



Project:
Huyton Cricket Club, Liverpool

Air Quality Assessment

Breck Homes LTD

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Issue / Revision	Issue	Revision 1	Revision 2
Remarks	Air Quality Assessment		
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TABLE OF CONTENTS

EXECUTIVE SUMMARY	4
1. INTRODUCTION.....	5
1.1 Background	5
1.2 Site Location and Assessment Context	5
1.3 Limitations	5
2. LEGISLATION, GUIDANCE AND POLICY	6
2.1 UK Legislation and Guidance	6
2.2 Local Air Quality Management	7
2.3 Local Planning Policy	7
3. METHODOLOGY	9
3.1 Construction Phase Assessment	9
3.2 Operational Phase Assessment.....	9
4. BASELINE.....	11
4.1 Local Air Quality Management	11
4.2 Air Quality Monitoring	11
4.3 Background Pollutant Concentrations	12
4.4 Sensitive Receptors.....	13
5. ASSESSMENT.....	15
5.1 Construction Phase Assessment	15
5.2 Operational Phase Assessment.....	19
6. CONCLUSION.....	21
ABBREVIATIONS	22
APPENDIX A: FIGURES	23
APPENDIX B: ASSESSMENT INPUTS.....	32
APPENDIX C: CONSTRUCTION PHASE METHODOLOGY	62

EXECUTIVE SUMMARY

EnviroSolution were commissioned by Breck Homes LTD to undertake an Air Quality Assessment in support of a proposed residential development at Huyton Cricket Club, Liverpool.

The proposal comprises a residential development of approximately 81 affordable dwellings and the retention and refurbishment of listed pavilion with associated infrastructure and landscaping.

Due to the scale of the development, there is the potential to expose future site users to poor air quality, as well as to cause impacts at nearby sensitive receptors because of the construction and operational phases. Therefore, an Air Quality Assessment is required to determine baseline conditions at the site, assess site suitability for the proposed end-use and assess the potential impacts as a result of the proposed development.

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

Dispersion modelling was undertaken in order to predict annual mean pollutant concentrations across the application site to determine exposure risk to future occupiers. Results were subsequently verified using local monitoring results provided by Knowsley Metropolitan Borough Council (KMBC).

The dispersion modelling results indicated that annual mean pollutant concentrations across the application site were below the relevant air quality objectives at proposed sensitive locations.

The level of anticipated traffic generation from the site concluded that impacts on existing pollutant levels as a result of operational phase pollutant emissions were predicted to be not significant in accordance with relevant screening criteria. The use of robust assumptions, where necessary, was considered to provide sufficient confidence of results for an assessment of this nature.

Based on the assessment results the site is considered suitable for the proposed end use and complies with the KMBC Local Plan and NPPF.

1. INTRODUCTION

1.1 Background

EnviroSolution has been commissioned by Breck Homes LTD, hereafter referred to as “Breck” to undertake an Air Quality Assessment in support of a proposal, comprising a residential development of approximately 81 affordable dwellings and the retention and refurbishment of listed pavilion with associated infrastructure and landscaping, hereinafter referred to as the “Proposed Development”.

1.2 Site Location and Assessment Context

The application site is located at Huyton Cricket Club, Liverpool, at approximate National Grid Reference (NGR) 344436, 391337.

The application site is located 1674.7m from the Liverpool City Air Quality Management Area (AQMA) which has been declared due to exceedances of Annual NO₂ Air Quality Objective (AQO). Subsequently, the Proposed Development has low potential to introduce potential to introduce future site users into an area of existing poor air quality.

An Air Quality Assessment has been produced to quantify annual mean NO₂, PM₁₀ and PM_{2.5} concentrations across the site to consider suitability for the proposed end-use, and to assess potential impacts as a result of the development. The assessment will be undertaken in accordance with the requirements of the National Planning Policy Framework (NPPF) and the KMBC Local Planning Policy.

Reference should be made to Figure 1 within Appendix A for a location plan.

1.3 Limitations

This report has been produced in accordance with EnviroSolution standard terms of engagement. EnviroSolution has prepared this report solely for the use of Breck 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 EnviroSolution; a charge may be levied against such approval.

2. LEGISLATION, GUIDANCE AND POLICY

The following legislation, guidance and policy will be considered and adhered to during the preparation of the Air Quality Assessment:

- European Union (EU) Directive 2008/50/EC;
- The National Planning Policy Framework (NPPF), updated on 12th December 2024;
- The National Planning Practice Guidance (NPPG), relevant chapters produced on 1st November 2019;
- Section 82 of the Environment Act (1995) (Part IV), updated 9th November 2021;
- Air Quality Strategy: Framework for local authority delivery, April 2023;
- The Air Quality Standards (Amendment) Regulations (2016);
- Local Air Quality Management Technical Guidance 2022 LAQM.TG(22), DEFRA, 2022;
- Guidance on the Assessment of Dust from Demolition and Construction, Institute of Air Quality Management (IAQM), January 2024;
- Land-Use Planning and Development Control: Planning for Air Quality, Environmental Protection UK (EPUK) and Institute of Air Quality Management (IAQM), January 2017;
- Environmental Improvement Plan 2023, DEFRA, February 2023; and
- Knowsley Local Plan Core Strategy, January 2016.

2.1 UK Legislation and Guidance

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. Air Quality Limit Values (AQLVs) were published in these regulations for 7 pollutants, as well as Target Values for an additional 6 pollutants. It should be taken into consideration that the AQLV for PM_{2.5} stated in the Air Quality Standards Regulations (2010) was amended in the Environment (Miscellaneous Amendments) (EU Exit) Regulations (2020).

Part IV of the Environment Act (2021) requires the 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 DEFRA and published on 28th April 2023. The AQS sets out Air Quality Objectives (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.

The Environmental Improvement Plan, released in January 2023, outlines both long-term and interim objectives aimed at minimising public exposure to PM_{2.5}. Following this, the 2040 concentration goal was established within the Environmental Targets (Fine Particulate Matter) Regulations (2023).

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

Table 1: Air Quality Objectives

Pollutant	Air Quality Objectives	
	Concentration (µg/m ³)	Averaging Periods
NO ₂	40	Annual mean
	200	1-hour mean; not to be exceeded more than 18 times a year
PM ₁₀	40	Annual mean
	50	24-hour mean; not to be exceeded more than 35 times a year
PM _{2.5}	25 (12*)	Annual mean

*Interim Target to be achieved by end of January 2028.

Table 2 summarises the advice provided in LAQM.TG(22) on where the AQOs for pollutants considered within this report apply.

Table 2: Examples of Where the Air Quality Objectives Apply

Averaging Periods	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 and 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.

The results of the dispersion modelling assessment will also be compared against the relevant AQOs detailed in Table 1 to determine significance.

2.2 Local Air Quality Management

Under Section 82 of the Environment Act (2021) (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 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.

2.3 Local Planning Policy

A review of the local policy indicated the following policy in relation to air quality that is relevant to this assessment:

Policy CS2 Development Principles

Principle 4: Recognise environmental limits, protect and enhance environmental assets, enhance local character and promote quality of place by:

j) Minimising negative impact upon flood risk, air quality, water quality, land quality, soil quality, and noise or vibration levels and ensuring any negative impacts are appropriately mitigated. Development that will have an unacceptable impact upon any of the above will only be permitted where the benefits of the proposal clearly outweigh the harm.

Policy CS7 Transport Networks

Location, Design and Management of New Development

2) New development will be required to be:

e) Inclusive of measures that will mitigate carbon emissions and improve air quality where appropriate

Reference has been made to these policies during the undertaking of this Air Quality Assessment.

3. METHODOLOGY

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 Institute of Air Quality Management (IAQM) document 'Guidance on the Assessment of Dust from Demolition and Construction'.

Reference should be made to Appendix C for details of the relevant IAQM construction phase assessment criteria, which were utilised in conjunction with site specific information.

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

- Demolition
- Earthworks
- Construction
- 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
- The risk of health effects due to a significant increase in exposure to PM₁₀ and PM_{2.5}

A desktop survey will be undertaken to identify human and ecological receptors within the relevant assessment buffers specified by the IAQM guidance. Should sensitive receptors not be present within the relevant distances then negligible impacts would be expected and further assessment is not necessary.

Following the identification of sensitive receptors, a site is then allocated a risk category which is assigned to each activity, based on the scale and nature of the works, as well as the sensitivity of the area to dust impacts.

The assigned magnitude and sensitivity will then determine the overall risk and appropriate mitigation measures to be employed during construction phase activities.

3.2 Operational Phase Assessment

3.2.1 Future Exposure

The Proposed Development is located 1674.7m from the from Liverpool City AQMA. As such, the proposals have low potential to introduce new receptors into an area of existing poor air quality, as well as to cause impacts upon existing pollution levels at nearby sensitive receptors within the AQMA.

Detailed dispersion modelling was therefore undertaken to quantify NO₂, PM₁₀ and PM_{2.5} pollutant exposure across the site and determine suitability for the proposed use. The following modelling scenarios were utilised during the assessment:

- 2023 as baseline year for verification against latest ratified data;
- 2027 do-something (DS) (predicted traffic flows in 2027 should the proposals be completed)

In light of expected emission improvements to the national vehicle fleet guided by government policy, it would be unrealistic not to assume a reduction to vehicle emission factors in future years, given the anticipated development year of 2027.

The 2027 scenario assumes an emission drop off based on assumptions provided by the Emission Factor Toolkit (Eft v12.0) supported by the uptake of low emission vehicles and government incentives and targets concerning fleet proportions by 2030.

The results of the dispersion modelling assessment will also be compared against the relevant AQOs detailed in Table 1 to determine significance. Full details of data used for the modelling assessment are presented in Appendix B of this report.

3.2.2 Road Vehicle Exhaust Impact Assessment

Based on the details of the Proposed Development and anticipated trip generation a screening assessment in accordance with the EPUK and IAQM guidance was determined a suitable assessment approach. The assessment will determine road traffic exhaust and combustion emission impacts associated with the Proposed Development and confirm the requirement for detailed assessment work. The EPUK and IAQM 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 Annual Average Daily Traffic (AADT) within or adjacent to an AQMA or more than 500 elsewhere;
- Proposals that will cause a change in Heavy Duty Vehicle (HDV) flows of more than 25 AADT within or adjacent to an AQMA or more than 100 elsewhere;
- Proposals which include either a centralised plant using biofuel, a combustion plant with single or thermal input >300KWh or a standby emergency generator associated with a centralised energy centre; and
- Proposals which include combustion processes of any size.

Should the above criteria not be met, the EPUK and IAQM document considers air quality impacts associated with the scheme to be not significant and no further assessment is required. Conversely, should the criterion be exceeded it may be deemed necessary that further assessment is required.

4. BASELINE

Existing air quality conditions in the vicinity of the application site 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 (2021), all local authorities have undertaken a review and assessment of air quality within their area of administration. This process has indicated the closest AQMA to have been declared is described as:

- Liverpool City AQMA

The application site is located 1674.7m from the Liverpool City AQMA. As such there is low potential for the Proposed Development to introduce future site users into an area of elevated Annual NO₂, and cause air quality impacts during the construction and operational phases. This has been considered within this report.

4.2 Air Quality Monitoring

Monitoring of pollutant concentrations is undertaken by KMBC using Automatic and Diffusion Tube monitoring methods throughout their areas of administration. A review of most recent Air Quality Monitoring Data indicated that there are currently 1 automatic analyser, and 9 diffusion tubes located within the vicinity of the Proposed Development, presented in Table 3.

Table 3: Monitoring Results

ID	Site Name	Type	Monitoring Method	NGR (m)		Distance to Site (m)	Annual Mean Concentration (µg/m ³)		
				X	Y		2021	2022	2023
H7Aa H7Ab	LC 011 outside of 2 Cronton Road	Roadside	Diffusion Tube	345503	389429	2186.55	33.1	25.7	24.0
H2a H2b	Outside 2 Whitefield Lane	Roadside	Diffusion Tube	345537	389407	2222.43	38.2	30.1	29.0
Huyton	Cronton Road, Huyton	Roadside	Automatic	345552	389413	2224.7	36.0	N/A	N/A
H1a H1b	Station co-location	Roadside	Diffusion Tube	345552	389413	2224.7	34.4	28.4	24.9
H6Aa H6Ab	Traffic light column adjacent to 2 Whitefield Lane	Kerbside	Diffusion Tube	345543	389390	2240.17	45.4	36.7	32.4
H3a H3b	Outside 1 Whitefield Lane	Kerbside	Diffusion Tube	345563	389399	2242.34	46.7	39.3	33.6
H5Aa H5Ab	Positioned on drainpipe on side of house of 1 Whitefield Lane	Roadside	Diffusion Tube	345563	389397	2244.06	38.1	31.4	28.1
H9Aa H9Ab	LC 001 outside 3 Whitefield Lane	Suburban	Diffusion Tube	345555	389392	2244.39	36.5	30.3	26.7

ID	Site Name	Type	Monitoring Method	NGR (m)		Distance to Site (m)	Annual Mean Concentration ($\mu\text{g}/\text{m}^3$)		
				X	Y		2021	2022	2023
H8Aa H8Ab	LC 014 on Cronton Road on property line of 1 Whitefield Lane, just before Cymru Cronton Road.	Roadside	Diffusion Tube	345577	389394	2253.71	46.9	34.4	30.1
H4a H4b	Opp Smithford Walk	Roadside	Diffusion Tube	345517	389329	2280.97	30.1	25.0	21.5

As indicated in Table 3, there were exceedances of annual mean AQOs in 2021 at 3 monitoring locations. These have all dropped below the AQO in more recent years.

Reference should be made to Figure 2 within Appendix A for a graphical representation of the monitoring locations.

4.3 Background Pollutant Concentrations

The total concentration of a pollutant consists 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 concentrations are therefore the ambient level of pollution that is not affected by local sources of pollution.

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 across grid square:

- NGR: 344500, 391500

Data for this location was downloaded from the DEFRA website. For the purpose of this assessment, background concentrations are summarised in Table 4 for the base year (2023) and the predicted development opening year (2027).

Table 4: Predicted Background Pollutant Concentrations

Pollutant	Predicted Background Concentration ($\mu\text{g}/\text{m}^3$)	
	2023	2027
NO _x	17.4805	14.50984
NO ₂	13.06449	11.02865
PM ₁₀	13.386482	13.014088
PM _{2.5}	8.65257	8.274472

As indicated in Table 4, background concentrations of all pollutants are below the relevant AQOs detailed in Table 1.

4.4 Sensitive Receptors

A sensitive receptor is defined as any location which may be affected by changes in air quality as a result of a development. These have been defined for construction dust impacts in the following Sections.

4.4.1 Construction Phase Sensitive Receptors

There are no nationally or European designated ecological receptors within 50m of the Site boundary, or within 50m from a route used by construction vehicles on the public highway (up to 250m from the Site entrance(s)). Therefore, the risk of dust effects at a nationally or European designated ecological receptor site from construction impacts have not been considered further in this assessment.

Human receptors sensitive to potential dust impacts during earthworks and construction were identified from a desk-top study of the area up to 250m from the Proposed Development boundary. These are summarised in Table 5.

Table 5: Construction Phase Dust Sensitive Receptors

Distance from Site Boundary (m)	Approximate Number of Human Receptors
Less than 20	10 - 100
20 - 50m	10 - 100
50 - 100m	More than 100
100 - 250m	More than 100

Reference should be made to Figure 3 within Appendix A for a graphical representation of construction phase 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 250m of the site access route. These are summarised in Table 5. 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 that construction traffic would access the Proposed Development via Huyton Lane, to ensure a worst case trackout assessment is undertaken.

Table 6: Trackout Dust Sensitive Receptors

Distance from Trackout Routes (m)	Approximate Number of Human Receptors
Less than 20	1 - 10
20 - 50m	10 - 100

Reference should be made to Figure 4 within Appendix A for a graphical representation of trackout dust buffer zones. A number of additional factors have been considered when determining the sensitivity of the surrounding area. These are summarised in Table 7.

Table 7: Additional Area Sensitivity Factors

Guidance	Comment
Whether there is any history of dust generating activities in the area	The site is located in a High sensitivity area. There is likely to have been a history of dust generating

Guidance	Comment
	activities due to commuting and development processes in the locality.
The likelihood of concurrent dust generating activity on nearby sites.	A review of the KMBC Planning Portal indicated that there are no large-scale planning applications within 500m of the Proposed Development. As such, there is low potential for concurrent dust generation to occur should the construction phases of the aforementioned developments overlap.
Pre-existing screening between the source and the receptors	There is vegetation present along the boundaries of the site. If retained, this could provide little natural protective screening to receptors in these directions.
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 West of the development. As such, properties to the East of the site 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 the duration of the construction phase is unknown.
Any known specific receptor sensitivities which go beyond the classifications given in the document.	No specific receptor sensitivities identified during the baseline.

4.4.2 Operational Phase Sensitive Receptors

A desk top study was undertaken to identify the closest receptor locations to the application site. This indicated residential locations within close proximity to development boundaries. There are educational facilities in the vicinity of the application site and affected road networks. The nearest education facility, St Aidans Primary School, located approximately 85m North East of the site.

5. ASSESSMENT

5.1 Construction Phase Assessment

5.1.1 Step 1 – Screening

The undertaking of activities such as 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 4.4 identified a number of receptors with a high classification of sensitivity within 250m 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 C for details of the relevant IAQM 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 C, with the outcome of Step 2A is summarised below in Table 8.

Demolition

Demolition was not required for this project, and thus, it is not anticipated that air quality impacts would arise as a result of demolition activities.

Earthworks

Earthworks were required for this project but no detailed description was given. The area of the site is between 18,000m² to 110,000m². As such, the magnitude of potential dust emissions related to earthwork activities is considered Medium.

Construction

Construction involves the development of approximately 81 affordable dwellings. Given the scale of the Proposed Development the total building and infrastructure volume is between 12,000m³ to 75,000m³. As such, the magnitude of potential dust emissions related to construction activities is considered Medium.

Trackout

Information on the number of HDV trips to be generated during the construction phase of the Proposed 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 the unpaved road length is likely to be between 50m and 100m. The magnitude of potential dust emissions from trackout is therefore considered Medium.

Table 8: Dust Emission Magnitude

Magnitude of Activities		
Earthworks	Construction	Trackout
Medium	Medium	Medium

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 Section 4.4.1, the desktop study indicated approximately more than 100 sensitive receptors within 250m of the Proposed Development boundary and 10 - 100 within 50m of the anticipated trackout routes.

Based on the assessment criteria detailed in Appendix C, the sensitivity of the receiving environment to potential dust soiling impacts was considered to be High for all construction phase activities. This is because the site is situated in a predominantly High sensitivity area and the people would reasonably be expected to be present here for extended periods of time.

Human Health

The annual mean concentration of PM₁₀ is 13.39µg/m³ as detailed in Section 4. Based on the receptor counts provided above, the area is considered to be of Low for all construction phase activities.

The sensitivity of the receiving environment to specific potential dust impacts, based on the criteria detailed in Appendix C is summarised in Table 9.

Table 9: Sensitivity of the Surrounding Area

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

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 10.

Table 10: Summary of Potential Unmitigated Dust Risks

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

5.1.5 Step 3 – Mitigation

The IAQM guidance provides a number of potential mitigation measures to reduce impacts during the construction phase. These measures have been adapted for the Proposed Development site as summarised in Table 11.

Table 11: Fugitive Dust Mitigation Measures

Issue	Control Measure
Communication	- Develop and implement a stakeholder communications plan that includes community engagement before work commences on site. - Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager. - Display the head or regional office contact information. - Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the Local Authority. The level of detail will depend on the risk, and should include as a minimum the highly recommended measures in this document. The desirable measures should be included as appropriate for the site.
Site Management	- Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken. - Make the complaints log available to the local authority when asked. - Record any exceptional incidents that cause dust and/or air emissions, either on- or off-site, and the action taken to resolve the situation in the log book.
Monitoring	- Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100 m of site boundary, with cleaning to be provided if necessary. - Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the local authority when asked.

Issue	Control Measure
	• Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions. • Agree dust deposition, dust flux, or real-time PM10 continuous monitoring locations with the Local Authority. Where possible commence baseline monitoring at least three months before work commences on site or, if it a large site, before work on a phase commences. Further guidance is provided by IAQM on monitoring during demolition, earthworks and construction.
Preparing and Maintaining the Site	• Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible. • Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site. • Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period. • Avoid site runoff of water or mud. • Keep site fencing, barriers and scaffolding clean using wet methods. • Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below. • Cover, seed or fence stockpiles to prevent wind whipping.
Operations	• Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems. • Ensure an adequate water supply on the site for effective dust/particulate matter suppression/ mitigation, using non-potable water where possible and appropriate. • Use enclosed chutes and conveyors and covered skips. • Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate. • Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.
Waste Management	• Avoid bonfires and burning of waste materials.
Earthworks	• Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable. • Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable. • Only remove the cover in small areas during work and not all at once.
Construction	• Avoid scabbling (roughening of concrete surfaces) if possible. • Ensure sand and other aggregates are stored in banded 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.

Issue	Control Measure
	• Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery. • For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately to prevent dust
Trackout	• Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use. • Avoid dry sweeping of large areas. • Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport. • Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable. • Record all inspections of haul routes and any subsequent action in a site log book. • Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned. • Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable). • Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits. • Access gates to be located at least 10m from receptors where possible.

5.1.6 Step 4 – Residual Impacts

Assuming the relevant mitigation measures outlined in Table 11 are implemented, the residual effect from all dust generating activities is predicted to be negligible and therefore **not significant** in accordance with the IAQM guidance.

5.2 Operational Phase Assessment

The assessment was undertaken in accordance with the methodology detailed in Section 3.2.

5.2.1 Future Exposure

Annual mean NO₂, PM₁₀ and PM_{2.5} concentrations were predicted across the Proposed Development for the 2027 DS scenario at a height of 1.5m to represent exposure across the ground floor level, as shown in Figures 7 to 9 within Appendix A.

Background NO₂ PM₁₀ and PM_{2.5} levels are likely to be lower at elevated heights due to increased distance from emission sources, such as roads. Therefore, predicted concentrations at heights above ground floor level are considered acceptable in regards to future exposure and have not been assessed further.

Nitrogen Dioxide (NO₂)

Predicted annual mean NO₂ concentrations across the Proposed Development site during the DS scenario are summarised in Table 12.

Table 12: Modelling Results - Annual Mean NO₂ at Proposed Development

Floor Level	Predicted 2027 Annual Mean NO ₂ Concentration (µg/m ³)
Ground (1.5m)	12.46 – 16.50

The predicted concentrations shown in Table 12 indicate that there were no exceedances of the AQO across the Proposed Development. As such, it is considered that annual mean NO₂ levels at the Proposed Development site should not be viewed as a constraint to development.

Predictions of 1-hour NO₂ concentrations were not produced as part of the dispersion modelling assessment. LAQM.TG(22) states if annual mean NO₂ concentrations are below 60µg/m³ then it is unlikely that the 1-hour AQO will be exceeded. As such, based on the results in Table 12, it is not predicted that on-site concentrations will exceed the 1-hour mean AQO for NO₂.

Particulate Matter (PM₁₀ & PM_{2.5})

Predicted annual mean PM₁₀ and PM_{2.5} concentrations across the Proposed Development site during the DS scenario are summarised in Table 13.

Table 13: Modelling Results - Annual Mean PM₁₀ and PM_{2.5} at Proposed Development

Floor Level	Predicted 2027 Annual Mean Concentration (µg/m ³)	
	PM ₁₀	PM _{2.5}
Ground (1.5m)	13.66 – 16.16	8.61 – 9.91

The predicted concentrations shown in Table 13 indicate that there were no exceedances of the AQO across the Proposed Development. As such, it is considered that annual mean PM₁₀ and PM_{2.5} levels at the Proposed Development site should not be viewed as a constraint to development.

5.2.2 Road Vehicle Exhaust Emission Impacts

Any additional vehicle movements associated with the proposed development will generate exhaust emissions, such as NO₂, PM₁₀ and PM_{2.5} on the local and regional road networks.

It is considered that the operational phase of the site will not result in a change of AADT flows of more than 500, produce over 100 HDV movements per day or significantly affect average speeds on the local road network.

Subsequently, potential air quality impacts associated with operational phase road vehicle exhaust emissions are predicted to be **not significant** in accordance with the EPUK and IAQM screening criteria shown in Section 3.2.2.

5.2.3 Combustion Emission Impacts

There is no scope within the development to provide any form of combustion plant. As such, potential air quality impacts associated with operational phase combustion emissions are therefore predicted to be not significant.

6. CONCLUSION

EnviroSolution were commissioned by Breck Homes LTD to undertake an Air Quality Assessment in support of a proposed residential development at Huyton Cricket Club, Liverpool.

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

Dispersion modelling was undertaken to quantify annual mean NO₂, PM₁₀ and PM_{2.5} concentrations across the application to assess suitability for proposed use. Modelling results were subsequently verified using local monitoring data.

The dispersion modelling results indicated that annual mean NO₂, PM₁₀ and PM_{2.5} concentrations across the application site were **below** the relevant AQOs at the proposed sensitive use.

An assessment was undertaken using the EPUK and IAQM screening criteria to determine the potential for vehicle trips generated by the Proposed Development to affect local air quality. The traffic data indicated that operational traffic flows are **below** the relevant EPUK and IAQM assessment thresholds.

There is also no onsite combustion plant associated with the Proposed Development. As a result, building emissions from combustion processes were also screened as not significant throughout the operational phase.

Based on the assessment results the site is considered suitable for the proposed end use and complies with the KMBC Local Plan and NPPF.

ABBREVIATIONS

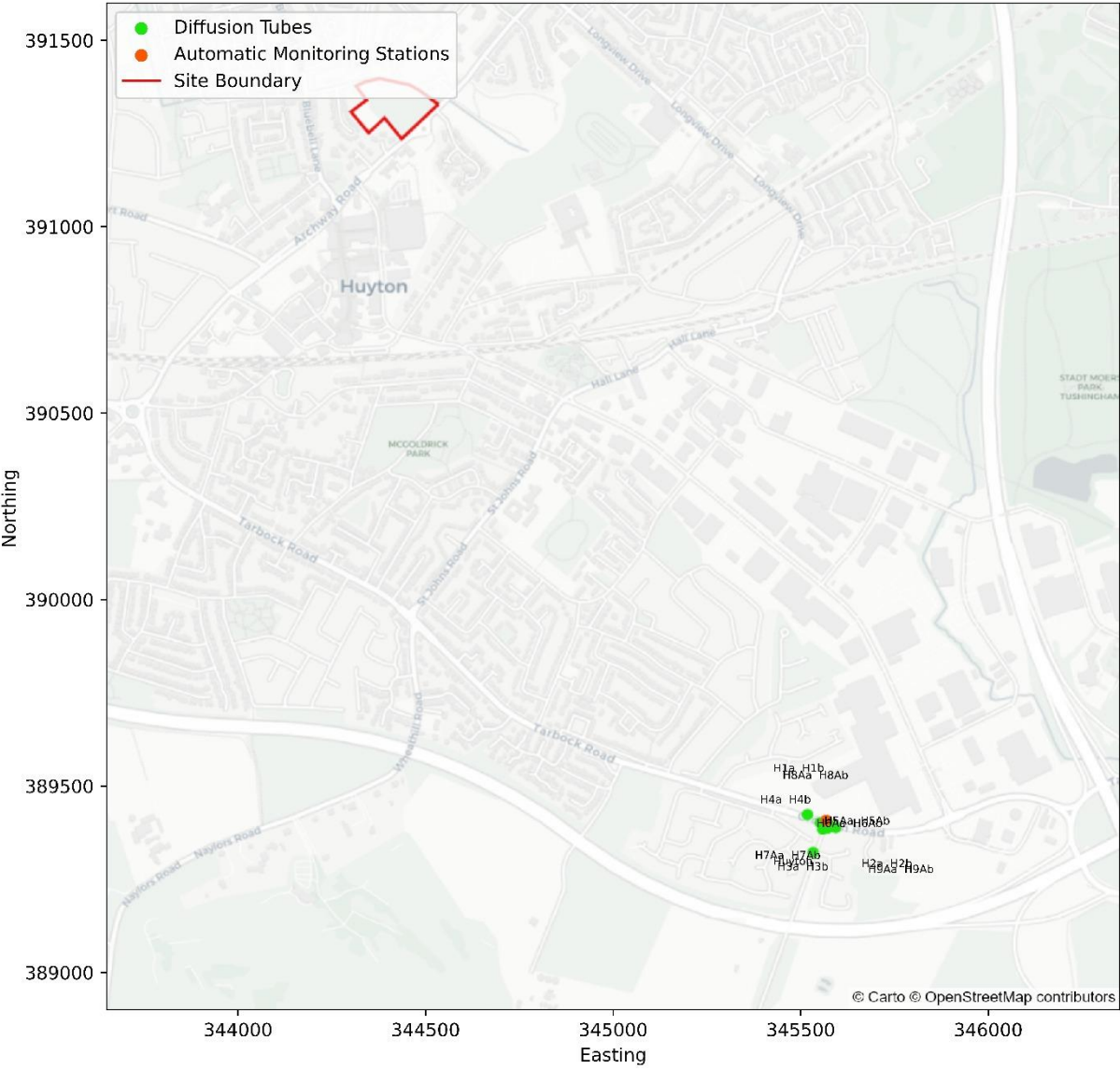
KMBC	Knowsley Metropolitan Borough Council
AADT	Annual Average Daily Traffic
ADM	Atmospheric Dispersion Modelling
APEC	Air Pollution Exposure Criteria
AQLV	Air Quality Limit Value
AQMA	Air Quality Management Area
AQO	Air Quality Objectives
AQS	Air Quality Strategy
CERC	Cambridge Environmental Research Consultants
DEFRA	Department for Environment, Food and Rural Affairs
DfT	Department for Transport
DM	Do Minimum
DS	Do Something
DMP	Dust Management Plan
EPUK	Environmental Protection UK
EU	European Union
GIA	Gross Internal Area
HDV	Heavy Duty Vehicle
IAQM	Institute of Air Quality Management
LAQM	Local Air Quality Management
LA	Local Authority
LDV	Light Duty Vehicle
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
TEMPRO	Trip End Model Presentation Program
z ₀	Roughness Length

END OF REPORT

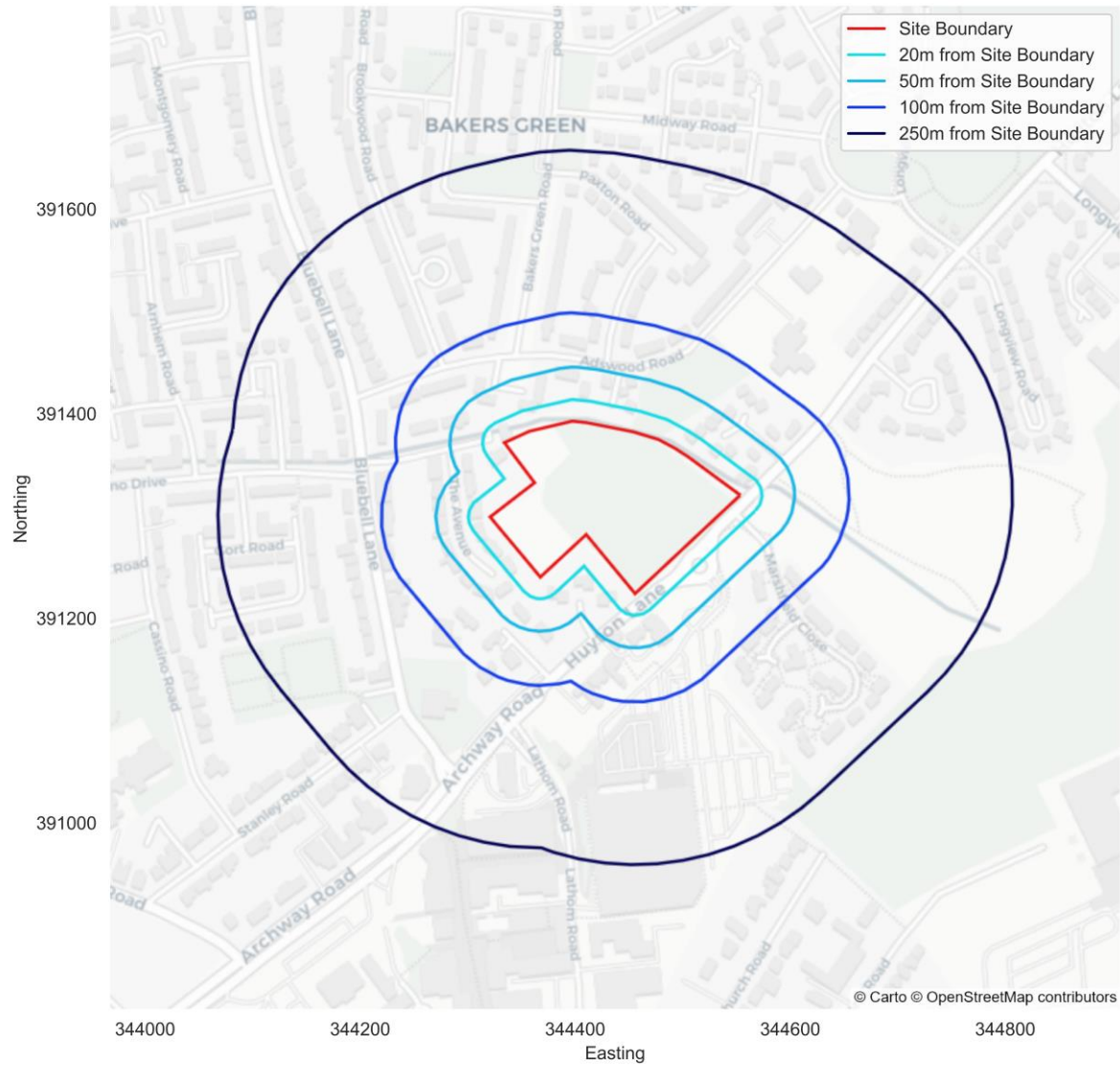
APPENDIX A: FIGURES



Figure 2
Monitoring Locations



Demolition and Construction Dust Buffer Zones



This map shows the site boundary and access routes for the proposed development. The site boundary is highlighted in red. The 20m buffer from the site access route is shown in green, and the 50m buffer is shown in black. The map includes surrounding roads such as Bakers Green Road, Midway Road, Paxton Road, Adswold Road, Longview Drive, Huyton Lane, Archway Road, and Stanley Road. The map is overlaid with a grid showing Northing (390800 to 391800) and Easting (344100 to 344900) coordinates. The map is credited to Carto and OpenStreetMap contributors.

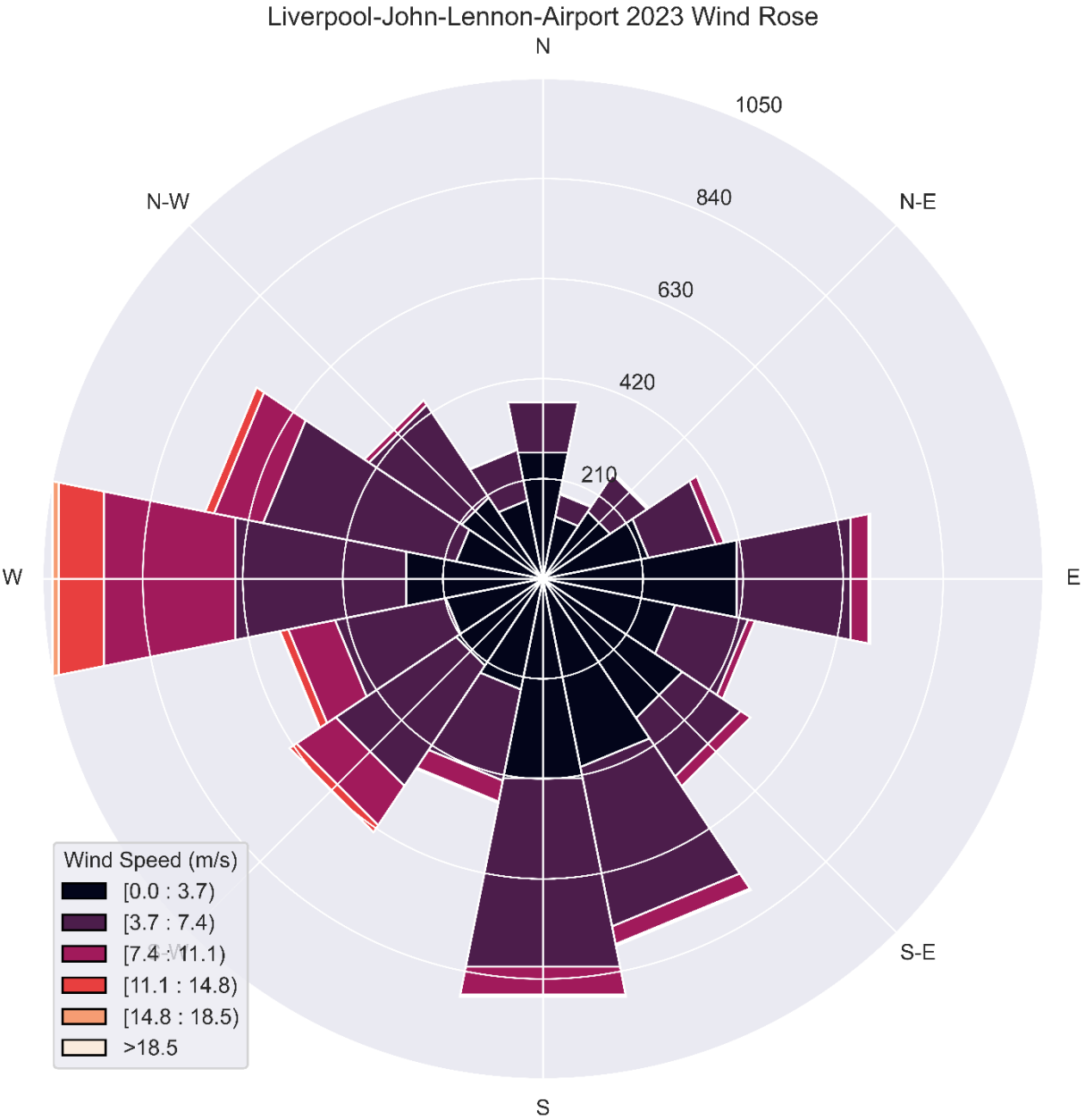
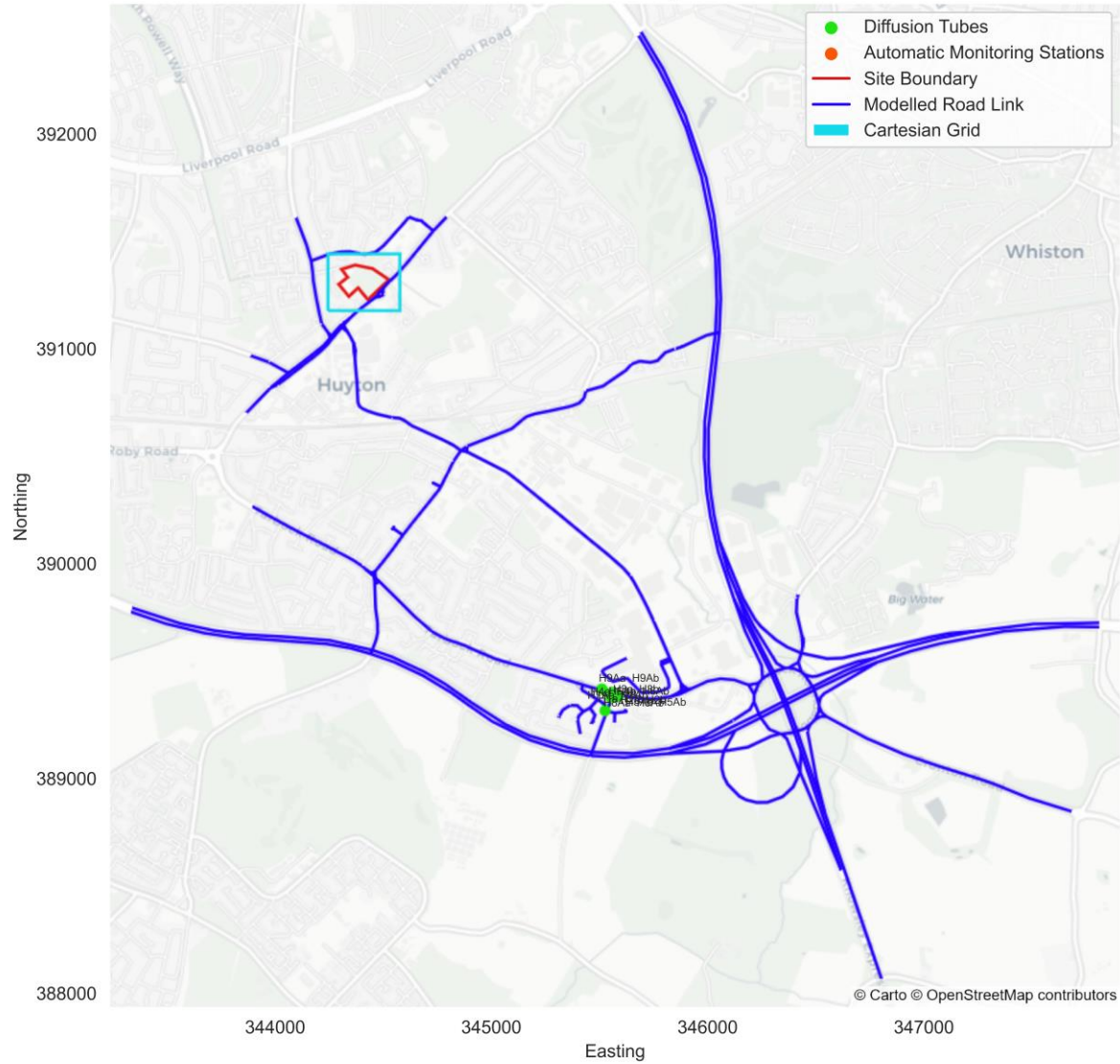
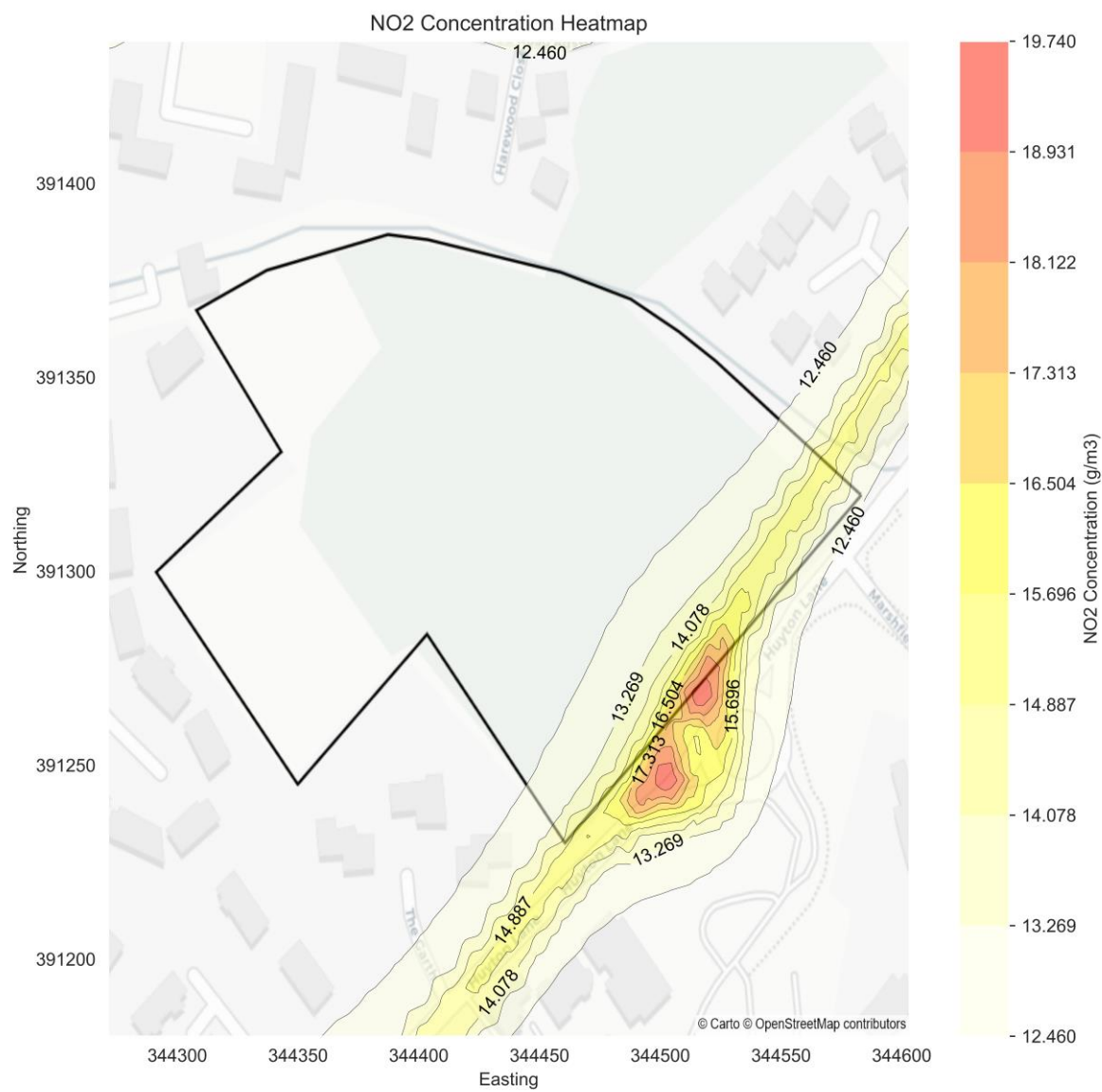
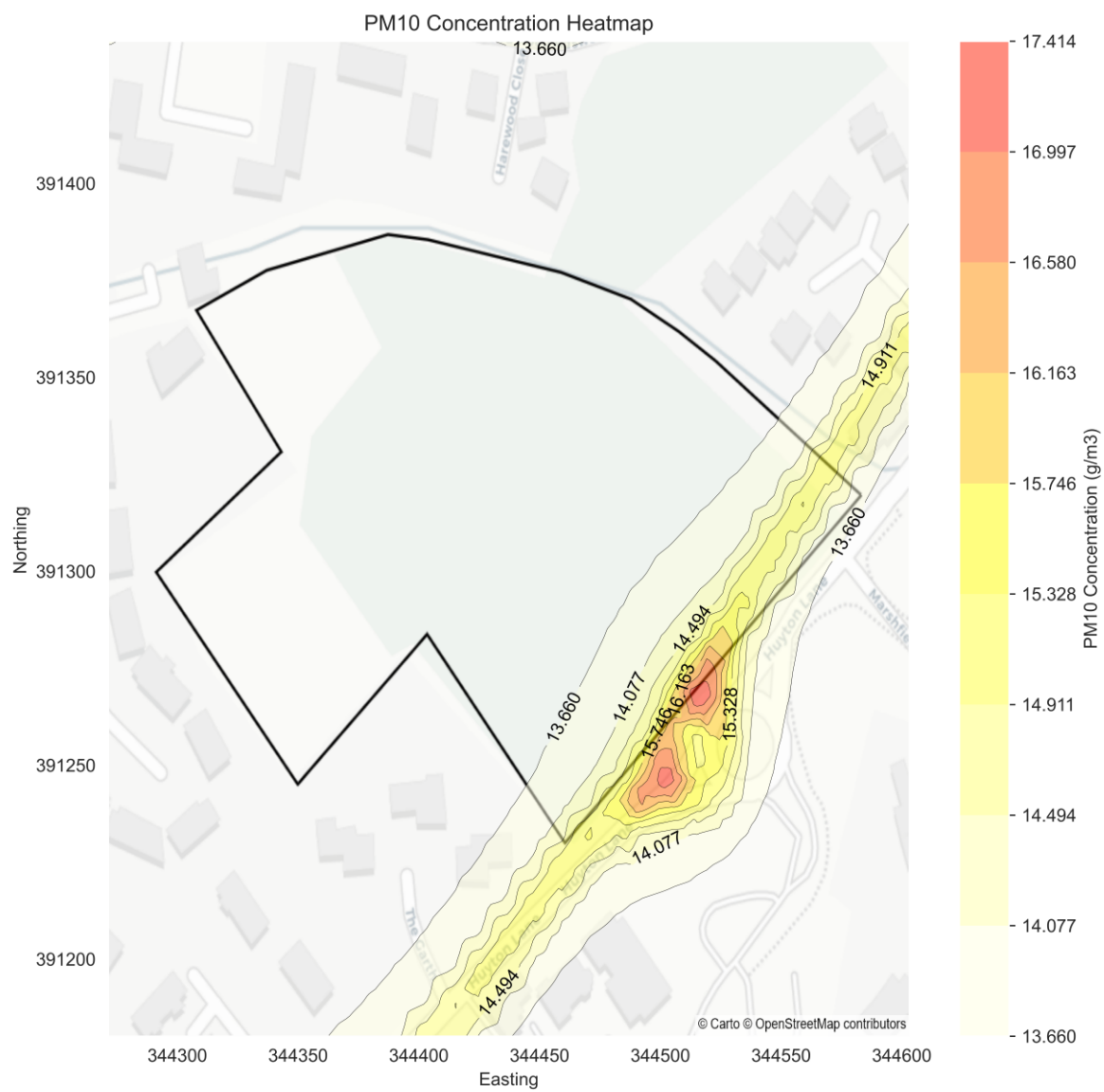
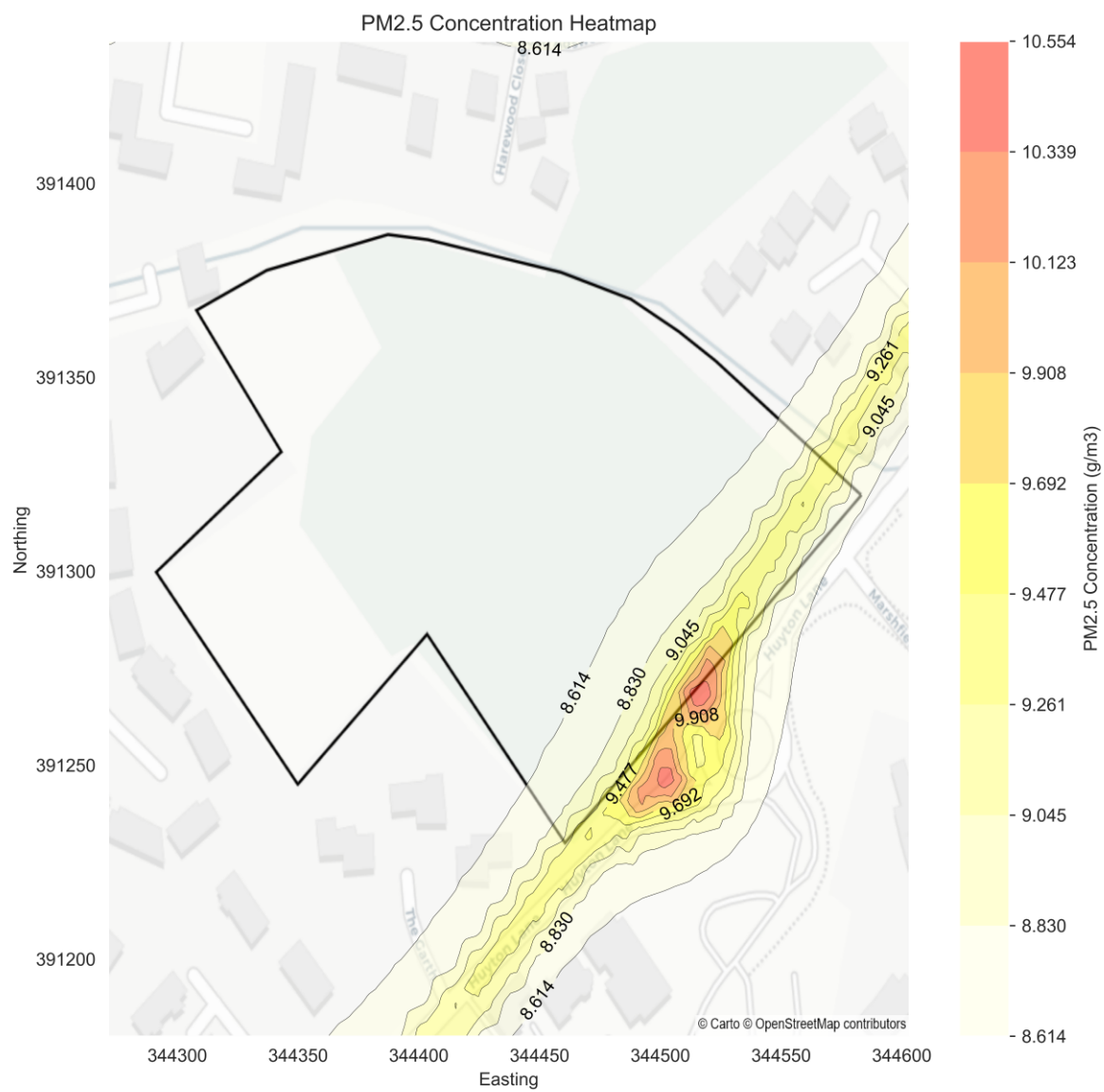


Figure 6
ADMS Roads Inputs









APPENDIX B: ASSESSMENT INPUTS

The Proposed Development has the potential to introduce future site users to poor air quality. Dispersion modelling using ADMS Roads was therefore undertaken to predict pollutant concentrations across the site to consider site suitability for the proposed end-use.

The assessment was undertaken in accordance with the guidance contained within LAQM.TG(22) and the EPUK and IAQM guidance.

Dispersion Model

Dispersion modelling was undertaken using the ADMS-Roads dispersion model (version 5.0). 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.

The model requires input data that details the following parameters:

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

Assessment Area

Ambient concentrations were predicted over the Proposed Development site and surrounding highway network. One Cartesian grid was included in the model over the area at approximately NGR: 344436, 391337 at a height of 1.5m to represent the proposed ground floor level for the 2027 opening year scenario.

Results were subsequently used to produce contour plots. Reference should be made to Figure 6 within Appendix A for a graphical representation of the verification inputs and operation phase DS extents, respectively.

Traffic Flow Data

Development flow traffic data and associated network distribution was provided by the appointed Transport Consultants for the scheme, and indicated that a total flow generation of 475 AADT is anticipated as a result of the Proposed Development.

Baseline traffic data for the road links were obtained from the Department for Transport (DfT). The DfT Matrix web tool enables the user to view and download traffic flows on every link of the A-road and motorway network in Great Britain for the years 1999 to 2022. The DfT matrix is referenced in LAQM.TG(22) as being a suitable source of data for air quality assessments and is therefore considered to provide a reasonable representation of traffic flows in the vicinity of the site.

Growth factors provided by the Trip End Model Presentation Program (TEMPRO) software package were utilised to allow for conversion from the obtained 2023 traffic flow to 2027 which was used to represent the opening year scenario. Vehicle speeds and road widths were obtained from the Ordnance Survey.

A summary of the traffic data used in the verification scenario is provided in Table B1.

Table B1: 2023 Verification Traffic Data

Road Link		Road Width (m)	24 Hour AADT Flow	HDV Pop (%)	Mean Vehicle Speed (km/hr)
L1	Paramount Business Park	17.6	596.0	1.3	17.5
L2	1 Cringles Dr	14.7	70616.0	3.2	102.7
L3	1 Cringles Dr	15.1	42544.0	4.7	96.4
L4	100 Tarbock Roundabout	10.7	32059.0	6.2	97.8
L5	100 Tarbock Roundabout	14.0	21329.0	8.1	94.9
L6	15 Campion Way	14.6	75891.0	3.1	101.2
L7	20 Stretton Way	14.8	29861.0	6.6	93.9
L8	20 Stretton Way	18.3	43490.0	6.8	96.4
L9	23 Sevenoak Grove	14.2	53434.0	4.2	69.0
L10	23 Sevenoak Grove	17.7	71139.0	3.3	93.7
L11	260 Tarbock Roundabout	17.8	47142.0	7.1	92.5
L12	27 Huyton Ln	14.3	81806.0	8.9	100.1
L13	3 Whitefield Ln	4.9	827.0	4.8	17.2
L14	380 Tarbock Roundabout	15.6	35303.0	5.9	93.4
L15	4 Wheat Hill Rd	15.0	40363.0	3.3	101.2
L16	4 Wheat Hill Rd	14.8	52620.0	3.3	101.0
L17	570 Tarbock Roundabout	11.8	30108.0	8.5	92.6
L18	58 Yew Tree Rd	15.0	35513.0	2.8	104.9
L19	58 Yew Tree Rd	15.2	35388.0	2.8	102.3
L20	630 Tarbock Roundabout	7.8	38189.0	5.7	57.2
L21	680 Tarbock Roundabout	12.5	35844.0	5.8	94.5
L22	680 Tarbock Roundabout	16.6	48569.0	4.5	89.5
L23	9 Wilson Rd	16.4	844.0	4.7	17.2
L24	9 Wilson Rd	11.5	593.0	1.3	16.8
L25	Adswood Road	6.9	1892.0	1.5	27.9
L26	Adswood Road	5.1	1882.0	1.5	25.6
L27	Adswood Road	4.8	1915.0	1.5	29.7
L28	Adswood Road	6.4	1891.0	1.5	26.4
L29	Adswood Road	5.5	1921.0	1.5	30.2
L30	Adswood Road	5.6	1923.0	1.5	29.3
L31	Adswood Road	4.6	1919.0	1.5	25.8
L32	Adswood Road	4.6	1913.0	1.5	24.8
L33	Adswood Road	5.6	1873.0	1.5	22.5

Road Link		Road Width (m)	24 Hour AADT Flow	HDV Pop (%)	Mean Vehicle Speed (km/hr)
L34	Adswood Road	4.8	1910.0	1.5	26.5
L35	Adswood Road	5.1	1927.0	1.5	21.6
L36	Adswood Road	6.7	1867.0	1.5	30.0
L37	Adswood Road	8.0	1842.0	1.5	28.6
L38	Adswood Road	8.4	1805.0	1.5	25.6
L39	Adswood Road	8.3	1863.0	1.5	27.3
L40	Adswood Road	4.5	1927.0	1.5	24.0
L41	Archway Road	8.5	10910.0	1.0	35.6
L42	Archway Road	7.4	10848.0	1.0	36.4
L43	Archway Road	7.3	10822.0	1.0	41.2
L44	Archway Road	10.2	10852.0	1.0	12.3
L45	Archway Road	11.6	10854.0	1.0	25.4
L46	Archway Road	9.4	10828.0	1.0	35.5
L47	Archway Road	7.0	10841.0	1.0	40.7
L48	Archway Road	14.5	10814.0	1.0	33.2
L49	Archway Road	8.4	10867.0	1.0	21.2
L50	Archway Road	7.3	10844.0	1.0	31.0
L51	Archway Road	7.6	10838.0	1.0	35.0
L52	Archway Road	9.4	10870.0	1.0	20.6
L53	Archway Road	9.5	10858.0	1.0	28.1
L54	Archway Road	37.5	1815.0	0.9	44.9
L55	Archway Road	7.8	10830.0	1.0	39.3
L56	Archway Road	10.4	10870.0	1.0	16.7
L57	Archway Road	19.3	10804.0	1.0	35.1
L58	Archway Road	10.1	10846.0	1.0	22.9
L59	Bardley Crescent	6.6	835.0	4.8	26.2
L60	Bardley Crescent	10.7	849.0	4.8	25.6
L61	Bardley Crescent	6.6	845.0	4.8	25.6
L62	Bardley Crescent	8.1	849.0	4.8	25.6
L63	Bardley Crescent	11.2	831.0	4.9	19.3
L64	Blue Bell Lane	13.3	10308.0	1.5	21.2
L65	Blue Bell Lane	5.7	10331.0	1.5	32.9
L66	Blue Bell Lane	5.8	10325.0	1.5	31.1
L67	Blue Bell Lane	12.8	10309.0	1.5	15.0

Road Link		Road Width (m)	24 Hour AADT Flow	HDV Pop (%)	Mean Vehicle Speed (km/hr)
L68	Blue Bell Lane	5.9	10345.0	1.6	40.8
L69	Blue Bell Lane	7.7	10398.0	1.6	41.9
L70	Blue Bell Lane	6.0	10317.0	1.5	23.4
L71	Blue Bell Lane	7.9	10452.0	1.6	43.6
L72	Blue Bell Lane	6.4	10323.0	1.5	27.5
L73	Blue Bell Lane	6.2	10367.0	1.6	41.8
L74	Blue Bell Lane	12.1	10384.0	1.6	41.3
L75	Blue Bell Lane	8.1	10379.0	1.6	45.4
L76	Coppice Crescent	5.2	1927.0	1.5	24.9
L77	Coppice Crescent	7.4	1930.0	1.5	14.9
L78	Coppice Lane	36.1	35987.0	5.9	70.8
L79	Coppice Lane	7.7	841.0	4.7	17.2
L80	Cronton Road	6.4	42080.0	4.0	43.6
L81	Cronton Road	16.8	36509.0	5.8	32.5
L82	Cronton Road	11.2	30535.0	6.4	39.9
L83	Cronton Road	11.0	29482.0	6.8	47.1
L84	Cronton Road	24.8	36044.0	5.9	33.8
L85	Cronton Road	11.9	39805.0	5.2	23.2
L86	Cronton Road	9.9	31131.0	6.3	19.2
L87	Cronton Road	11.3	31069.0	6.4	44.3
L88	Cronton Road	12.5	30976.0	6.6	29.5
L89	Cronton Road	6.5	41236.0	3.8	47.6
L90	Cronton Road	7.9	55804.0	7.5	56.9
L91	Cronton Road	10.6	44695.0	4.8	33.8
L92	Cronton Road	11.7	29644.0	6.8	46.9
L93	Cronton Road	10.4	30441.0	6.6	22.9
L94	Cronton Road	10.7	30436.0	6.6	40.1
L95	Cronton Road	10.6	37069.0	5.5	7.9
L96	Cronton Road	15.2	36480.0	5.8	11.8
L97	Cronton Road	25.4	36159.0	5.9	61.3
L98	Cronton Road	10.2	40421.0	5.2	39.0
L99	Cronton Road	7.6	47550.0	7.7	65.6
L100	Cronton Road	7.4	44570.0	7.7	70.0
L101	Cronton Road	14.0	36255.0	5.9	34.6

Road Link		Road Width (m)	24 Hour AADT Flow	HDV Pop (%)	Mean Vehicle Speed (km/hr)
L102	Cronton Road	11.4	30450.0	6.5	43.7
L103	Cronton Road	8.2	40545.0	3.6	51.6
L104	Cronton Road	30.7	36115.0	5.9	33.7
L105	Cronton Road	9.7	42022.0	4.5	34.2
L106	Cronton Road	12.0	40114.0	5.3	38.3
L107	Cronton Road	9.2	49487.0	4.4	28.6
L108	Cronton Road	12.5	31526.0	6.2	25.5
L109	Cronton Road	8.8	55313.0	7.5	55.6
L110	Cronton Road	9.7	41991.0	4.4	31.1
L111	Cronton Road	7.5	38719.0	7.0	62.1
L112	Cronton Road	14.4	37861.0	5.5	31.0
L113	Cronton Road	10.6	30733.0	6.5	39.2
L114	Cronton Road	7.1	42012.0	4.2	33.8
L115	Cronton Road	11.4	35331.0	5.9	41.1
L116	Cronton Road	11.1	29795.0	6.8	44.3
L117	Cronton Road	9.4	35453.0	6.0	35.0
L118	Cronton Road	10.8	30495.0	6.6	42.4
L119	Cronton Road	13.4	35996.0	5.9	38.4
L120	Cronton Road	9.2	31305.0	6.5	30.1
L121	Cronton Road	11.3	33113.0	6.0	31.7
L122	Cronton Road	11.1	29767.0	6.8	19.0
L123	Cronton Road	10.9	33464.0	6.2	19.6
L124	Cronton Road	10.9	47555.0	4.6	35.0
L125	Cronton Road	11.2	35152.0	5.8	37.0
L126	Cronton Road	13.4	35862.0	5.9	13.1
L127	Cronton Road	10.5	49060.0	4.5	17.7
L128	Fox's Bank Ln	19.1	94614.0	8.7	94.1
L129	Hall Lane	7.3	7835.0	1.3	30.8
L130	Hall Lane	7.9	7830.0	1.3	31.0
L131	Hall Lane	7.1	7835.0	1.3	38.1
L132	Hall Lane	12.6	10267.0	1.5	33.2
L133	Hall Lane	7.5	7837.0	1.3	33.5
L134	Hall Lane	8.5	7832.0	1.3	36.1
L135	Hall Lane	7.1	7836.0	1.3	36.3

Road Link		Road Width (m)	24 Hour AADT Flow	HDV Pop (%)	Mean Vehicle Speed (km/hr)
L136	Hall Lane	7.0	7831.0	1.3	42.5
L137	Hall Lane	8.5	7831.0	1.3	43.2
L138	Hall Lane	6.6	7831.0	1.3	43.1
L139	Hall Lane	8.8	7837.0	1.3	25.4
L140	Hall Lane	6.9	7835.0	1.3	35.5
L141	Hall Lane	8.2	7830.0	1.3	38.6
L142	Hall Lane	8.0	7831.0	1.3	38.1
L143	Hall Lane	7.1	7831.0	1.3	27.1
L144	Hall Lane	7.0	7836.0	1.3	38.0
L145	Huyton Hey Road	5.9	625.0	1.1	36.7
L146	Huyton Hey Road	7.5	632.0	1.1	26.6
L147	Huyton Hey Road	5.8	1961.0	0.9	41.8
L148	Huyton Hey Road	6.0	1953.0	0.9	36.3
L149	Huyton Hey Road	7.2	1940.0	0.9	34.7
L150	Huyton Hey Road	6.0	629.0	1.1	30.9
L151	Huyton Hey Road	7.9	1924.0	0.9	33.3
L152	Huyton Hey Road	9.3	1915.0	0.9	30.0
L153	Huyton Hey Road	11.3	1906.0	0.9	25.7
L154	Huyton Lane	8.8	10728.0	1.0	35.7
L155	Huyton Lane	9.6	10798.0	1.0	33.5
L156	Huyton Lane	13.3	10784.0	1.0	16.3
L157	Huyton Lane	18.8	10772.0	1.0	41.0
L158	Huyton Lane	12.6	10780.0	1.0	46.7
L159	Huyton Lane	8.2	10743.0	1.0	38.4
L160	Huyton Lane	19.1	10801.0	1.0	41.6
L161	Huyton Lane	12.3	10771.0	1.0	39.5
L162	Huyton Lane	7.9	10760.0	1.0	38.2
L163	Huyton Lane	8.9	10801.0	1.0	30.9
L164	Huyton Lane	18.6	10776.0	1.0	33.5
L165	Huyton Lane	19.7	1884.0	1.4	26.1
L166	Huyton Lane	7.7	1875.0	1.4	33.1
L167	Huyton Lane	8.8	10748.0	1.0	28.1
L168	Huyton Lane	8.9	10739.0	1.0	38.9
L169	Huyton Lane	11.7	10741.0	1.0	22.3

Road Link		Road Width (m)	24 Hour AADT Flow	HDV Pop (%)	Mean Vehicle Speed (km/hr)
L170	Huyton Lane	7.1	10715.0	1.0	43.5
L171	Huyton Lane	10.2	10761.0	1.0	49.2
L172	Huyton Lane	9.5	10747.0	1.0	29.5
L173	Huyton Lane	8.6	10689.0	1.0	33.3
L174	Huyton Lane	7.1	10704.0	1.0	43.0
L175	Huyton Lane	7.4	10794.0	1.0	20.5
L176	Huyton Lane	7.3	10722.0	1.0	40.2
L177	Huyton Lane	8.8	10661.0	1.0	27.9
L178	Huyton Lane	7.0	10735.0	1.0	31.2
L179	Huyton Lane	18.2	10786.0	1.0	41.0
L180	Huyton Lane	20.0	10782.0	1.0	26.7
L181	Huyton Lane	8.6	10746.0	1.0	26.9
L182	Huyton Lane	9.1	10744.0	1.0	29.0
L183	Huyton Lane	9.0	10731.0	1.0	36.0
L184	Huyton Lane	7.6	10719.0	1.0	43.9
L185	Huyton Lane	8.6	10739.0	1.0	38.4
L186	Huyton Lane	11.1	10748.0	1.0	32.0
L187	Huyton Lane	7.2	10726.0	1.0	38.1
L188	Huyton Lane	10.4	10747.0	1.0	34.8
L189	Jasop House	13.8	594.0	1.3	17.5
L190	Jasop House	16.9	595.0	1.3	16.8
L191	Kelvin Cottage	16.8	40516.0	3.3	104.4
L192	Kelvin Cottage	14.8	53226.0	3.3	103.2
L193	Knowsley Expressway	12.2	31899.0	6.4	85.2
L194	Knowsley Expressway	10.5	28161.0	8.0	76.5
L195	Knowsley Expressway	7.5	29147.0	7.6	40.4
L196	Knowsley Expressway	11.5	32744.0	6.3	18.1
L197	Knowsley Expressway	13.6	28540.0	6.9	50.9
L198	Knowsley Expressway	10.3	42796.0	7.8	92.8
L199	Knowsley Expressway	11.1	12200.0	10.1	65.8
L200	Knowsley Expy	13.1	29270.0	8.4	89.2
L201	Lathom Road	12.5	1887.0	1.4	26.8
L202	Lathom Road	8.4	1855.0	0.9	34.1
L203	Lathom Road	8.6	1848.0	0.9	29.0

Road Link		Road Width (m)	24 Hour AADT Flow	HDV Pop (%)	Mean Vehicle Speed (km/hr)
L204	Lathom Road	12.7	1860.0	0.9	26.7
L205	Lathom Road	14.1	1901.0	1.4	29.0
L206	Lathom Road	19.9	1863.0	0.9	28.9
L207	Lathom Road	8.6	1865.0	0.9	28.8
L208	Lathom Road	14.3	1896.0	1.4	22.4
L209	Lathom Road	7.1	1880.0	0.9	38.9
L210	Lathom Road	7.9	1875.0	0.9	33.4
L211	Lathom Road	8.0	1887.0	0.9	39.9
L212	Lathom Road	7.8	1885.0	0.9	40.2
L213	Lathom Road	7.1	1883.0	0.9	39.3
L214	Lathom Road	8.3	1889.0	0.9	32.9
L215	Lathom Road	11.3	1899.0	0.9	26.9
L216	Lathom Road	13.8	1885.0	1.4	9.1
L217	Lathom Road	16.1	1903.0	0.9	25.1
L218	Lathom Road	5.5	1849.0	0.9	29.3
L219	Lathom Road	8.9	1856.0	0.9	22.3
L220	Longview Lane	7.2	1932.0	1.5	20.3
L221	Longview Lane	7.2	1934.0	1.5	27.8
L222	M57	15.1	41458.0	6.3	95.6
L223	M57	14.1	88746.0	9.1	95.2
L224	M57	14.6	41579.0	6.3	97.2
L225	M57	12.5	36063.0	5.8	103.2
L226	M57	11.8	26314.0	8.1	74.4
L227	M57	13.3	25486.0	7.1	65.5
L228	M57	16.5	30015.0	6.6	98.7
L229	M57	10.8	31154.0	6.5	96.7
L230	M57	12.8	25973.0	7.4	82.1
L231	M62	41.6	36112.0	5.7	103.7
L232	M62	23.5	91124.0	8.6	83.4
L233	M62	19.3	72803.0	8.2	85.1
L234	M62	11.3	35076.0	5.9	107.1
L235	M62	17.6	52084.0	4.3	95.7
L236	M62	10.2	57756.0	3.9	14.2
L237	M62	14.6	44233.0	4.9	98.7

Road Link		Road Width (m)	24 Hour AADT Flow	HDV Pop (%)	Mean Vehicle Speed (km/hr)
L238	M62	16.4	35406.0	5.8	91.2
L239	M62	15.7	80399.0	8.4	91.5
L240	M62	12.2	32732.0	6.1	90.9
L241	M62	12.7	46649.0	7.1	63.0
L242	M62	10.4	37274.0	6.0	80.9
L243	M62	12.9	50312.0	4.5	71.3
L244	M62	17.0	47136.0	7.1	94.9
L245	M62	7.9	16252.0	15.6	70.5
L246	M62	12.2	45678.0	7.1	37.6
L247	Mellor Close	6.4	846.0	4.9	25.6
L248	Mellor Close	6.8	843.0	4.9	24.1
L249	Mellor Close	8.5	848.0	5.0	25.6
L250	Ox Ln	7.8	27072.0	8.4	72.0
L251	Pottery Lane	11.8	10311.0	1.6	45.8
L252	Pottery Lane	10.0	10312.0	1.6	42.1
L253	Pottery Lane	7.7	10324.0	1.6	57.0
L254	Pottery Lane	7.9	10313.0	1.6	53.7
L255	Pottery Ln	14.4	59818.0	7.4	95.0
L256	Pottery Ln	14.5	59817.0	7.4	98.9
L257	Ribchester Way	6.8	853.0	4.9	25.6
L258	Ribchester Way	7.3	849.0	4.9	24.9
L259	Ribchester Way	7.8	848.0	4.9	26.0
L260	Ribchester Way	6.9	860.0	4.9	25.6
L261	Roscoe Close	8.7	860.0	4.9	25.6
L262	Roscoe Close	13.1	859.0	4.9	25.6
L263	Roscoe Close	7.1	854.0	4.9	25.6
L264	Rupert Road	7.9	10252.0	1.5	33.8
L265	Rupert Road	5.9	10252.0	1.5	35.7
L266	Rupert Road	9.4	10249.0	1.5	21.5
L267	Smithford Walk	12.7	858.0	4.8	25.6
L268	Smithford Walk	7.3	859.0	4.8	25.6
L269	Smithford Walk	7.1	862.0	4.8	24.7
L270	Smithford Walk	7.0	858.0	4.8	25.6
L271	Smithford Walk	7.9	855.0	4.8	22.2

Road Link		Road Width (m)	24 Hour AADT Flow	HDV Pop (%)	Mean Vehicle Speed (km/hr)
L272	St Johns Road	7.5	7901.0	1.3	35.2
L273	St Johns Road	9.0	7869.0	1.3	35.4
L274	St Johns Road	9.2	7876.0	1.3	25.6
L275	St Johns Road	8.2	7854.0	1.3	43.1
L276	St Johns Road	10.1	7910.0	1.3	11.2
L277	St Johns Road	9.4	7852.0	1.3	39.9
L278	St Johns Road	9.3	7876.0	1.3	35.5
L279	St Johns Road	13.5	7906.0	1.3	28.3
L280	St Johns Road	6.2	7852.0	1.3	25.6
L281	St Johns Road	10.9	7905.0	1.3	23.3
L282	St Johns Road	8.1	7860.0	1.3	42.0
L283	St Johns Road	10.6	7908.0	1.3	37.5
L284	St Johns Road	7.1	7878.0	1.3	25.6
L285	St Johns Road	14.9	7906.0	1.3	11.2
L286	St Johns Road	15.9	7838.0	1.3	25.5
L287	St Johns Road	7.9	7864.0	1.3	41.4
L288	St Johns Road	7.9	7843.0	1.3	25.7
L289	St Johns Road	8.6	7858.0	1.3	41.3
L290	St Johns Road	8.4	7882.0	1.3	36.4
L291	St Johns Road	7.6	7859.0	1.3	41.3
L292	St Johns Road	8.7	7876.0	1.3	25.6
L293	St Johns Road	7.4	7891.0	1.3	38.4
L294	St Johns Road	9.2	7867.0	1.3	36.3
L295	St Johns Road	9.8	7872.0	1.3	37.1
L296	St Johns Road	9.6	7846.0	1.3	36.0
L297	St Johns Road	8.5	7857.0	1.3	42.3
L298	St Johns Road	7.9	7850.0	1.3	36.7
L299	Tarbock Road	12.7	39273.0	3.1	26.9
L300	Tarbock Road	10.3	29154.0	2.5	47.5
L301	Tarbock Road	8.9	38295.0	3.5	51.6
L302	Tarbock Road	6.6	19151.0	2.0	51.8
L303	Tarbock Road	10.2	39381.0	3.1	30.8
L304	Tarbock Road	9.6	39000.0	3.1	40.4
L305	Tarbock Road	8.2	33297.0	3.2	52.2

Road Link		Road Width (m)	24 Hour AADT Flow	HDV Pop (%)	Mean Vehicle Speed (km/hr)
L306	Tarbock Road	6.9	38534.0	3.4	50.0
L307	Tarbock Road	9.8	38052.0	3.1	47.3
L308	Tarbock Road	6.6	36228.0	3.3	48.6
L309	Tarbock Road	10.4	39153.0	3.6	50.9
L310	Tarbock Road	8.9	39333.0	3.1	12.2
L311	Tarbock Road	9.3	38797.0	3.1	42.8
L312	Tarbock Road	8.9	36917.0	3.4	47.3
L313	Tarbock Road	9.8	38598.0	3.1	45.2
L314	Tarbock Road	11.8	39444.0	3.1	36.5
L315	Tarbock Road	10.7	39400.0	3.1	40.6
L316	Tarbock Road	9.6	39136.0	3.1	34.6
L317	Tarbock Road	16.7	39482.0	3.1	30.7
L318	Tarbock Road	11.4	39428.0	3.1	35.3
L319	Tarbock Road	9.3	38888.0	3.1	43.8
L320	Tarbock Road	7.9	37414.0	3.4	50.1
L321	Tarbock Road	10.6	27994.0	2.5	33.5
L322	Tarbock Road	10.0	30679.0	3.1	47.3
L323	Tarbock Road	10.0	28481.0	2.5	43.6
L324	Tarbock Road	6.9	15040.0	1.3	50.9
L325	Tarbock Road	10.0	39276.0	3.6	48.3
L326	Tarbock Road	6.2	38074.0	3.4	54.3
L327	Tarbock Road	8.8	39344.0	3.1	37.6
L328	Tarbock Road	10.2	29605.0	2.5	47.5
L329	Tarbock Road	11.4	39416.0	3.1	33.2
L330	Tarbock Road	7.3	29184.0	2.9	53.0
L331	Tarbock Road	7.2	34620.0	3.3	49.2
L332	Tarbock Road	15.4	39465.0	3.1	31.5
L333	Tarbock Road	9.1	36376.0	3.4	46.6
L334	Tarbock Road	6.3	30154.0	3.0	50.9
L335	Tarbock Roundabout	15.9	48850.0	4.5	94.6
L336	Tarbock Roundabout	17.4	69707.0	3.4	87.7
L337	The Village Hotel	11.5	18486.0	9.0	99.6
L338	The Village Hotel	12.3	21611.0	8.0	43.5
L339	Wheathill Road	7.7	7934.0	1.3	30.4

Road Link		Road Width (m)	24 Hour AADT Flow	HDV Pop (%)	Mean Vehicle Speed (km/hr)
L340	Wheathill Road	11.3	7974.0	1.3	51.5
L341	Wheathill Road	15.6	7915.0	1.3	30.7
L342	Wheathill Road	8.7	7963.0	1.3	50.1
L343	Wheathill Road	23.3	7913.0	1.3	38.0
L344	Wheathill Road	7.8	7947.0	1.3	46.5
L345	Wheathill Road	12.9	7913.0	1.3	9.4
L346	Wheathill Road	14.2	7915.0	1.3	5.0
L347	Wheathill Road	27.8	7978.0	1.3	50.8
L348	Whitefield Lane	8.4	8025.0	1.3	52.6
L349	Whitefield Lane	9.4	7995.0	1.3	24.7
L350	Whitefield Lane	7.3	8027.0	1.3	67.4
L351	Wilson Road	15.1	637.0	1.1	10.4
L352	Wilson Road	11.4	557.0	1.3	43.9
L353	Wilson Road	15.8	636.0	1.1	29.5
L354	Wilson Road	11.1	576.0	1.3	46.2
L355	Wilson Road	12.0	601.0	1.3	35.1
L356	Wilson Road	10.2	610.0	1.3	5.4
L357	Wilson Road	13.2	503.0	1.3	41.1
L358	Wilson Road	14.8	597.0	1.3	40.5
L359	Wilson Road	13.4	491.0	1.3	41.7
L360	Wilson Road	11.9	606.0	1.3	25.5
L361	Wilson Road	11.0	507.0	1.3	45.3
L362	Wilson Road	10.6	589.0	1.3	34.0
L363	Wilson Road	14.1	570.0	1.3	48.6
L364	Wilson Road	12.5	567.0	1.3	47.8
L365	Wilson Road	9.7	562.0	1.3	47.8
L366	Wilson Road	11.9	572.0	1.3	48.6
L367	Wilson Road	10.9	519.0	1.3	49.5
L368	Wilson Road	11.8	531.0	1.3	50.6
L369	Wilson Road	11.7	642.0	1.1	36.1
L370	Wilson Road	9.8	582.0	1.3	45.5
L371	Wilson Road	11.5	545.0	1.3	44.4
L372	Wilson Road	11.4	661.0	1.1	44.9
L373	Wilson Road	12.9	553.0	1.3	42.0

Road Link		Road Width (m)	24 Hour AADT Flow	HDV Pop (%)	Mean Vehicle Speed (km/hr)
L374	Wilson Road	11.6	495.0	1.3	31.2
L375	Wilson Road	11.8	513.0	1.3	50.0
L376	Wilson Road	10.9	485.0	1.3	31.8
L377	Wilson Road	10.6	526.0	1.3	44.0
L378	Wilson Road	12.2	609.0	1.3	5.3
L379	Wilson Road	15.0	856.0	4.6	32.6
L380	Wilson Road	10.0	536.0	1.3	48.4
L381	Wilson Road	11.2	594.0	1.3	36.9
L382	Wilson Road	19.8	541.0	1.3	46.7
L383	Wilson Road	19.7	596.0	1.3	40.8
L384	Windy Arbor Rd	13.4	30314.0	7.4	90.8
L385	Windy Arbor Road	12.1	7920.0	1.3	36.3
L386	Windy Arbor Road	11.0	7927.0	1.3	17.1
L387	Windy Arbor Road	8.3	7922.0	1.3	36.6
L388	Windy Arbor Road	8.0	7926.0	1.3	36.2
L389	Windy Arbor Road	12.0	7919.0	1.3	33.6
L390	Windy Arbor Road	11.2	7917.0	1.3	33.7
L391	Windy Arbor Road	11.5	7930.0	1.3	41.7
L392	Windy Arbor Road	10.5	7905.0	1.3	46.7
L393	Windy Arbor Road	9.7	7904.0	1.3	43.0
L394	Windy Arbor Road	10.0	7917.0	1.3	48.0
L395	Windy Arbor Road	7.3	7913.0	1.3	44.4
L396	Wood Lane	10.2	10301.0	1.6	42.1
L397	Wood Lane	8.1	10301.0	1.6	44.7
L398	Wood Lane	9.4	10298.0	1.6	41.7
L399	Wood Lane	7.8	10273.0	1.5	38.2

Reference should be made to Figure 6 within Appendix A for a graphical representation of the road link locations used within the verification assessment. The road width and mean vehicle speed shown in Table B1 remained the same for the 2027 scenarios.

A summary of the 2027 traffic data is shown in Table B2.

Table B2: 2027 Traffic Data

Road Link		DS Scenario	
		24 Hr AADT Flow	HDV Prop (%)
L1	Paramount Business Park	1082.0	0.7

Road Link		DS Scenario	
		24 Hr AADT Flow	HDV Prop (%)
L2	1 Cringles Dr	72425.0	3.1
L3	1 Cringles Dr	43824.0	4.6
L4	100 Tarbock Roundabout	33140.0	6.1
L5	100 Tarbock Roundabout	22208.0	7.9
L6	15 Campion Way	77801.0	3.1
L7	20 Stretton Way	30901.0	6.5
L8	20 Stretton Way	44787.0	6.7
L9	23 Sevenoak Grove	54919.0	4.2
L10	23 Sevenoak Grove	72959.0	3.3
L11	260 Tarbock Roundabout	48508.0	7.0
L12	27 Huyton Ln	83828.0	8.8
L13	3 Whitefield Ln	1317.0	3.0
L14	380 Tarbock Roundabout	36446.0	5.8
L15	4 Wheat Hill Rd	41601.0	3.3
L16	4 Wheat Hill Rd	54090.0	3.2
L17	570 Tarbock Roundabout	31152.0	8.3
L18	58 Yew Tree Rd	36659.0	2.8
L19	58 Yew Tree Rd	36532.0	2.8
L20	630 Tarbock Roundabout	39385.0	5.6
L21	680 Tarbock Roundabout	36997.0	5.7
L22	680 Tarbock Roundabout	49962.0	4.5
L23	9 Wilson Rd	1335.0	3.0
L24	9 Wilson Rd	1079.0	0.7
L25	Adswood Road	2402.0	1.2
L26	Adswood Road	2393.0	1.2
L27	Adswood Road	2427.0	1.2
L28	Adswood Road	2402.0	1.2
L29	Adswood Road	2432.0	1.2
L30	Adswood Road	2434.0	1.2
L31	Adswood Road	2430.0	1.2
L32	Adswood Road	2424.0	1.2
L33	Adswood Road	2383.0	1.2
L34	Adswood Road	2421.0	1.2
L35	Adswood Road	2439.0	1.2
L36	Adswood Road	2377.0	1.2

Road Link		DS Scenario	
		24 Hr AADT Flow	HDV Prop (%)
L37	Adswood Road	2352.0	1.2
L38	Adswood Road	2314.0	1.2
L39	Adswood Road	2373.0	1.2
L40	Adswood Road	2439.0	1.2
L41	Archway Road	11591.0	1.0
L42	Archway Road	11529.0	1.0
L43	Archway Road	11502.0	1.0
L44	Archway Road	11532.0	1.0
L45	Archway Road	11534.0	1.0
L46	Archway Road	11508.0	1.0
L47	Archway Road	11520.0	1.0
L48	Archway Road	11493.0	1.0
L49	Archway Road	11547.0	1.0
L50	Archway Road	11524.0	1.0
L51	Archway Road	11518.0	1.0
L52	Archway Road	11550.0	1.0
L53	Archway Road	11538.0	1.0
L54	Archway Road	2325.0	0.7
L55	Archway Road	11509.0	1.0
L56	Archway Road	11550.0	1.0
L57	Archway Road	11483.0	1.0
L58	Archway Road	11526.0	1.0
L59	Bardley Crescent	1326.0	3.1
L60	Bardley Crescent	1340.0	3.1
L61	Bardley Crescent	1336.0	3.1
L62	Bardley Crescent	1340.0	3.1
L63	Bardley Crescent	1322.0	3.1
L64	Blue Bell Lane	10978.0	1.5
L65	Blue Bell Lane	11001.0	1.5
L66	Blue Bell Lane	10995.0	1.5
L67	Blue Bell Lane	10978.0	1.5
L68	Blue Bell Lane	11015.0	1.5
L69	Blue Bell Lane	11069.0	1.5
L70	Blue Bell Lane	10987.0	1.5
L71	Blue Bell Lane	11124.0	1.5

Road Link		DS Scenario	
		24 Hr AADT Flow	HDV Prop (%)
L72	Blue Bell Lane	10993.0	1.5
L73	Blue Bell Lane	11038.0	1.5
L74	Blue Bell Lane	11055.0	1.5
L75	Blue Bell Lane	11050.0	1.5
L76	Coppice Crescent	2438.0	1.2
L77	Coppice Crescent	2442.0	1.2
L78	Coppice Lane	37142.0	5.8
L79	Coppice Lane	1332.0	3.0
L80	Cronton Road	43350.0	4.0
L81	Cronton Road	37674.0	5.7
L82	Cronton Road	31587.0	6.3
L83	Cronton Road	30514.0	6.7
L84	Cronton Road	37200.0	5.8
L85	Cronton Road	41032.0	5.2
L86	Cronton Road	32195.0	6.2
L87	Cronton Road	32131.0	6.3
L88	Cronton Road	32036.0	6.5
L89	Cronton Road	42491.0	3.7
L90	Cronton Road	57334.0	7.4
L91	Cronton Road	46015.0	4.7
L92	Cronton Road	30680.0	6.7
L93	Cronton Road	31491.0	6.5
L94	Cronton Road	31486.0	6.5
L95	Cronton Road	38245.0	5.5
L96	Cronton Road	37645.0	5.7
L97	Cronton Road	37318.0	5.8
L98	Cronton Road	41660.0	5.1
L99	Cronton Road	48924.0	7.7
L100	Cronton Road	45888.0	7.6
L101	Cronton Road	37415.0	5.8
L102	Cronton Road	31501.0	6.4
L103	Cronton Road	41786.0	3.5
L104	Cronton Road	37272.0	5.8
L105	Cronton Road	43291.0	4.5
L106	Cronton Road	41347.0	5.3

Road Link		DS Scenario	
		24 Hr AADT Flow	HDV Prop (%)
L107	Cronton Road	50897.0	4.4
L108	Cronton Road	32597.0	6.2
L109	Cronton Road	56833.0	7.4
L110	Cronton Road	43260.0	4.3
L111	Cronton Road	39925.0	6.9
L112	Cronton Road	39052.0	5.4
L113	Cronton Road	31789.0	6.4
L114	Cronton Road	43281.0	4.1
L115	Cronton Road	36473.0	5.9
L116	Cronton Road	30833.0	6.6
L117	Cronton Road	36598.0	5.9
L118	Cronton Road	31546.0	6.5
L119	Cronton Road	37152.0	5.8
L120	Cronton Road	32371.0	6.4
L121	Cronton Road	34214.0	5.9
L122	Cronton Road	30805.0	6.7
L123	Cronton Road	34572.0	6.1
L124	Cronton Road	48929.0	4.6
L125	Cronton Road	36291.0	5.7
L126	Cronton Road	37015.0	5.9
L127	Cronton Road	50462.0	4.4
L128	Fox's Bank Ln	96877.0	8.6
L129	Hall Lane	8458.0	1.2
L130	Hall Lane	8453.0	1.2
L131	Hall Lane	8458.0	1.2
L132	Hall Lane	10936.0	1.5
L133	Hall Lane	8460.0	1.2
L134	Hall Lane	8455.0	1.2
L135	Hall Lane	8459.0	1.2
L136	Hall Lane	8454.0	1.2
L137	Hall Lane	8454.0	1.2
L138	Hall Lane	8454.0	1.2
L139	Hall Lane	8460.0	1.2
L140	Hall Lane	8458.0	1.2
L141	Hall Lane	8453.0	1.2

Road Link		DS Scenario	
		24 Hr AADT Flow	HDV Prop (%)
L142	Hall Lane	8454.0	1.2
L143	Hall Lane	8454.0	1.2
L144	Hall Lane	8459.0	1.2
L145	Huyton Hey Road	1112.0	0.6
L146	Huyton Hey Road	1119.0	0.6
L147	Huyton Hey Road	2473.0	0.7
L148	Huyton Hey Road	2465.0	0.7
L149	Huyton Hey Road	2451.0	0.7
L150	Huyton Hey Road	1116.0	0.6
L151	Huyton Hey Road	2435.0	0.7
L152	Huyton Hey Road	2426.0	0.7
L153	Huyton Hey Road	2417.0	0.7
L154	Huyton Lane	11406.0	1.0
L155	Huyton Lane	11477.0	1.0
L156	Huyton Lane	11462.0	1.0
L157	Huyton Lane	11450.0	1.0
L158	Huyton Lane	11459.0	1.0
L159	Huyton Lane	11421.0	1.0
L160	Huyton Lane	11480.0	1.0
L161	Huyton Lane	11450.0	1.0
L162	Huyton Lane	11439.0	1.0
L163	Huyton Lane	11480.0	1.0
L164	Huyton Lane	11455.0	1.0
L165	Huyton Lane	2395.0	1.2
L166	Huyton Lane	2386.0	1.2
L167	Huyton Lane	11426.0	1.0
L168	Huyton Lane	11417.0	1.0
L169	Huyton Lane	11419.0	1.0
L170	Huyton Lane	11393.0	1.0
L171	Huyton Lane	11439.0	1.0
L172	Huyton Lane	11425.0	1.0
L173	Huyton Lane	11366.0	1.0
L174	Huyton Lane	11381.0	1.0
L175	Huyton Lane	11473.0	1.0
L176	Huyton Lane	11400.0	1.0

Road Link		DS Scenario	
		24 Hr AADT Flow	HDV Prop (%)
L177	Huyton Lane	11337.0	1.0
L178	Huyton Lane	11413.0	1.0
L179	Huyton Lane	11465.0	1.0
L180	Huyton Lane	11461.0	1.0
L181	Huyton Lane	11424.0	1.0
L182	Huyton Lane	11422.0	1.0
L183	Huyton Lane	11409.0	1.0
L184	Huyton Lane	11396.0	1.0
L185	Huyton Lane	11417.0	1.0
L186	Huyton Lane	11427.0	1.0
L187	Huyton Lane	11404.0	1.0
L188	Huyton Lane	11425.0	1.0
L189	Jasop House	1080.0	0.7
L190	Jasop House	1081.0	0.7
L191	Kelvin Cottage	41756.0	3.3
L192	Kelvin Cottage	54707.0	3.2
L193	Knowsley Expressway	32976.0	6.3
L194	Knowsley Expressway	29168.0	7.9
L195	Knowsley Expressway	30172.0	7.5
L196	Knowsley Expressway	33838.0	6.2
L197	Knowsley Expressway	29554.0	6.8
L198	Knowsley Expressway	44080.0	7.7
L199	Knowsley Expressway	12905.0	9.8
L200	Knowsley Expy	30298.0	8.3
L201	Lathom Road	2398.0	1.2
L202	Lathom Road	2365.0	0.7
L203	Lathom Road	2358.0	0.7
L204	Lathom Road	2370.0	0.7
L205	Lathom Road	2412.0	1.2
L206	Lathom Road	2373.0	0.7
L207	Lathom Road	2375.0	0.7
L208	Lathom Road	2407.0	1.2
L209	Lathom Road	2390.0	0.7
L210	Lathom Road	2386.0	0.7
L211	Lathom Road	2397.0	0.7

Road Link		DS Scenario	
		24 Hr AADT Flow	HDV Prop (%)
L212	Lathom Road	2395.0	0.7
L213	Lathom Road	2393.0	0.7
L214	Lathom Road	2399.0	0.7
L215	Lathom Road	2410.0	0.7
L216	Lathom Road	2396.0	1.2
L217	Lathom Road	2414.0	0.7
L218	Lathom Road	2359.0	0.7
L219	Lathom Road	2366.0	0.7
L220	Longview Lane	2444.0	1.2
L221	Longview Lane	2445.0	1.2
L222	M57	42717.0	6.2
L223	M57	90898.0	9.0
L224	M57	42839.0	6.2
L225	M57	37220.0	5.7
L226	M57	27287.0	7.9
L227	M57	26442.0	7.0
L228	M57	31057.0	6.5
L229	M57	32218.0	6.4
L230	M57	26939.0	7.3
L231	M62	37269.0	5.7
L232	M62	93321.0	8.6
L233	M62	74654.0	8.2
L234	M62	36214.0	5.8
L235	M62	53543.0	4.3
L236	M62	59323.0	3.9
L237	M62	45544.0	4.8
L238	M62	36550.0	5.8
L239	M62	82394.0	8.4
L240	M62	33826.0	6.0
L241	M62	48006.0	7.0
L242	M62	38453.0	6.0
L243	M62	51738.0	4.5
L244	M62	48501.0	7.0
L245	M62	17035.0	15.2
L246	M62	47016.0	7.1

Road Link		DS Scenario	
		24 Hr AADT Flow	HDV Prop (%)
L247	Mellor Close	1337.0	3.2
L248	Mellor Close	1334.0	3.2
L249	Mellor Close	1339.0	3.2
L250	Ox Ln	28059.0	8.3
L251	Pottery Lane	10981.0	1.5
L252	Pottery Lane	10982.0	1.5
L253	Pottery Lane	10995.0	1.5
L254	Pottery Lane	10983.0	1.5
L255	Pottery Ln	61423.0	7.3
L256	Pottery Ln	61423.0	7.3
L257	Ribchester Way	1344.0	3.2
L258	Ribchester Way	1340.0	3.2
L259	Ribchester Way	1339.0	3.1
L260	Ribchester Way	1352.0	3.2
L261	Roscoe Close	1351.0	3.2
L262	Roscoe Close	1351.0	3.2
L263	Roscoe Close	1345.0	3.2
L264	Rupert Road	10921.0	1.5
L265	Rupert Road	10921.0	1.5
L266	Rupert Road	10918.0	1.5
L267	Smithford Walk	1349.0	3.1
L268	Smithford Walk	1350.0	3.1
L269	Smithford Walk	1353.0	3.1
L270	Smithford Walk	1350.0	3.1
L271	Smithford Walk	1347.0	3.1
L272	St Johns Road	8525.0	1.2
L273	St Johns Road	8493.0	1.2
L274	St Johns Road	8499.0	1.2
L275	St Johns Road	8478.0	1.2
L276	St Johns Road	8534.0	1.2
L277	St Johns Road	8475.0	1.2
L278	St Johns Road	8499.0	1.2
L279	St Johns Road	8530.0	1.2
L280	St Johns Road	8476.0	1.2
L281	St Johns Road	8530.0	1.2

Road Link		DS Scenario	
		24 Hr AADT Flow	HDV Prop (%)
L282	St Johns Road	8484.0	1.2
L283	St Johns Road	8532.0	1.2
L284	St Johns Road	8502.0	1.2
L285	St Johns Road	8530.0	1.2
L286	St Johns Road	8461.0	1.2
L287	St Johns Road	8488.0	1.2
L288	St Johns Road	8467.0	1.2
L289	St Johns Road	8482.0	1.2
L290	St Johns Road	8506.0	1.2
L291	St Johns Road	8482.0	1.2
L292	St Johns Road	8500.0	1.2
L293	St Johns Road	8515.0	1.2
L294	St Johns Road	8490.0	1.2
L295	St Johns Road	8495.0	1.2
L296	St Johns Road	8469.0	1.2
L297	St Johns Road	8480.0	1.2
L298	St Johns Road	8473.0	1.2
L299	Tarbock Road	40490.0	3.1
L300	Tarbock Road	30180.0	2.5
L301	Tarbock Road	39494.0	3.5
L302	Tarbock Road	19988.0	2.0
L303	Tarbock Road	40601.0	3.0
L304	Tarbock Road	40212.0	3.1
L305	Tarbock Road	34401.0	3.1
L306	Tarbock Road	39738.0	3.4
L307	Tarbock Road	39246.0	3.1
L308	Tarbock Road	37388.0	3.3
L309	Tarbock Road	40368.0	3.6
L310	Tarbock Road	40552.0	3.1
L311	Tarbock Road	40006.0	3.1
L312	Tarbock Road	38090.0	3.4
L313	Tarbock Road	39803.0	3.1
L314	Tarbock Road	40665.0	3.1
L315	Tarbock Road	40620.0	3.1
L316	Tarbock Road	40351.0	3.1

Road Link		DS Scenario	
		24 Hr AADT Flow	HDV Prop (%)
L317	Tarbock Road	40703.0	3.1
L318	Tarbock Road	40648.0	3.1
L319	Tarbock Road	40098.0	3.1
L320	Tarbock Road	38596.0	3.4
L321	Tarbock Road	28998.0	2.4
L322	Tarbock Road	31734.0	3.1
L323	Tarbock Road	29494.0	2.5
L324	Tarbock Road	15799.0	1.3
L325	Tarbock Road	40493.0	3.6
L326	Tarbock Road	39268.0	3.3
L327	Tarbock Road	40563.0	3.1
L328	Tarbock Road	30639.0	2.5
L329	Tarbock Road	40636.0	3.1
L330	Tarbock Road	30210.0	2.9
L331	Tarbock Road	35749.0	3.2
L332	Tarbock Road	40686.0	3.1
L333	Tarbock Road	37538.0	3.3
L334	Tarbock Road	31199.0	2.9
L335	Tarbock Roundabout	50248.0	4.4
L336	Tarbock Roundabout	71500.0	3.3
L337	The Village Hotel	19311.0	8.7
L338	The Village Hotel	22495.0	7.9
L339	Wheathill Road	8559.0	1.2
L340	Wheathill Road	8600.0	1.2
L341	Wheathill Road	8540.0	1.2
L342	Wheathill Road	8589.0	1.2
L343	Wheathill Road	8538.0	1.2
L344	Wheathill Road	8572.0	1.2
L345	Wheathill Road	8537.0	1.2
L346	Wheathill Road	8540.0	1.2
L347	Wheathill Road	8604.0	1.2
L348	Whitefield Lane	8651.0	1.3
L349	Whitefield Lane	8621.0	1.3
L350	Whitefield Lane	8654.0	1.3
L351	Wilson Road	1124.0	0.6

Road Link		DS Scenario	
		24 Hr AADT Flow	HDV Prop (%)
L352	Wilson Road	1042.0	0.7
L353	Wilson Road	1123.0	0.6
L354	Wilson Road	1062.0	0.7
L355	Wilson Road	1087.0	0.7
L356	Wilson Road	1097.0	0.7
L357	Wilson Road	987.0	0.7
L358	Wilson Road	1083.0	0.7
L359	Wilson Road	975.0	0.7
L360	Wilson Road	1092.0	0.7
L361	Wilson Road	992.0	0.7
L362	Wilson Road	1075.0	0.7
L363	Wilson Road	1055.0	0.7
L364	Wilson Road	1053.0	0.7
L365	Wilson Road	1047.0	0.7
L366	Wilson Road	1058.0	0.7
L367	Wilson Road	1004.0	0.7
L368	Wilson Road	1016.0	0.7
L369	Wilson Road	1129.0	0.6
L370	Wilson Road	1068.0	0.7
L371	Wilson Road	1031.0	0.7
L372	Wilson Road	1149.0	0.7
L373	Wilson Road	1038.0	0.7
L374	Wilson Road	979.0	0.7
L375	Wilson Road	997.0	0.7
L376	Wilson Road	969.0	0.7
L377	Wilson Road	1011.0	0.7
L378	Wilson Road	1096.0	0.7
L379	Wilson Road	1347.0	3.0
L380	Wilson Road	1021.0	0.7
L381	Wilson Road	1080.0	0.7
L382	Wilson Road	1026.0	0.7
L383	Wilson Road	1082.0	0.7
L384	Windy Arbor Rd	31362.0	7.3
L385	Windy Arbor Road	8545.0	1.3
L386	Windy Arbor Road	8552.0	1.3

Road Link		DS Scenario	
		24 Hr AADT Flow	HDV Prop (%)
L387	Windy Arbor Road	8547.0	1.3
L388	Windy Arbor Road	8551.0	1.3
L389	Windy Arbor Road	8544.0	1.3
L390	Windy Arbor Road	8541.0	1.3
L391	Windy Arbor Road	8555.0	1.3
L392	Windy Arbor Road	8529.0	1.3
L393	Windy Arbor Road	8528.0	1.3
L394	Windy Arbor Road	8542.0	1.3
L395	Windy Arbor Road	8538.0	1.3
L396	Wood Lane	10971.0	1.5
L397	Wood Lane	10970.0	1.5
L398	Wood Lane	10968.0	1.5
L399	Wood Lane	10942.0	1.5

Reference should be made to Figure 6 within Appendix A for a graphical representation of the road link locations used within the operation phase assessment.

Emission Factors

Emission factors for each link were calculated using the relevant traffic flows and the Emissions Factor Toolkit (version 12.0) released in December 2023, which incorporates updated COPERT v5.6 vehicle emissions factors for NO_x, PM₁₀ and PM_{2.5} and EURO 6 vehicle fleet sub-categories.

NO_x to NO₂ Conversion

Predicted annual mean NO_x concentrations from the dispersion model were converted to NO₂ concentrations using the NO_x to NO₂ Calculator (v.8.1) provided by DEFRA, which is the method detailed within LAQM.TG(22).

Meteorological Data

Meteorological data used in this assessment was taken from Liverpool John Lennon Airport meteorological station over the period 1st January 2023 to 31st December 2023 (inclusive).

Liverpool John Lennon Airport meteorological station is located at approximate NGR: (343511, 382189) which is approximately 9.2km West of the Proposed Development. Liverpool John Lennon Airport data has been used for this assessment as it represents the closest meteorological station to the development site and as such, it is considered to provide a reasonable representation of conditions present.

All meteorological records used in the assessment were provided by the Met Office. Reference should be made to Figure 5 within Appendix A for a wind rose of utilised meteorological data.

Roughness Length

The specific roughness length (z₀) values used to represent conditions during the verification process, DS scenario, as well as conditions at the Liverpool John Lennon Airport meteorological station are summarised in Table B3.

Table B3: Utilised Roughness Lengths

Scenario	Roughness Length (m)	ADMS Description
Verification, DM and DS Scenarios	1.0	Cities, woodlands
Liverpool John Lennon Airport	0.5	Parkland, open suburbia

These values of z_0 are considered appropriate for the morphology of the assessment area.

Monin-Obukhov Length

The Monin-Obukhov length provides a measure of the stability of the atmosphere within certain urban or rural contexts. The specific length values used to represent conditions during the verification process, DS scenario, as well as conditions at Liverpool John Lennon Airport are summarised in Table B4.

Table B4: Utilised Monin-Obukhov Lengths

Scenario	Monin-Obukhov Length (m)	ADMS Description
Verification, DM and DS Scenarios	30	Cities and large towns or Mixed urban/industrial
Liverpool John Lennon Airport	30	Cities and large towns or Mixed urban/industrial

This Monin-Obukhov value is considered appropriate for the morphology of the assessment area.

Background Concentrations

The 2023 annual mean background concentrations detailed in Table B5, were used in the dispersion modelling assessment to represent annual mean pollutant levels at the Proposed Development site and local monitoring sites.

Table B5 displays the specific background concentrations as predicted by DEFRA, utilised to represent the condition at the monitoring locations used within the verification process.

Table B5: Predicted Background Pollutant Concentrations for Monitoring Locations

Monitoring Location	DEFRA Grid Square	Pollutant	2023 Predicted Background Concentration ($\mu\text{g}/\text{m}^3$)
H7Aa H7Ab	(345500, 389500)	NO _x	19.9881
		NO ₂	14.7309
		PM ₁₀	13.7877
		PM _{2.5}	7.8972
H2a H2b	(345500, 389500)	NO _x	19.9881
		NO ₂	14.7309
		PM ₁₀	13.7877
		PM _{2.5}	7.8972
H1a H1b	(345500, 389500)	NO _x	19.9881
		NO ₂	14.7309

Monitoring Location	DEFRA Grid Square	Pollutant	2023 Predicted Background Concentration ($\mu\text{g}/\text{m}^3$)
		PM ₁₀	13.7877
		PM _{2.5}	7.8972
H6Aa H6Ab	(345500, 389500)	NO _x	19.9881
		NO ₂	14.7309
		PM ₁₀	13.7877
		PM _{2.5}	7.8972
H3a H3b	(345500, 389500)	NO _x	19.9881
		NO ₂	14.7309
		PM ₁₀	13.7877
		PM _{2.5}	7.8972
H5Aa H5Ab	(345500, 389500)	NO _x	19.9881
		NO ₂	14.7309
		PM ₁₀	13.7877
		PM _{2.5}	7.8972
H9Aa H9Ab	(345500, 389500)	NO _x	19.9881
		NO ₂	14.7309
		PM ₁₀	13.7877
		PM _{2.5}	7.8972
H8Aa H8Ab	(345500, 389500)	NO _x	19.9881
		NO ₂	14.7309
		PM ₁₀	13.7877
		PM _{2.5}	7.8972
H4a H4b	(345500, 389500)	NO _x	19.9881
		NO ₂	14.7309
		PM ₁₀	13.7877
		PM _{2.5}	7.8972

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 2023, using traffic data, meteorological data and monitoring results from this year.

KMBC undertakes periodic monitoring of NO₂ concentrations at 9 roadside monitoring locations within the assessment extent. The road contribution to total NO_x concentration was calculated from the monitored NO₂ result for use in the verification process. This was undertaken following the methodology contained within LAQM.TG(22). The monitored annual mean NO_x concentration and calculated road NO_x concentration are summarised in Table B6.

Table B6: NO_x Concentrations

Site ID	Monitored Road NO _x Concentration (µg/m ³)	Modelled Road NO _x Concentration (µg/m ³)
H7Aa H7Ab	21.21	21.72
H2a H2b	34.19	22.835
H1a H1b	23.46	24.027
H6Aa H6Ab	43.79	13.986
H3a H3b	47.34	23.971
H5Aa H5Ab	31.76	19.88
H9Aa H9Ab	28.06	15.564
H8Aa H8Ab	37.22	18.938
H4a H4b	15.16	8.388

The monitored and modelled NO_x Road contribution concentrations were compared, and this indicated that a verification factor of **1.6003** was required to be applied to NO_x modelling results, as shown in Graph 1.

Graph 1 is provided below.

Graph 1 - Verification Adjustment Factor

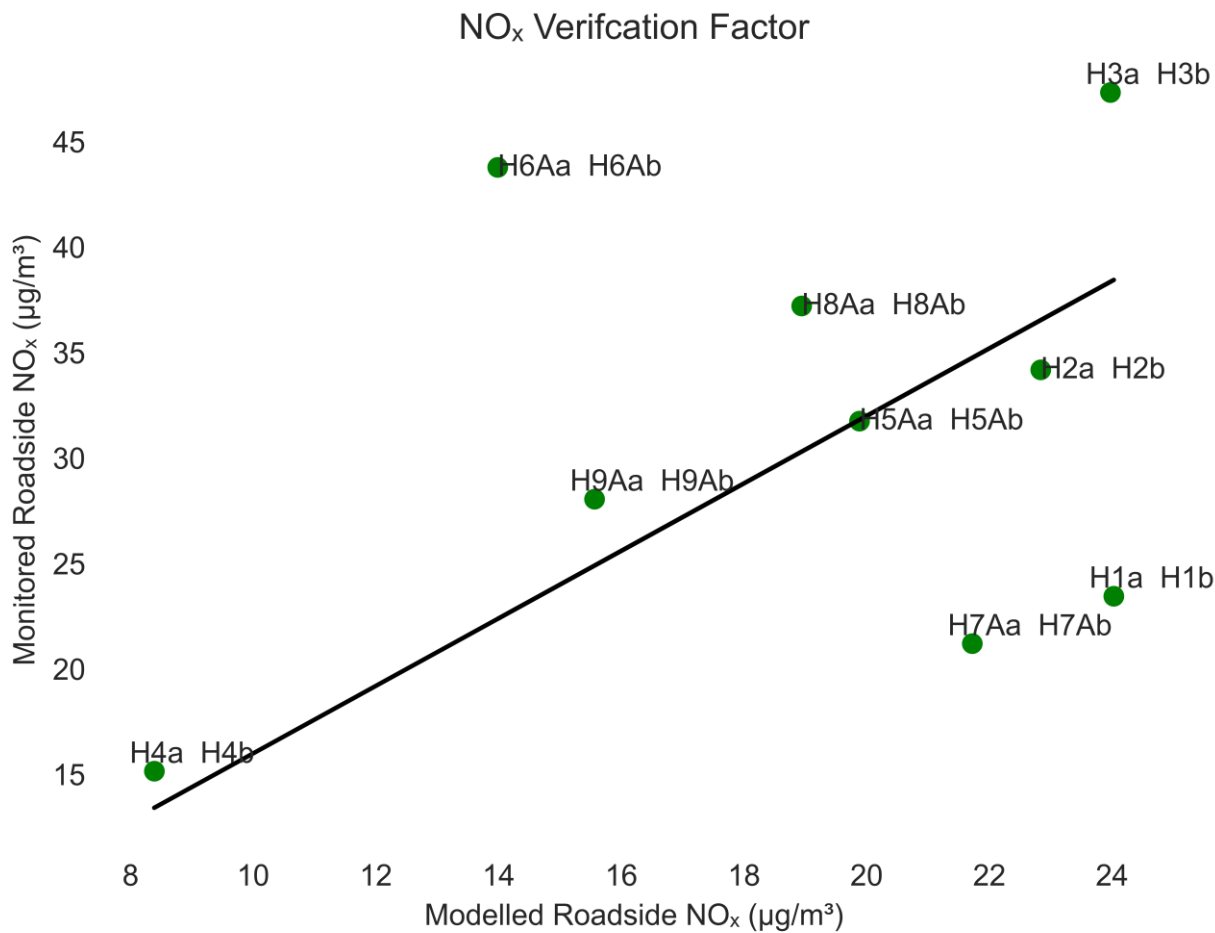


Table B7 presents the monitored annual mean NO₂ concentrations and the adjusted modelled total NO₂ concentration based on the above verification factor. Exceedances of the annual mean NO₂ AQO are highlighted in **bold**.

Table B7: NO₂ Concentrations

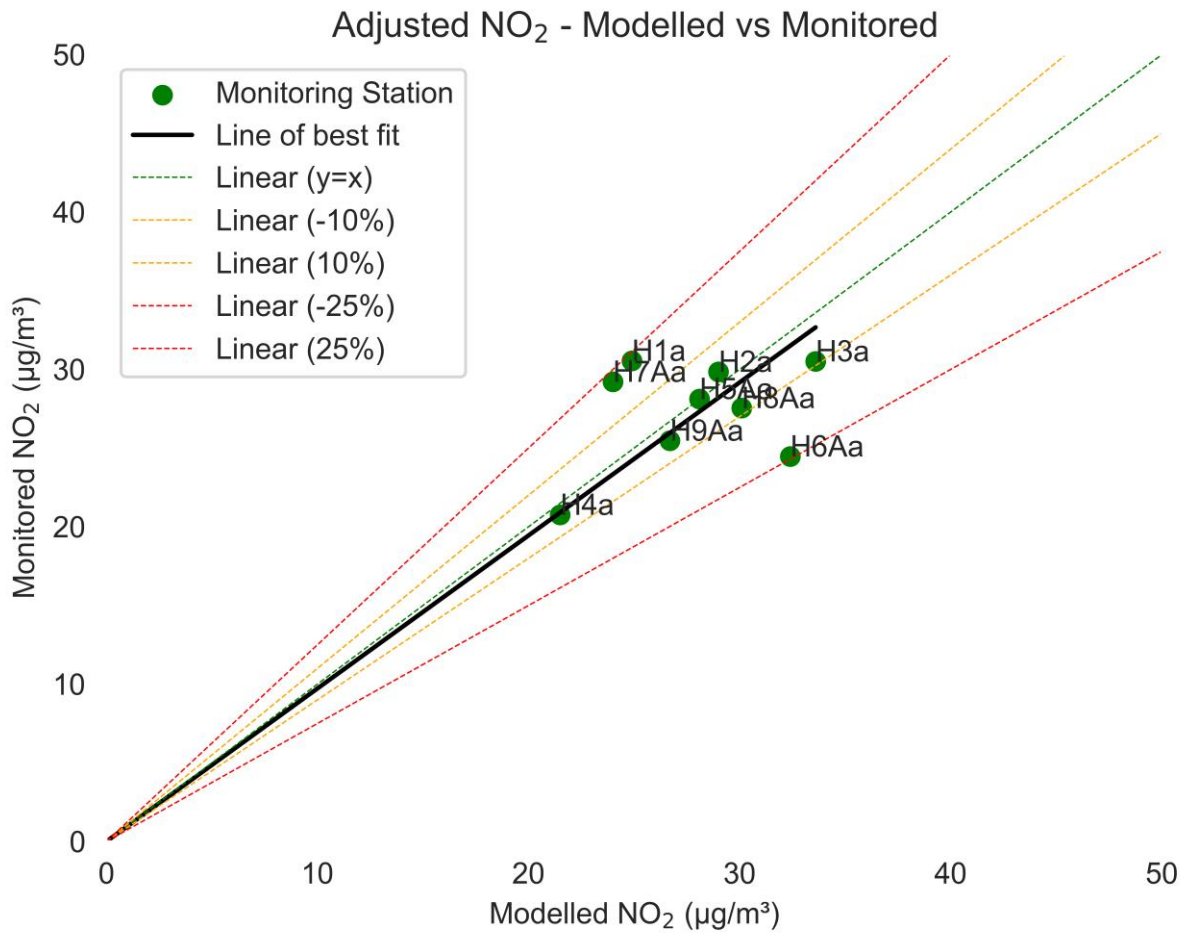
Site ID	Monitored Road NO ₂ Concentration (µg/m³)	Adjusted Modelled Road NO ₂ Concentration (µg/m³)	% Difference ((Monitored - Modelled)/Monitored) * 100
H7Aa H7Ab	24.0	29.211	-21.71%
H2a H2b	29.0	29.851	-2.93%
H1a H1b	24.9	30.541	-22.65%
H6Aa H6Ab	32.4	24.471	24.47%
H3a H3b	33.6	30.511	9.19%
H5Aa H5Ab	28.1	28.121	-0.07%

Site ID	Monitored Road NO ₂ Concentration (µg/m ³)	Adjusted Modelled Road NO ₂ Concentration (µg/m ³)	% Difference ((Monitored - Modelled)/Monitored) * 100
H9Aa H9Ab	26.7	25.471	4.6%
H8Aa H8Ab	30.1	27.551	8.47%
H4a H4b	21.5	20.761	3.44%

As demonstrated in Table B7, the percentage difference between modelled and monitored concentrations is deemed acceptable and is less than 25% in all but 9 cases, and less than or equal to 10% at 6 locations. This reduces uncertainties in the model predictions and provides a robust representation of pollutant concentrations in accordance with the guidance suggested in LAQM.TG(22).

A graphical representation of the adjusted NO₂ concentrations is provided within Graph 2.

Graph 2 – Modelled vs Monitored NO₂



APPENDIX C: 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 Institute of Air Quality Management (IAQM) document 'Guidance on the Assessment of Dust from Demolition and Construction'.

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

- Demolition
- Earthworks
- Construction
- 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 PM₁₀ and PM_{2.5}.

The assessment steps are detailed below.

Step 1

Step 1 screens the requirement for a more detailed assessment. Should human receptors be identified within 250m from the site boundary or 50m from the construction vehicle route up to 250m 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 250m 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 C1.

Table C1: Construction Dust - Magnitude of Emission

Magnitude	Activity	Criteria
Large	Demolition	• Total building volume greater than 75,000m³ • Potentially dusty construction material (e.g. concrete) • On-site crushing and screening • Demolition activities greater than 12m above ground level

Magnitude	Activity	Criteria
	Earthworks	- Total site area greater than 110,000m² - Potentially dusty soil type (e.g. clay, which will be prone to suspension when dry due to small particle size) - More than 10 heavy earth moving vehicles active at any one time - Formation of bunds greater than 6m in height
	Construction	- Total building volume greater than 75,000m³ - On site concrete batching - Sandblasting
	Trackout	- More than 50 Heavy Duty Vehicle (HDV) trips per day - Potentially dusty surface material (e.g. high clay content) - Unpaved road length greater than 100m
Medium	Demolition	- Total building volume 12,000m³ to 75,000m³ - Potentially dusty construction material - Demolition activities 6m to 12m above ground level
	Earthworks	- Total site area 18,000m² to 110,000m² - Moderately dusty soil type (e.g. silt) 5 to 10 heavy earth moving vehicles active at any one time - Formation of bunds 3m to 6m in height
	Construction	- Total building volume 18,000m³ to 110,000m³ - Potentially dusty construction material (e.g. concrete) - On site concrete batching
	Trackout	20 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 12,000m³ - Construction material with low potential for dust release (e.g. metal cladding or timber) - Demolition activities less than 6m above ground level - Demolition during wetter months
	Earthworks	- Total site area less than 18,000m² - 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 - Earthworks during wetter months
	Construction	- Total building volume less than 18,000m³ - Construction material with low potential for dust release (e.g. metal cladding or timber)
	Trackout	<20 HDV (3.5t) outward movements in any one day - Surface material with low potential for dust release - Unpaved road length <50m

Step 2B defines the sensitivity of the area around the development site for construction, earthworks and trackout. The factors influencing the sensitivity of the area are shown in Table C2.

Table C2: 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 PM₁₀ e.g. residential properties, hospitals, schools and residential care homes	• Internationally or nationally designated site e.g. Special Area of Conservation
Medium	• Users would expect to enjoy a reasonable level of amenity • Aesthetics or value of their property could be diminished by soiling • People or property wouldn't reasonably be expected to be present here continuously or regularly for extended periods as part of the normal pattern of use of the land e.g. parks and places of work	• Nationally designated site e.g. Sites of Special Scientific Interest
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 C3.

Table C3: 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 250
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

Receptor Sensitivity	Number of Receptors	Distance from the Source (m)			
		Less than 20	Less than 50	Less than 100	Less than 250
Low	More than 1	Low	Low	Low	Low

Table C4 outlines the sensitivity of the area to human health impacts.

Table C4: Sensitivity of the Area to Human Health Impacts

Receptor Sensitivity	Annual Mean PM ₁₀ Concentration	Number of Receptors	Distance to Site			
			Less than 20	Less than 50	Less than 100	Less than 250
High	Greater than 32µg/m ³	More than 100	High	High	High	Medium
		10 - 100	High	High	Medium	Low
		1 - 10	High	Medium	Low	Low
	28 - 32µg/m ³	More than 100	High	High	Medium	Low
		10 - 100	High	Medium	Low	Low
		1 - 10	High	Medium	Low	Low
	24 - 28µg/m ³	More than 100	High	Medium	Low	Low
		10 - 100	High	Medium	Low	Low
		1 - 10	Medium	Low	Low	Low
	Less than 24µg/m ³	More than 100	Medium	Low	Low	Low
		10 - 100	Low	Low	Low	Low
		1 - 10	Low	Low	Low	Low
Medium	Greater than 32µg/m ³	More than 10	High	Medium	Low	Low
		1 - 10	Medium	Low	Low	Low
	28 - 32µg/m ³	More than 10	Medium	Low	Low	Low
		1 - 10	Low	Low	Low	Low
	24 - 28µg/m ³	More than 10	Low	Low	Low	Low
		1 - 10	Low	Low	Low	Low
	Less than 24µg/m ³	More than 10	Low	Low	Low	Low
		1 - 10	Low	Low	Low	Low
Low	-	More than 1	Low	Low	Low	Low

Table C5 outlines the sensitivity of the area to ecological impacts.

Table C5: 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

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

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

Table C6: Dust Risk Category from Demolition

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

Table C7 outlines the risk category from earthworks and construction activities.

Table C7: Dust Risk Category from Earthworks and Construction

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

Table C8 outlines the risk category from trackout.

Table C8: Dust Risk Category from Trackout

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

Step 3

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

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'.