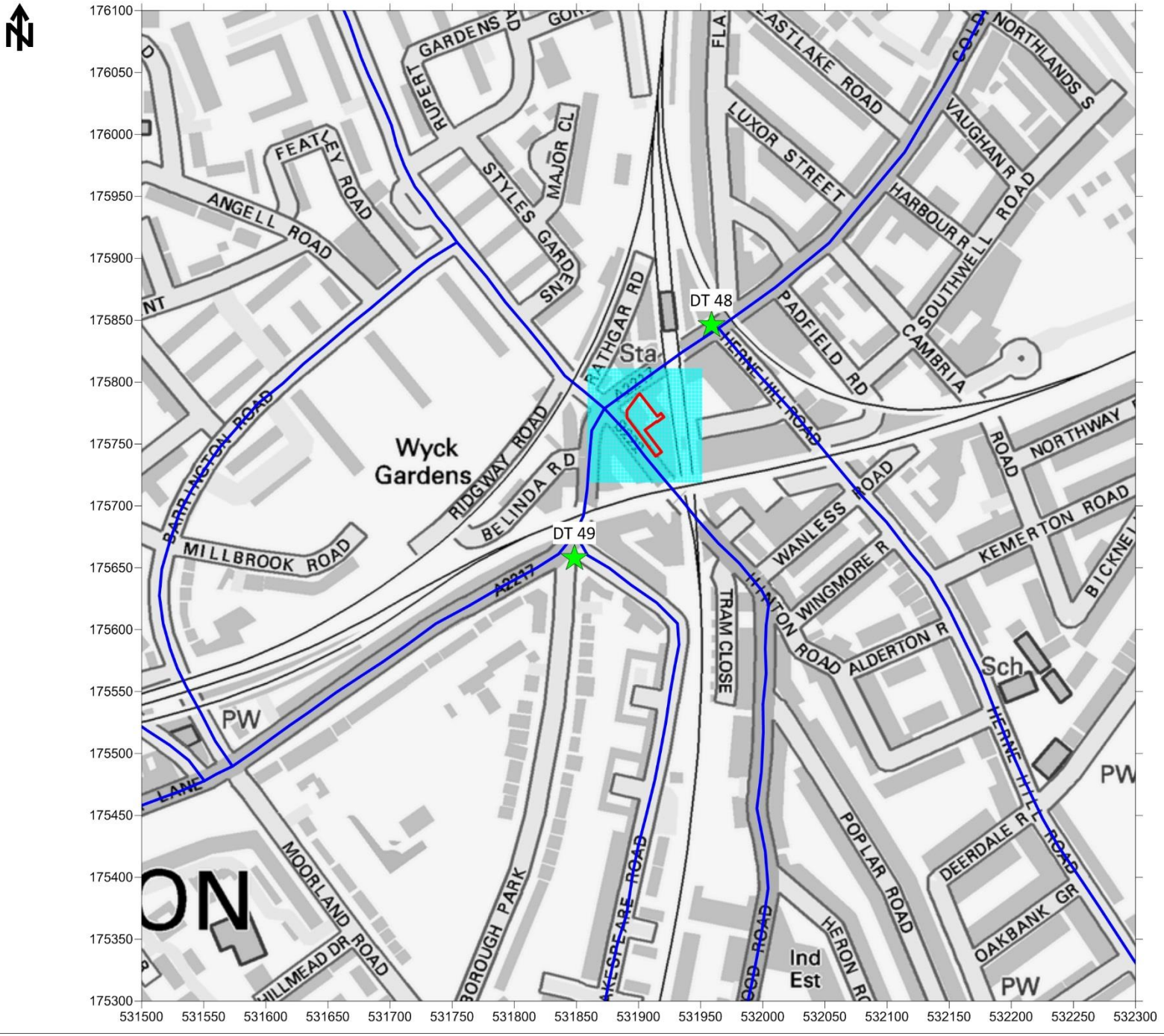
Project Number

AQ103204

Client

Cold Harbour Lane Ltd

REC
Resource and Environmental Consultants Ltd
Osprey House, Broadway, Manchester M50 2UE
Tel – 0161 868 1300 Fax – 0161 868 1301
www.recltd.co.uk



Legend

- Site Boundary
- Modelled Road Link
- Cartesian Grid
- Diffusion Tube Monitoring

Title

Figure 12

ADMS-Roads Input

Project

Air Quality Assessment
219 - 223 Coldharbour lane, Lambeth, London

Project Number

AQ103204

Client

Cold Harbour Lane Ltd

REC
Resource and Environmental Consultants Ltd
Osprey House, Broadway, Manchester M50 2UE
Tel – 0161 868 1300 Fax – 0161 868 1301
www.recltd.co.uk

APPENDIX II ASSESSMENT INPUT DATA

ASSESSMENT INPUTS

As the proposals are located within Lambeth AQMA there is the potential to expose future site users to elevated pollutant levels. Dispersion modelling utilising ADMS-Roads software was therefore undertaken to predict relevant NO_2, PM_{10} and $PM_{2.5}$ concentrations across the development site to assess site suitability for the proposed end-use.

The dispersion model requires input data that details the following parameters:

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

Assessment inputs are described in the following subsections.

Dispersion Model

Dispersion modelling was undertaken using the ADMS-Roads dispersion model (version 4.0.1.0). 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.

Assessment Area

Ambient concentrations were predicted over the area NGR: 531860, 175720 to 531950, 175810 at a height of 1.5m, 5.5m and 8.4m to represent the ground, first and second floor level respectively.

Results were subsequently used to produce contour plots within the Surfer software package.

Reference should be made to Figure 8 within Appendix I for a graphical representation of the assessment grid extents and ADMS-Road inputs for the operational year.

Traffic Flow Data

Traffic data for use in the assessment, including 24-hour Annual Average Daily Traffic (AADT) flows and fleet composition, was obtained from the 2016 London Atmospheric Emissions Inventory (LAEI). The updated version of the LAEI was released by the Greater London Authority (GLA) in 2016 and provides information on emissions from all sources of air pollutants in the Greater London area for the year 2013.

Growth factors provided by the Trip End Model Presentation Program (TEMPRO) software package were utilised to allow for conversion from the obtained 2013 traffic flow year to 2018, for model verification, and to 2022 which was used to represent the operational year of the proposed development.

Road widths were estimated from aerial photography and UK highway design standards. Reference should be made to Figure 12 within Appendix I for a graphical representation of the road link locations. Vehicle speeds were estimated based on the free flow potential of each link and local speed limits.

A summary of the traffic data used in the assessment is provided in Table AII.1 and Table AII.2.

Table AII.1 2018 Traffic Data

Road Link		Canyon Height (m)	Road Width (m)	24-hour AADT Flow	HDV Prop. (%)	Mean Vehicle Speed (km/h)
L1	Cold Harbour Lane - North of Herne Hill	11	20.3	13,922	11.86	30
L2	Coldbarbour Lane - North of B222	8	18.0	14,123	13.11	15
L3	Cold Harbour Lane - North of Loughborough Park	9	12.5	14,268	14.00	18
L4	Cold Harbour Lane - South of Loughborough Park	11	13.5	14,123	13.11	27
L5	Cold Harbour Lane - North of Moorland Road	0	10.5	14,123	13.11	15
L6	Cold Harbour Lane - South of Moorland Road	0	10.5	13,088	6.24	20
L7	Cold Harbour Lane - North of Somerleyton Road	0	7.5	13,088	6.24	20
L8	Cold Harbour Lane - North of Atlantic Road	0	7.0	13,233	7.27	15
L9	Cold Harbour Lane - West of Atlantic Road	0	5.5	13,233	7.27	15
L10	Cold Harbour Lane - East of Brixton Road	0	5.5	13,233	7.27	12
L11	Atlantic Road - North of Cold Harbour Road	11	9.0	2,863	5.32	15
L12	Brixton Road - North of Cold Harbour Road Northbound	0	7.0	12,159	21.62	12
L13	Brixton Road - North of Brighton Terrace Northbound	0	7.0	12,181	21.76	15
L14	Brixton Road - North of Cold Harbour Road Southbound	0	9.0	12,071	21.04	15
L15	Brixton Road - North of Electric Avenue Southbound	0	10.0	12,181	21.76	15
L16	Brixton Road - South of Atlantic Road	0	11.0	23,708	19.60	10
L17	Brixton Road - North of Atlantic Road	8.5	15.6	23,860	20.11	10
L18	Brixton Road - North of Canterbury Road Northbound	0	7.0	11,438	16.68	10
L19	Brixton Road - North of Canterbury Road Southbound	0	7.0	11,438	16.68	10

Road Link		Canyon Height (m)	Road Width (m)	24-hour AADT Flow	HDV Prop. (%)	Mean Vehicle Speed (km/h)
L20	Stockwell Road - West of Brixton Road	0	10.0	13,225	13.92	15
L21	Stockwell Road - West of Astoria Way	0	10.0	13,225	13.92	15
L22	Stockwell Park Walk - East of Stockwell Road	0	11.0	8,301	13.07	20
L23	Stockwell Park Walk - West of Astoria Way	0	11.0	8,301	13.07	13
L24	Stockwell Park Walk - West of Brixton Road	0	11.0	8,301	13.07	5
L25	Loughborough Road - North of Cold Harbour Road	0	11.0	3,834	10.48	16
L26	Loughborough Road - North of Barrington Road	0	10.5	9,786	8.13	24
L27	Loughborough Road - South of Akerman Road	0	11.0	9,786	8.13	18
L28	Akerman Road - North of Loghborough Road	0	8.0	9,315	6.83	14
L29	Hinton Road - South of Cold Harbour Road	0	7.0	8,243	4.62	33
L30	Milkwood Road - South of Hinton Road	0	7.5	8,243	4.62	30
L31	Milkwood Road - South of Poplar Road	0	7.5	8,243	4.62	33
L32	Barrington Road - North of Cold Harbour	0	12.0	3,273	14.26	20
L33	Barrington Road - South Brixton Station Road	0	12.0	3,273	14.26	30
L34	Barrington Road - West of Loughborough Road	0	10.0	3,273	14.26	20
L35	Herne Hill Road - South of Cold Harbour Road	0	10.0	13,591	3.31	20
L36	Herne Hill Road - South of Padfield Road	0	7.0	13,591	3.31	25
L37	Gresham Road - North of Cold Harbour Road	0	10.0	3,871	28.66	20
L38	Gresham Road - North of Brixton Station Road	0	10.0	3,871	28.66	23
L39	Gresham Road - East of Brixton Road	0	10.0	3,871	28.66	15
L40	Shakespeare Road - South of Cold Harbour Lane	0	8.0	6,555	6.31	20
L41	Shakespeare Road - North of Evelyn Grace Academy	0	8.0	6,555	6.31	25
L42	Lilford Road - North of Cold Harbour Lane	0	6.5	2,694	1.57	20

Road Link		Canyon Height (m)	Road Width (m)	24-hour AADT Flow	HDV Prop. (%)	Mean Vehicle Speed (km/h)
L43	Lilford Road - North of Geoffrey Close	0	8.0	2,694	1.57	25
L44	Lilford Road - East of Loughborough Road	0	9.0	2,767	4.14	15

The road width and mean vehicle speed shown in Table All.1 remained the same for the 2022 DS scenarios. A summary of the 2022 traffic data is shown in Table All.2.

Table AII.2 2022 Traffic Data

Road Link		DS	
		24-hour AADT Flow	HDV Prop. (%)
L1	Cold Harbour Lane - North of Herne Hill	14,511	11.86
L2	Coldbarbour Lane - North of B222	14,720	13.11
L3	Cold Harbour Lane - North of Loughborough Park	14,872	14.00
L4	Cold Harbour Lane - South of Loughborough Park	14,720	13.11
L5	Cold Harbour Lane - North of Moorland Road	14,720	13.11
L6	Cold Harbour Lane - South of Moorland Road	13,642	6.24
L7	Cold Harbour Lane - North of Somerleyton Road	13,642	6.24
L8	Cold Harbour Lane - North of Atlantic Road	13,793	7.27
L9	Cold Harbour Lane - West of Atlantic Road	13,793	7.27
L10	Cold Harbour Lane - East of Brixton Road	13,793	7.27
L11	Atlantic Road - North of Cold Harbour Road	2,984	5.32
L12	Brixton Road - North of Cold Harbour Road Northbound	12,674	21.62
L13	Brixton Road - North of Brighton Terrace Northbound	12,696	21.76
L14	Brixton Road - North of Cold Harbour Road Southbound	12,581	21.04
L15	Brixton Road - North of Electric Avenue Southbound	12,696	21.76
L16	Brixton Road - South of Atlantic Road	24,711	19.60
L17	Brixton Road - North of Atlantic Road	24,869	20.11
L18	Brixton Road - North of Canterbury Road Northbound	11,922	16.68
L19	Brixton Road - North of Canterbury Road Southbound	11,922	16.68
L20	Stockwell Road - West of Brixton Road	13,784	13.92

Road Link		DS	
		24-hour AADT Flow	HDV Prop. (%)
L21	Stockwell Road - West of Astoria Way	13,784	13.92
L22	Stockwell Park Walk - East of Stockwell Road	8,652	13.07
L23	Stockwell Park Walk - West of Astoria Way	8,652	13.07
L24	Stockwell Park Walk - West of Brixton Road	8,652	13.07
L25	Loughborough Road - North of Cold Harbour Road	3,997	10.48
L26	Loughborough Road - North of Barrington Road	10,200	8.13
L27	Loughborough Road - South of Akerman Road	10,200	8.13
L28	Akerman Road - North of Loghborough Road	9,709	6.83
L29	Hinton Road - South of Cold Harbour Road	8,592	4.62
L30	Milkwood Road - South of Hinton Road	8,592	4.62
L31	Milkwood Road - South of Poplar Road	8,592	4.62
L32	Barrington Road - North of Cold Harbour	3,412	14.26
L33	Barrington Road - South Brixton Station Road	3,412	14.26
L34	Barrington Road - West of Loughborough Road	3,412	14.26
L35	Herne Hill Road - South of Cold Harbour Road	14,166	3.31
L36	Herne Hill Road - South of Padfield Road	14,166	3.31
L37	Gresham Road - North of Cold Harbour Road	4,035	28.66
L38	Gresham Road - North of Brixton Station Road	4,035	28.66
L39	Gresham Road - East of Brixton Road	4,035	28.66
L40	Shakespeare Road - South of Cold Harbour Lane	6,833	6.31
L41	Shakespeare Road - North of Evelyn Grace Academy	6,833	6.31
L42	Lilford Road - North of Cold Harbour Lane	2,808	1.57
L43	Lilford Road - North of Geoffrey Close	2,808	1.57
L44	Lilford Road - East of Loughborough Road	2,884	4.14

Emission Factors

Emission factors for each link were calculated using the relevant traffic flows and the Emissions Factor Toolkit (version 8.0.1) released in 2017, which incorporates updated COPERT 5 vehicle emissions factors for NO_x and vehicle fleet information.

There is current uncertainty over NO_2 concentrations within the UK, with roadside levels not reducing

as previously expected due to the implementation of new vehicle emission standards. Therefore, 2018 emission factors have been utilised for the prediction of pollution levels for all scenarios in preference to the development opening year in order to provide a robust assessment.

Meteorological Data

Meteorological data used in this assessment was taken from London City Airport meteorological station over the period 1st January 2018 to 31st December 2018 (inclusive). London City Airport meteorological station is located at approximate NGR: 543000, 180510, which is approximately 11.7km east of the proposed development.

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 5 within Appendix I for a wind rose of utilised meteorological data.

Roughness Length

A roughness length (z_0) of 1m was used in this dispersion modelling study. This value of z_0 is considered appropriate for the morphology of the assessment area and the meteorological station's area, is suggested within ADMS-Roads as being suitable for 'Cities, Woodlands'.

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 in this dispersion modelling study. This value is considered appropriate for the morphology of the assessment area and the meteorological station location and is suggested as being suitable for 'Large Conurbations >1 million'.

Background Concentrations

An annual mean NO_2 concentration of 28.78ug/m^3, and PM_{10} concentration of 18.69µg/m^3 predicted by DEFRA, was used in the dispersion modelling assessment to represent annual mean pollutant levels at the proposed development site.

Similar, to emission factors, background concentrations for 2018 were utilised in preference to the development opening year of 2022. This provided a robust assessment and is likely to overestimate actual pollutant concentrations during the operation of the proposals.

Table AII.3 displays the specific background concentrations used for the diffusion tubes in the verification process. This data was used to ensure an accurate and robust model.

Table AII.3 Predicted Diffusion Tube Monitoring Background Pollutant Concentrations

Tube	Pollutant	2018 Predicted Background Concentration (µg/m^3)
DT 48, 49	NO_x	46.90
	NO_2	28.78

Similar to emission factors, background concentrations for 2018 were utilised in preference to the development opening year of 2022. This provided a robust assessment and is likely to overestimate actual pollutant concentrations during the operation of the proposals.

NO_x to NO_2 Conversion

Predicted annual mean NO_x concentrations from the dispersion model were converted to NO_2 concentrations using the spreadsheet provided by DEFRA, which is the method detailed within LLAQM.TG (16)[2].

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 this assessment model verification was undertaken for 2018, using traffic data, meteorological data and monitoring results from this year.

LBoL undertakes monitoring of NO_2 concentrations, there are two diffusion tube monitoring locations (DT48 and DT49) in close proximity to the site. Due to their close proximity to the site and roadside monitoring location, it is considered that these are much more representative of conditions present across the site when compared with the next closest air quality monitors, located approximately 1km west of the site.

The road contribution to total NO_x concentration was calculated from the monitored NO_2 result for use in the verification process. This was undertaken following the methodology contained within IAQM and EPUK guidance LLAQM (TG16)[2].

The dispersion model was run with the traffic input data previously detailed for 2018 to predict the NO_x concentration at the monitoring locations. The results are shown in Table AII.4.

Table AII.4 NO_x Verification Results

Site ID	Modelled Road NO_x Concentration ($\mu g/m^3$)	Monitored Road NO_x Concentration ($\mu g/m^3$)	Difference (%)
DT 48	29.40	36.84	20.19
DT 49	12.90	19.01	32.14

The monitored and modelled NO_x road contribution concentrations were graphed and the equation of the trendline based on the linear progression through zero was calculated, as shown in Graph 1. This indicated that a verification factor of **1.2887** was required to be applied to all NO_x modelling results, showing the model has a tendency to underestimate pollutant concentrations.

Graph 1 - NO_x Verification Factor

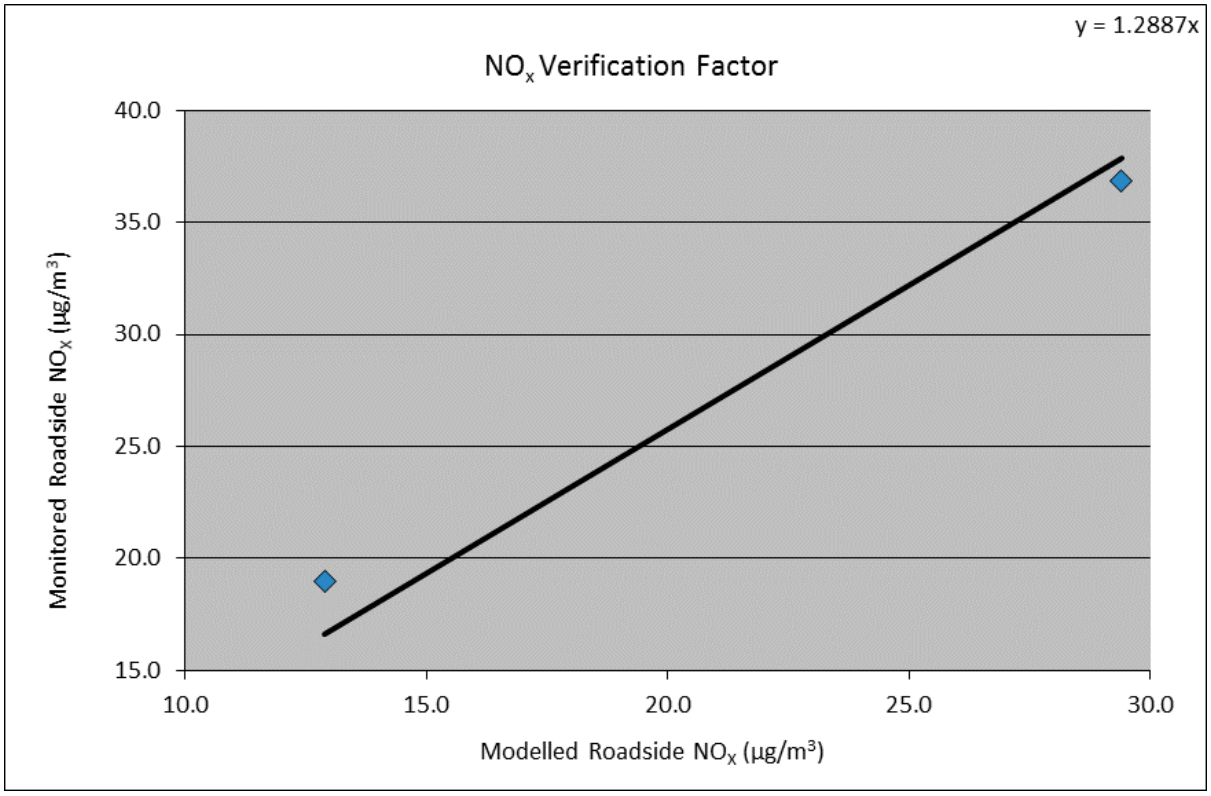


Table AII.5 presents the monitored annual mean NO_2 concentrations and the adjusted modelled total NO_2 concentration based on the above verification factor. Exceedances of the annual mean AQO for NO_2 are shown in **bold**.

Table AII.5 2018 NO_2 Monitoring Results

Site ID	Monitored NO_2 Concentration (µg/m³)	Adjusted Modelled Total NO_2 Concentration (µg/m³)	Difference (%)
DT 48	44.90	45.32	-0.93
DT 49	37.50	36.45	2.79

As PM_{10}monitoring is not undertaken within the assessment extents, the verification adjustment factor of **1.2887** applied for NO_x was also used to adjust model predictions of PM_{10} in accordance with the guidance provided within LLAQM (TG16)[2].

APPENDIX III CONSTRUCTION PHASE ASSESSMENT CRITERIA

CONSTRUCTION PHASE METHODOLOGY

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 GLA document 'The Control of Dust and Emissions during Construction and Demolition Supplementary Planning Guidance'[6].

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

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

The 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 PM_{10}.

The assessment steps are detailed below.

Step 1

Step 1 screens the requirement for a more detailed assessment. Should human receptors be identified within 350m from the site boundary or 50m from the construction vehicle route up to 500m from the site entrance, then the assessment should proceed to Step 2. Additionally, should ecological receptors be identified within 50m of the boundary site or 50m from the construction vehicle route up to 500m from the site entrance, then the assessment should also proceed to Step 2.

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

Step 2

Step 2 assesses the risk of potential dust impacts. A site is allocated to 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).

The two factors are combined in Step 2C to determine the risk of dust impacts without mitigation applied.
Step 2A defines the potential magnitude of dust emission through the construction phase. The relevant criteria are summarised in Table AIII.1.

Table AIII.1 Construction Dust - Magnitude of Emission

Magnitude	Activity	Criteria
Large	Demolition	• Total building volume greater than 50,000m^3 • Potentially dusty construction material (e.g. concrete) • On-site crushing and screening • Demolition activities greater than 20m above ground level
	Earthworks	• Total site area greater than 10,000m^2 • 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 100,000m^3 • 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 building volume 20,000m^3 to 50,000m^3 • Potentially dusty construction material • Demolition activities 10m to 20m above ground level
	Earthworks	• Total site area 2,500m^2 to 10,000m^2 • 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 25,000m^3 to 100,000m^3 • 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 building volume under 20,000m^3 • Construction material with low potential for dust release (e.g. metal cladding or timber) • Demolition activities less than 10m above ground level • Demolition during wetter months

Magnitude	Activity	Criteria
	Earthworks	• Total site area less than 2,500m^2 • 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 25,000m^3 • 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

Step 2B defines the sensitivity of the area around the development site for demolition, construction, earthworks and trackout. The factors influencing the sensitivity of the area are shown in Table AIII.2**.**

Table AIII.2 Examples of Factors Defining Sensitivity of an Area

Sensitivity	Examples	
	Human Receptors	Ecological Receptors
High	• Users expect of 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 PM_{10} 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

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, playing fields, farmland, footpaths, short term car park and roads	• Locally designated site e.g. Local Nature Reserve

The guidance also provides the following factors to consider when determining the sensitivity of an area to potential dust impacts during the construction phase:

- Any history of dust generating activities in the area;
- The likelihood of concurrent dust generating activity on nearby sites;
- Any pre-existing screening between the source and the receptors;
- Any conclusions drawn from analysing local meteorological data which accurately represent the area; and if relevant the season during which works will take place;
- Any conclusions drawn from local topography;
- Duration of the potential impact, as a receptor may become more sensitive over time; and
- Any known specific receptor sensitivities which go beyond the classifications given in the document.

These factors were considered in the undertaking of this assessment.

The sensitivity of the area to dust soiling effects on people and property is shown in Table AIII.3.

Table AIII.3 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

Table AIII.4 outlines the sensitivity of the area to human health impacts.

Table AIII.4 Sensitivity of the Area to Human Health Impacts

Receptor Sensitivity	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
		1 - 10	High	Medium	Low	Low	Low
	28 - 32µg/m^3	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	-	More than 10	High	Medium	Low	Low	Low
		1 - 10	Medium	Low	Low	Low	Low
Low	-	1 - 10	Low	Low	Low	Low	Low

Table AIII.5 outlines the sensitivity of the area to ecological impacts.

Table AIII.5 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

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

Table AIII.6 outlines the risk category from demolition activities.

Table AIII.6 Dust Risk Category from Demolition and Construction

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

Table AIII.7 outlines the risk category from earthworks and construction activities.

Table AIII.7 Dust Risk Category from Earthworks and Construction

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

Table AIII.8Table AIII. outlines the risk category from trackout.

Table AIII.8 Dust Risk Category from Trackout

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

Step 3

Step 3 requires the identification of site-specific mitigation measures within the GLA guidance[6] 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

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'.

APPENDIX IV ASSESSOR'S CURRICULUM VITAE

CONAL KEARNEY

Head of Noise and Air

BEng(Hons), MSc, MIAQM, MIEnvSc

KEY EXPERIENCE:

Conal is Head of Noise and Air with specialist experience in the air quality and odour sector. His key capabilities include:

- Advanced atmospheric air dispersion modelling of road vehicle and industrial emissions using ADMS-ROADS and AIRVIRO.
- Preparation of factual and interpretative Air Quality Assessment reports and Air Quality Environmental Statement chapters in the vicinity of proposed schemes and developments in accordance with DEFRA, Environment Agency and Environmental Protection UK (EPUK) and Institute of Air Quality Management (IAQM) methodologies.
- Management and delivery of project work on key, land development and urban regeneration projects.
- Assessment of road vehicle exhaust emissions using the Design Manual for Roads and Bridges (DMRB) calculation spreadsheet.
- Assessment of dust impacts from construction sites to the Institute of Air Quality Management (IAQM) methodology.
- Dust and Odour impact assessments from minerals and waste sites
- Representing clients at public enquiries and planning hearings.

QUALIFICATIONS:

- Bachelor of Engineering
- Master of Science
- Member of Institute of Air Quality Management
- Member of the Institute of Environmental Science (IES)

SELECT PROJECTS SUMMARY:

Industrial Developments

Buck Park, Denholme - AQA and dust assessment for proposed mineral extraction and site restoration project.

Messingham Quarry, North Lincolnshire - AQA and dust impacts for proposed new sand extraction site.

Arden Quarry, Derbyshire - AQA for proposed mineral extraction and site restoration

Calder Brick Works, Yorkshire - AQA for proposed site restoration plan

Coopers Moss, St Helens AQA and dust assessment for materials import and site restoration.

Clayton Hall Landfill, Chorley - AQA and odour assessment for proposed landfill extension and mineral extraction.

Highways Developments

Alderley Edge Bypass, Cheshire - AQA for major new road scheme.

South Heywood – EIA for new link road and mixed use joint development

Residential Developments

Beck's Mill, Silsden – AQA and emissions calculation for proposed residential development

Bredbury Curve, Stockport - AQA assessment for proposed residential development in AQMA.

Hollin Lane, Middlewich – AQA for large scale residential development.

Friars School, Southwark, London.School development for mixed use education and residential building in AQMA.

Abbotsford House, Bearsden, Scotland – AQA and dust assessment for residential development

Kelvedon Street, Newport, South Wales – AQA for new housing development

Westcraig, Edinburgh - EIA for residential development

Public Sector

Technical advisor on Manchester Airport Consultative Committee - advise members on environmental technical matters in relation to the airport's operations.

Cheshire County Council - compile AQ chapters for Local Transport Plan

Cheshire East Council - specialist AQ advice on highways, minerals and waste projects

Local Air Quality Management

Broughton Gyratory, Chester - dispersion model for City Centre detailed assessment report

Congleton town centre - dispersion modelling assessment for detailed and further assessment reports.

Disley - dispersion modelling assessment for detailed and further assessments

Holmes Chapel - dispersion modelling assessment for detailed and further assessment reports for road and rail sources.

Crewe - town centre dispersion modelling for detailed and further assessment reports.

Commercial Developments

Granta Park Daycare Centre, Oxfordshire.AQA for new build daycare centre adjacent to major road.

Curzon Cinema, Colchester.Air quality assessment for town centre new build cinema.

Newfoundland Circus, Bristol - AQA for hotel development in city centre

Salesians School, **Chertsey** - AQA for school extension near M25

LEWIS ELLISON

Air Quality Consultant

MOcean.Geo (Hons)

KEY EXPERIENCE:

Lewis is an Environmental Consultant with specialist experience in the air quality sector. His key capabilities include:

- Production of Air Quality Assessments to the Department for Environment, Food and Rural Affairs (DEFRA), Environment Agency and Environmental Protection UK (EPUK) methodologies for clients from the residential, retail and commercial sectors.
- Detailed dispersion modelling of road vehicle emissions using ADMS-Roads. Studies have included impact assessment of pollutant concentrations at various floor levels and assessment of suitability of development sites for proposed end-use.
- Assessment of road vehicle exhaust emissions using the Design Manual for Roads and Bridges (DMRB) calculation spreadsheet.
- Assessment of dust impacts from construction sites to the Institute of Air Quality Management (IAQM) methodology.
- Production of air quality mitigation strategies for developments throughout the UK.
- Defining baseline air quality conditions and identification of sensitive areas.

QUALIFICATIONS:

- Master of Science

SELECT PROJECTS SUMMARY:

Residential Development:

AGFA Works, Seagate – Air Quality Assessment using ADMS-Roads in support of an 83 residential unit development with the potential to cause air quality impacts at sensitive locations.

Andrew Avenue, Breahead – Air Quality Assessment using ADMS-Roads in support of a 77 residential unit development in close proximity to the M8.

Clothorn Road, Didsbury – Air Quality assessment for a residential development consisting of 12 units in close proximity to an AQMA declared by Manchester city council.

Downend Road, Portchester – Air Quality Assessment in support of a 350 residential unit development in close proximity to the M27.

Great Leighs, Chelmsford- Baseline scoping report in support of several proposed large scale residential developments totalling 1300 residential units, with the potential to impact on nearby sensitive locations.

Parkview, Lofthouse Gate – Air Quality Assessment in support of a proposed 160 residential unit development in close proximity to two AQMA declared by Wakefield Metropolitan District Council.

Shields Road, Walkergate - Air Quality Assessment using ADMS-Roads in support of a 40 residential unit development in close proximity to the Shields Road.

Environmental impact assessment:

Bower Farm, Bridgewater – Production of an Air Quality Assessment with relevant mitigation measures for inclusion in an EIA report for part of the east Sedgemoor development.

Commercial Development:

ALDI, Hertford – Air Quality Assessment for the Proposed Aldi Superstore at Hertfordshire using ADMS-Roads.

Hortonwood West, Telford – Construction Environmental Management Plan (CEMP) for the expansion of the current factory on site.

Inverness Airport Business Park – Air Quality Scoping Report for a proposed hotel and commercial office space.

Odour assessment:

Wren Park Care Home, Shefford – Qualitative Odour Assessment of industrial units in the vicinity of a proposed extension to the current care home.

Marsh Farm, Basildon – Qualitative Odour Assessment of an anaerobic digesting unit in support of a follow up assessment for the unit.

Mixed-Use Development:

Cold Harbour Land, Lambeth – Air Quality Assessment for a proposed mixed use development with the implementation of mitigation measures.

Old Fire Station, Newham, London- Air Quality Assessment using ADMS-Roads for a proposed mixed use development with the implementation of mitigation measures, in support of a redevelopment of the previous fire station.

Ordsall Lane, Salford – Air Quality Assessment in support of a mixed use development using ADMS-Roads.