

ENVIRONMENT

Arnold Clark Automobiles Limited
Arnold Clark, Knowsley Lane
Liverpool
Air Quality Assessment

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EXECUTIVE SUMMARY

BWB Consulting Limited was appointed by Arnold Clark Automobiles Limited to undertake an Air Quality Assessment for a proposed car showroom development at Land off Knowsley Lane, Knowsley.

The Site is located within the administrative area of Knowsley Council. The Site is not within an existing Air Quality Management Area; however, the Liverpool City Air Quality Management Area is located approximately 2.2km west of the Site which was declared for the potential exceedances of the current annual mean nitrogen dioxide air quality objective for England.

A qualitative construction phase dust assessment was undertaken in accordance with Institute of Air Quality Management guidance and measures were recommended to minimise emissions during construction activities. With the implementation of these mitigation measures the impact of construction phase dust emissions was considered to be 'not significant' in accordance with Institute of Air Quality Management guidance.

The proposed development trip generation was screened using the Institute of Air Quality Management and Environmental Policy Implementation Community (previously Environmental Protection UK) guidance two stage screening process, to determine whether a detailed road traffic emissions impact assessment was required. Consideration was also given to the Knowsley Council's 'Earlsfield Park, Supplementary Planning Document (Knowsley Lane Sustainable Urban Extension)'. The proposed development trip generation did not exceed the relevant screening criteria and therefore detailed dispersion modelling of development-generated road traffic was not undertaken.

Based on the assessment results, the impact of the proposed development with regards to the current relevant air quality objectives was considered to be not significant. No further mitigation is required but measures included in the development that can be considered beneficial to air quality include a cycle storage facility and electric vehicle charging points.

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1. INTRODUCTION

- 1.1 BWB Consulting Limited (BWB) was instructed by Arnold Clark Automobiles Limited ('the Client') to undertake an Air Quality Assessment for a proposed car showroom ('the Proposed Development') at Land off Knowsley Lane, Knowsley ('the Site').
- 1.2 The assessment considers construction phase dust impacts and operational phase road traffic emissions. A qualitative construction phase dust assessment was undertaken in accordance with relevant guidance. An operational phase road traffic emissions screening assessment was undertaken to consider the requirement for a detailed assessment of additional vehicles generated by the proposed development.
- 1.3 This report is necessarily technical in nature so to assist the reader a glossary of air quality terminology can be found in **Appendix A**.

Site Setting

- 1.4 The Site is located to the north of Knowsley Lane, within the administrative area of Knowsley Council (KC). The Site currently comprises an area of rough grassland. The Site is bound by Knowsley Lane to the south, with residential development beyond, Arley Drive to the east, and further grassland to the north and west. The M57 is located approximately 150m north. The Site is allocated within KC's Knowsley Local Plan¹, under Policy SUE2a and within the Earlsfield Park Supplementary Planning Document (SPD) (Knowsley Lane Sustainable Urban Extension)². The location of the Site is shown in **Figure 1.1**.
- 1.5 The Site is not located within an existing Air Quality Management Area (AQMA); however the Liverpool City AQMA is located approximately 2.2km west of the Site, which was declared by the neighbouring authority of Liverpool City Council (LCC) for potential exceedances of the current annual mean nitrogen dioxide (NO₂) air quality objective. Principal air pollution sources in the vicinity of the Site are likely to comprise road traffic emissions. Based on the latest plans, there are no on-Site sources of emissions or odour, such as from body or paint workshops.

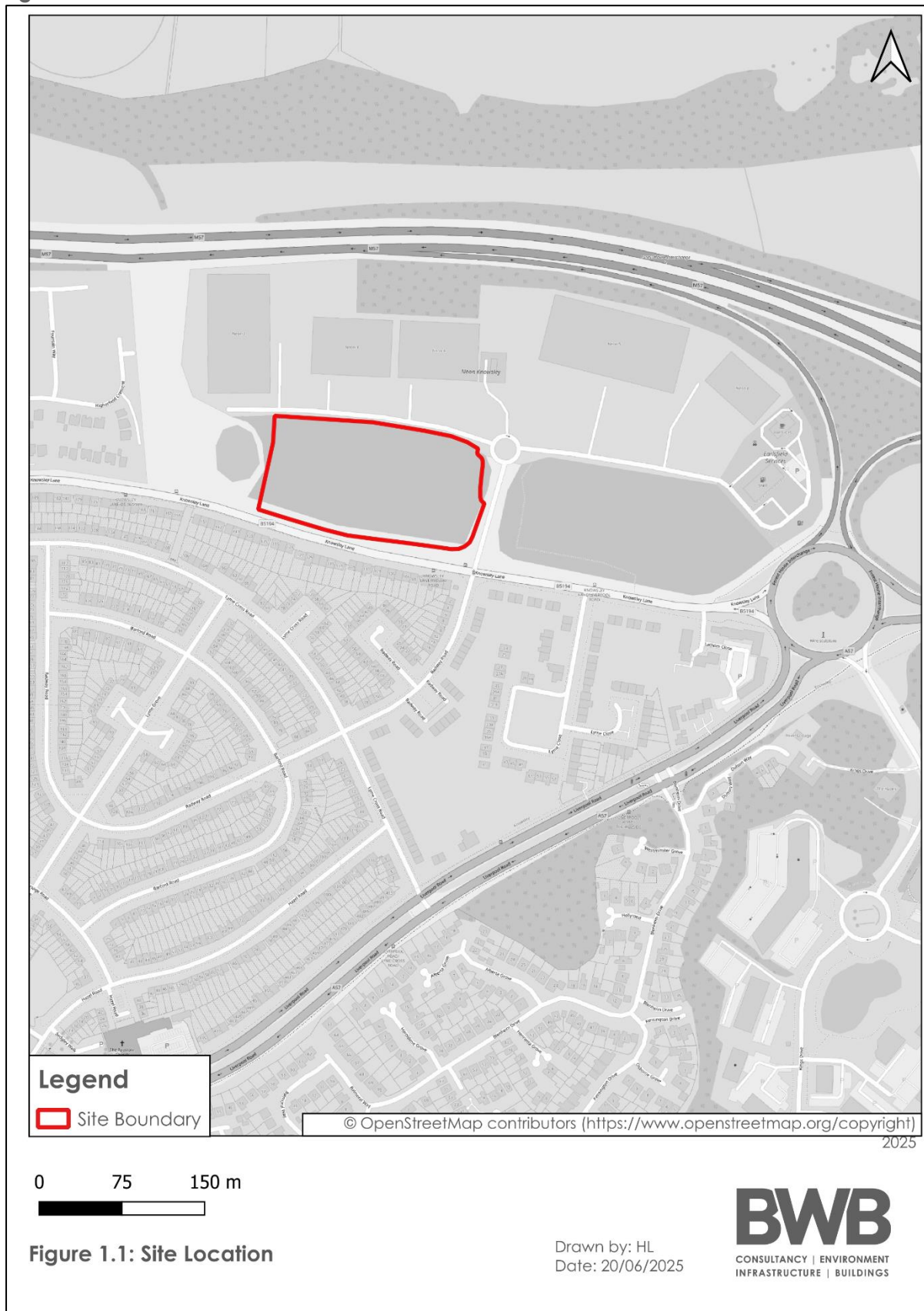
Proposed Development

- 1.6 The development proposals comprise a new 1,304sqm purpose-built car showroom. The proposed site consists of the main building and areas for a workshop, Valet and Car Washing.
- 1.7 The Proposed Development masterplan is detailed in **Appendix B**.

¹ Knowsley Council (2016) Knowsley Local Plan Core Strategy, available: <https://www.knowsley.gov.uk/sites/default/files/2023-11/knowsley-local-plan-adopted-core-strategy.pdf>

² Knowsley Council (2017) Earlsfield Park Supplementary Planning Document (Knowsley Lane Sustainable Urban Extension)

Figure 1.1: Site Location



2. LEGISLATION, PLANNING POLICY & GUIDANCE

Legislation and Planning Policy

National Legislation and Planning Policy

- 2.1 European Union (EU) legislation forms the basis of air quality policy and legislation in the UK. The EU 2008 ambient Air Quality Directive³ sets limits for ambient concentrations of air pollutants including nitrogen dioxide (NO₂) and particulate matter (PM₁₀ and PM_{2.5}). The air quality standards and objectives are prescribed through the Air Quality (England) Regulations 2000⁴, as amended, for the purpose of the Local Air Quality Management Framework. The Air Quality (England) Regulations were amended in 2002⁵ and again in 2010⁶, with miscellaneous amendments added in 2020⁷ following the UK exit from the EU. Additionally, an updated PM_{2.5} objective was published in 2023⁸ with an interim target to be achieved by 2028⁹.
- 2.2 **Table 2.1** presents the air quality objectives for pollutants considered within this assessment.

Table 2.1: Air Quality Standards and Objectives (England)

Pollutant	Averaging Period	Air Quality Objective (µg.m ⁻³)	Date to Achieve by
NO ₂	Annual Mean	40	31 December 2005
	1-hour mean not to be exceeded more than 18 times per year	200	31 December 2005
PM ₁₀	Annual Mean	40	31 December 2004
	24-hour mean not to be exceeded more than 35 times per year	50	31 December 2004
PM _{2.5}	Annual Mean	20	1 January 2020
	<i>Annual mean interim target as detailed within the Environmental Improvement Plan⁹</i>	12	31 January 2028
	Annual mean	10	31 December 2040

Italics notes future objective

³ European Parliament (2008) Council Directive 2008/50/EC on Ambient Air Quality and Cleaner Air for Europe

⁴ HMSO (2000) Statutory Instrument 2000 No. 928, The Air Quality (England) Regulations 2000 (as amended), London: HMSO

⁵ HMSO (2002) Statutory Instruments 2002 No. 3043, The Air Quality (England) (Amendment) Regulations 2002, London: HMSO

⁶ HMSO (2010) Statutory Instruments 2010 No. 1001 Air Quality Standards Regulations 2010, London: HMSO

⁷ Department of the Environment, Food and Rural Affairs (Defra) (2020) The Environment (Miscellaneous Amendments) (EU Exit) Regulations, London: HMSO

⁸ Department for the Environment, Food and Rural Affairs (Defra) (2023) Air Quality Strategy: Framework for Local Authority

⁹ Defra (2023) Environmental Improvement Plan 2023, First revision of the 25 Year Environment Plan

- 2.3 **Table 2.2** summarises on where the air quality objectives for pollutants considered within this report apply.

Table 2.2: Examples of Where the Air Quality Objectives Apply

Averaging Period	Objective Should Apply At	Objective Should Not Apply At
Annual mean	All locations where members of the public might be regularly exposed Building façades of residential properties, schools (including all of playgrounds), hospitals (and their grounds), care homes (and their grounds) etc.	Building façades of offices or other places of work where members of the public do not have regular access Hotels, unless people live there as their permanent residence Gardens of residential properties Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term
24-hour mean	All locations where the annual mean objective would apply, together with hotels Gardens of residential properties	Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term
1-hour mean	All locations where the annual mean and 24 and 8-hour mean objectives apply. Kerbside sites (for example, pavements of busy shopping streets) Those parts of car parks, bus stations and railway stations etc which are not fully enclosed, where members of the public might reasonably be expected to spend one hour or more Any outdoor locations where members of the public might reasonably be expected to spend one hour or longer	Kerbside sites where the public would not be expected to have regular access

Local Planning Policy

- 2.4 The following local planning policy was considered in the undertaking of the assessment, and a summary is provided in **Appendix C**:

- Knowsley Council, Knowsley Local Plan Core Strategy (2016)¹.

- 2.5 A summary of the relevant national legislation and planning policy is provided in **Appendix C**.

Defra PM_{2.5} targets: Interim Planning Guidance

- 2.6 Defra is developing guidance in relation to the new targets for PM_{2.5} to be considered in planning. The new guidance will require planning applications to consider how the development will reduce population exposure to PM_{2.5} from design stage. At the time of writing, the planning guidance has not been published (expected to be published in

2025). An interim guidance¹⁰ has been published by Defra, which advises planning applications to consider the following:

- *How has exposure to PM_{2.5} been considered when selecting the development site?*
- *What actions and/or mitigations have been considered to reduce PM_{2.5} exposure for development users and nearby receptors (houses, hospitals, schools etc.) and to reduce emissions of PM_{2.5} and its precursors?*

2.7 Consideration to the interim guidance¹⁰ has therefore been included within the assessment.

Air Quality Assessment Guidance

2.8 The following guidance was utilised in the air quality assessment:

- Defra, Local Air Quality Management Technical Guidance (LAQM.TG(22)) (2022)¹¹;
- Institute of Air Quality Management, Guidance on the Assessment of Dust from Demolition and Construction (2024)¹²;
- Institute of Air Quality Management and Environmental Policy Implementation Community (previously Environmental Protection UK), Land-Use Planning and Development Control: Planning for Air Quality (2017)¹³; and
- Knowsley Council, Earlsfield Park, Supplementary Planning Document (Knowsley Lane Sustainable Urban Extension) (2017)².

¹⁰ Defra (2024) PM_{2.5} Targets: Interim Planning Guidance

¹¹ Defra (2022) Local Air Quality Management Technical Guidance LAQM.TG(22)

¹² Institute of Air Quality Management (2024) Guidance on the Assessment of Dust from Demolition and Construction, Institute of Air Quality Management, London

¹³ Institute of Air Quality Management and Environmental Policy Implementation Community (previously Environmental Protection UK) (2017) Land-Use Planning and Development Control: Planning for Air Quality

3. METHODOLOGY

Consultation with Knowsley Council

3.1 Consultation was undertaken with the Environmental Health department at KC. Details of the consultation process are outlined below:

- Consultation with the Environmental Health department was undertaken via email on 3rd March 2025, which set out our proposed methodology to undertake a detailed road impact assessment. A response was received from KC via email on 3rd March agreeing to the proposed methodology.
- After the proposed trip generation was provided by BWB Consulting, the Transport Consultants for the project, the proposed trip generation did not exceed the Institute of Air Quality Management (IAQM) and Environmental Policy Implementation Community (EPIC) (formerly Environmental protection UK) for when a detailed road impacts assessment is required. Therefore, further consultation was undertaken via email on 12th June with the proposed methodology to undertake an operational phase road traffic emissions screening assessment in place of the detailed road impact assessment. The Environmental Health department at KC responded via email on 18th June 2025, agreeing to the proposed methodology updates.

3.2 Full details of the methodology used in the assessment, as agreed with KC, are detailed in **Appendix D**.

Construction Phase Dust Assessment

3.3 An assessment of the potential impacts arising from the construction of the proposed development was undertaken in accordance with IAQM guidance¹².

3.4 The full assessment methodology is not reproduced within this report, but a summary of the assessment steps as detailed within the IAQM guidance¹² are provided below:

- Step 1 – screen the requirement for a more detailed assessment. No assessment is required if there are no receptors within a certain distance of the works.
- Step 2 – assess the risk of dust impacts separately for each of the four activities considered (demolition, earthworks, construction and trackout).
 - Step 2A – determine the potential dust emission magnitude for each of the four activities;
 - Step 2B – determine the sensitivity of the area;
 - Step 2C – determine the risk of dust impacts by combining the findings of steps 2A and 2B.
- Step 3 – determine the site-specific mitigation for each of the four activities; and
- Step 4 – examine the residual effects and determine significance.

Knowsley Council - Earlsfield Park Supplementary Planning Document (Knowsley Lane Sustainable Urban Extension)

- 3.5 The Site is allocated in accordance with the Knowsley's Local Plan ¹, within Policy SUE2a. As such the Earlsfield Park SPD (Knowsley Lane Sustainable Urban Extension)² has been produced to inform developers on the requirements for development, infrastructure and design for Earlsfield Park. The proposed development requires an air quality assessment, in accordance with Box KL2 of the SPD².

Operational Phase Road Traffic Emissions – Screening Assessment

IAQM/EPIC (previously EPUK) Guidance

- 3.6 Guidance published by the IAQM and EPIC (previously EPUK) in 2017¹³ provides a two-stage approach to determine the level of assessment required in the consideration of the impact of development-generated road traffic emissions on local air quality.

Stage 1

- 3.7 The Stage 1 criteria requires that the assessment progress to Stage 2 if any of the following apply:
- The development comprises:
 - 10 or more residential units or a site area of more than 0.5ha; or
 - More than 1,000m² of floor space for all other uses or a site area greater than 1ha;
 - Coupled with any of the following:
 - The development has more than 10 parking spaces; or
 - The development will have a centralised energy facility or other centralised combustion process.

Note: Consideration should be given to the potential impacts of neighbouring sources on the site, even if an assessment of impacts of the development on the surrounding area is screened out.

Stage 2

- 3.8 The IAQM and EPIC (previously EPUK) guidance¹³ provides the following indicative criteria to determine whether a detailed road traffic emissions assessment is required for a proposed development.
- 3.9 The Stage 2 criteria relevant to the proposed development are:
- A change in Light Duty Vehicles (LDV) flow of more than 500 vehicles as a 24 hour Annual Average Daily Traffic (AADT) flow outside of an AQMA; and
 - A change in Heavy Duty Vehicle (HDV) flow of more than 100 vehicles as a 24 hour AADT flow outside of an AQMA.

4. CONSTRUCTION PHASE DUST ASSESSMENT

- 4.1 The construction phase of the proposed development will involve a number of activities which have the potential to impact on local air quality.
- 4.2 The location of sensitive receptors in relation to construction activities will affect the potential for such construction activities to cause dust soiling, nuisance and local air quality impacts. Meteorological conditions and the use of control measures will also contribute to the effects experienced.

Step 1: Screen the Need for a Detailed Assessment

- 4.3 Step 1 of the IAQM guidance¹² involves a screening assessment to consider whether a more detailed construction phase dust assessment is required.
- 4.4 In accordance with the guidance, a detailed assessment is required if:
- Human receptors are located within 250m of the boundary of the site or 50m of routes used by construction vehicles on the public highways, up to 250m from the Site entrances; or
 - Ecological receptors are located within 50m of the boundary of the site or 50m of routes used by construction vehicles on the public highways, up to 250m from the Site entrances.
- 4.5 From a review of the Multi Agency Geographic Information for the Countryside (MAGIC) website¹⁴, no ecological designations were identified within the above screening distance and therefore the impact on ecological designations was not considered further. However human receptors are located within the above screening distances, with the closest of these receptors located off B5194 Knowsley Lane. A construction phase assessment was therefore undertaken.

Step 2: Assess the Risk of Dust Impacts

Step 2A: Define the Potential Dust Emission Magnitude

- 4.6 The dust emission magnitudes for the construction activities were defined using the criteria detailed in the IAQM guidance¹² as detailed in **Appendix E**. There are no demolition activities proposed, therefore demolition was not considered further as part of this assessment.

Table 4.1: Dust Emission Magnitude

Activity	Dust Emission Magnitude	Justification
Earthworks	Medium	The total Site area is between 18,000m ² and 110,000m ² .

¹⁴ Defra, Multi Agency Geographic Information for the Countryside (MAGIC) [<http://magic.defra.gov.uk/>]

Activity	Dust Emission Magnitude	Justification
Construction	Medium	The total building volume is between 12,000m ³ and 75,000m ³ .
Trackout	Small	Due to the scale of the development, it is anticipated that there will be no more than 20 outward HDV movements in any one day.

Step 2B: Define the Sensitivity of the Area

- 4.7 The assessment requires the determination of the sensitivity of the area for the purposes of dust soiling and human health. **Figure E.1** in **Appendix E** was utilised to determine the number of receptors located within the distance bands provided in the IAQM guidance¹² for determining receptor sensitivity.
- 4.8 The sensitivity of the area is defined below, in accordance with IAQM criteria¹² as detailed in **Appendix E** and summarised in **Table 4.2**.

Table 4.2: Determination of the Sensitivity of the Area

Activity	Sensitivity of the Area	Justification
<u>Dust Soiling</u>		
Earthworks	High	There are between 10 and 100 highly sensitive residential receptors located within 20m of the proposed Site boundary and trackout route.
Construction		
Trackout		
<u>Human Health</u>		
Earthworks	Low	There are between 10 and 100 highly sensitive residential dwellings within 20m of the Site boundary and trackout route. As shown in Table 5.2 background PM ₁₀ concentrations in the vicinity of the Site are below 24µg.m ⁻³ .
Construction		
Trackout		

Step 2C: Define the Risk of Impacts

- 4.9 The dust emission magnitude determined in Step 2A is then combined with the sensitivity of the area determined in Step 2B in accordance with IAQM guidance¹² as detailed in **Appendix E** to define the risk of dust impacts with no mitigation applied. The results of this assessment are detailed in **Table 4.3**.

Table 4.3: Summary Dust Risk Table to Define Site Specific Risk

Activity	Step 2A: Dust Emission Magnitude	Step 2B: Sensitivity of the Area	Step 2C: Risk of Dust Impacts
Dust Soiling Effects on People and Property			
Earthworks	Medium	High	Medium Risk
Construction	Medium	High	Medium Risk
Trackout	Small	High	Low Risk
Human Health Impacts			
Earthworks	Medium	Low	Low Risk
Construction	Medium	Low	Low Risk
Trackout	Small	Low	Negligible Risk

Step 3: Site-Specific Mitigation

- 4.10 The risk of dust impacts, defined in Step 2C of the assessment, is used to determine the mitigation measures required to minimise the emission of dust during construction phase activities. The IAQM guidance¹² provides details of highly recommended and desirable mitigation measures which are commensurate with the risk of dust impacts defined in Step 2C for construction, earthworks and trackout activities. Where the mitigation measures are general in nature, the highest risk category was applied in accordance with the guidance¹². The highest risk category identified was '**Medium Risk**' and the recommended mitigation taken from the IAQM guidance¹² is detailed in **Appendix E**.

Step 4: Determine Significant Effects

- 4.11 In accordance with IAQM guidance¹², with the implementation of the mitigation measures detailed in Step 3, the residual impacts from the construction phase are considered to be 'not significant'.

5. OPERATIONAL PHASE SCREENING ASSESSMENT

IAQM and EPIC (previously EPUK) guidance

- 5.1 The trip generation for the proposed development was screened using IAQM and EPIC (previously EPUK) Stage 1 and Stage 2 criteria¹³ to determine whether a detailed air quality assessment was required.

Stage 1

- 5.2 The proposed development comprises more than 1,000m² of floor space and proposes more than 10 parking spaces; it was therefore necessary to proceed to Stage 2.

Stage 2

- 5.3 The trip generation for the proposed development was provided by BWB Consulting Ltd, the Transport Consultants for the project.
- 5.4 The predicted trip generation for the proposed development is 209 LDVs as a 24-hour AADT and 2 HDVs as a 24-hour AADT. The predicted trip generation is below the IAQM and EPIC (previously EPUK) screening criteria¹³ of 500 LDVs and 100 HDVs for developments outside of an AQMA as a 24-hour AADT flow.
- 5.5 The IAQM and EPIC (previously EPUK) guidance¹³ states:

"If none of the criteria are met, then there should be no requirement to carry out an air quality assessment for the impact of the development on the local area, and the impacts can be considered as having an insignificant effect."

- 5.6 Therefore, in accordance with the IAQM and EPIC (previously EPUK) guidance¹³, it was considered that development-generated road traffic would not significantly influence local air quality and a detailed air quality impact assessment was not required.

Qualitative Site Suitability Assessment

- 5.7 A qualitative assessment was undertaken to consider the potential exposure of future users of the proposed development to existing air quality. This was undertaken through a review of local air quality monitoring data and a review of local emission sources.

Local Air Quality Management

- 5.8 The Site is not located within or in the vicinity of an existing AQMA.

Local Air Quality Monitoring

Nitrogen Dioxide

- 5.9 KC undertakes air quality monitoring within its administrative area using a network of both automatic monitors and passive diffusion tubes. The closest monitoring location to

the Site is the duplicate monitoring location P1a, P1b, located approximately 980m east. No automatic monitoring locations are located in the vicinity of the Site.

- 5.10 Only data between 2019 and 2023 is available, as 2019 was the first year of monitoring in the area. Bias adjusted NO₂ monitoring results for the locations in the vicinity of the Site are detailed in **Table 5.1** and **Figure 5.1**.

Table 5.1: KC NO₂ Monitoring Data in 2019 – 2023¹⁵

ID	Grid Reference (X,Y)	Site Type	Monitored Annual Average Concentration (µg.m ⁻³)				
			2019	2020	2021	2022	2023
P1a, P1b	345816, 392660	Roadside	26.8	22.6	25.1	21.9	21.5
P2a, P2b	346164, 392807	Roadside	26.9	22.4	25.6	22.4	20.3
P3a, P3b	346393, 392844	Roadside	29.6	26.4	25.7	24.9	25.1

Data presented to closest available precision

- 5.11 Annual mean NO₂ concentrations were below the current annual mean NO₂ objective of 40µg.m⁻³ between 2019 and 2023 at all locations in the vicinity of the Site. Monitoring results for P1a, P1b, P2a, P2b, and P3a, P3b show a general decreasing trend with some year-on-year fluctuation.
- 5.12 All duplicate monitoring locations listed in **Table 5.1** are located to the east of the Site in Prescott. All three monitoring locations are situated along the A57 Liverpool Road/Derby Street and are located approximately 190m, 580m and 790m near the M57 motorway, respectively. The Site is situated along the B5194 and is situated 160m south of the M57 motorway. Due to their proximity to the Site and the M57 motorway, all three monitoring locations were considered representative of conditions within the study area.
- 5.13 Due to the nature of the development, only the short-term air quality objectives will apply. As P1a, P1b, P2a, P2b, and P3a, P3b measured below 60µg.m⁻³, in accordance with Defra guidance¹¹ it may be assumed that exceedance of the 1-hour mean objective of 200µg.m⁻³ for NO₂ is unlikely. It is therefore considered that concentrations at the Site will also be below the current relevant air quality objective and is considered suitable for the proposed end use.

Particulate Matter (PM₁₀ and PM_{2.5})

- 5.14 KC does not undertake particulate matter (PM₁₀ or PM_{2.5}) monitoring in the vicinity of the Site.

¹⁵ The IAQM released a position statement (Institute of Air Quality Management (2021) Position Statement: Use of 2020 and 2021 Monitoring Datasets) in August 2021 with regard to 2020 and 2021 monitoring datasets. Due to the influence of the COVID-19 pandemic lockdown restrictions, 2020 and 2021 monitoring data are not considered representative of normal conditions. Data is reported for completeness.

Background Pollutant Concentrations

5.15 No background air quality monitoring is undertaken by KC within the study area. Background pollutant concentrations were therefore obtained from the latest Defra background concentration maps¹⁶, which are provided for the UK as a 1km x 1km grid network. The latest maps are based on 2021 monitoring and meteorological data. Background concentrations of NO₂, PM₁₀ and PM_{2.5} were obtained for the grid squares covering the Site for the current year (2025) and the anticipated opening year of the development (2026). The background concentrations used in the assessment are detailed in **Table 5.2**.

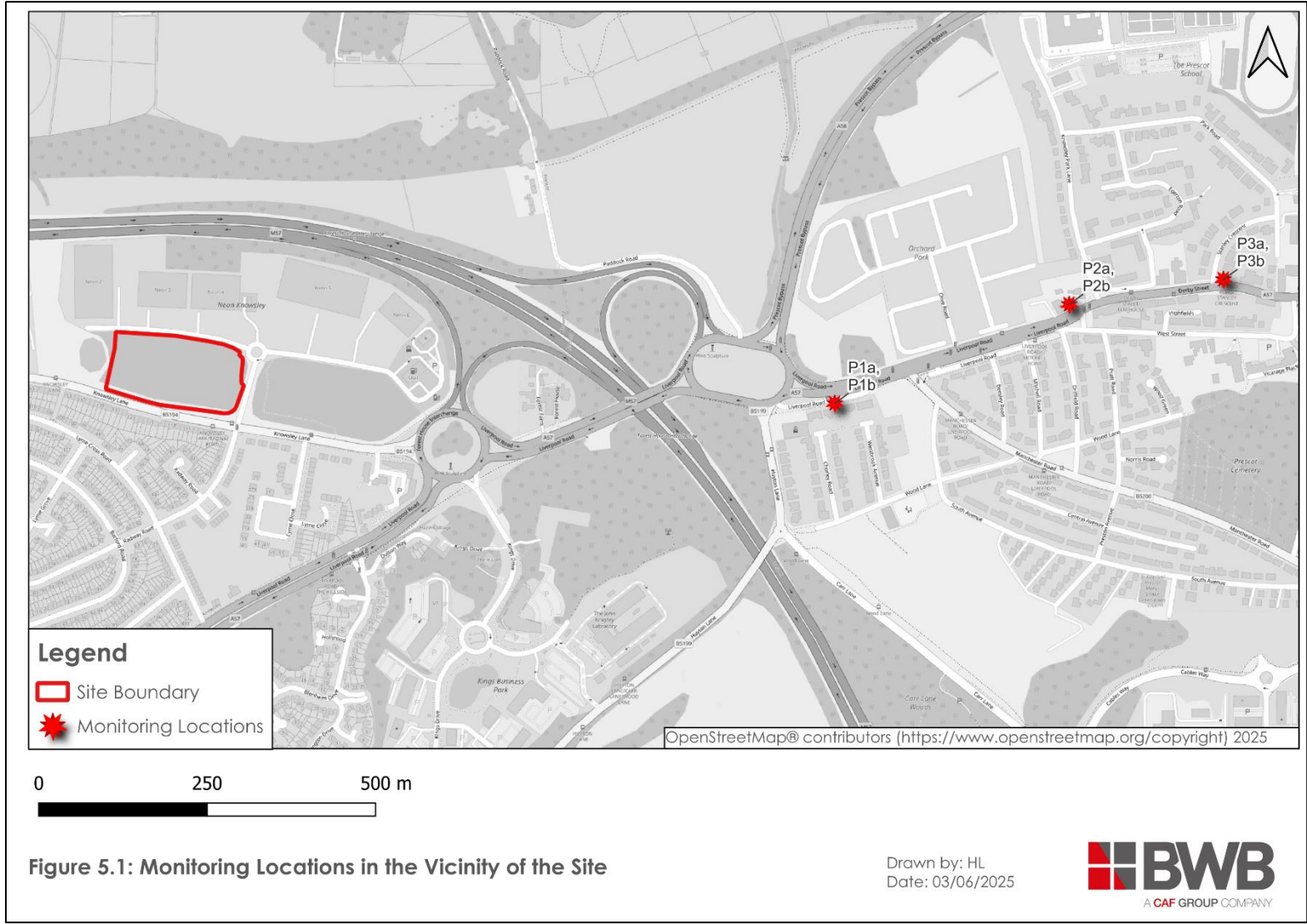
Table 5.2: Background Pollutant Concentrations Across the Site

Receptor	2025			2026		
	NO ₂	PM ₁₀	PM _{2.5}	NO ₂	PM ₁₀	PM _{2.5}
Site	12.8	15.1	8.6	12.3	15.1	8.5

- 5.16 As shown in **Table 5.2**, background pollutant concentrations are below the current relevant annual mean air quality objectives for NO₂, PM₁₀ and PM_{2.5} for England. Background PM_{2.5} concentrations are also below both the 2028 interim target of 12 µg.m⁻³ and the 2040 future annual mean air quality objective of 10 µg.m⁻³. Therefore, concentrations across the Site are expected to be below the relevant air quality objectives.
- 5.17 Background concentrations of PM₁₀ are higher than NO₂ due to contributions from secondary and residual sources.

¹⁶ Defra (2024) background pollutant concentration maps [<https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2021>]

Figure 5.1: Monitoring Locations in the Vicinity of the Site



Development Measures

- 5.18 Based on the findings in Section 5, the operational phase impacts on existing receptors in the vicinity of the Site, or proposed receptors as part of the Site are likely to be not significant.
- 5.19 The proposed development is not predicted to have a significant impact on air quality and therefore mitigation measures are not required to minimise air quality impacts. However, measures included within the development proposals which may benefit air quality include a cycle storage facility and Electric Vehicle (EV) charging points.

Defra PM_{2.5} Targets: Interim Planning Guidance

- 5.20 Defra is developing new guidance which will require planning applications will reduce population exposure to PM_{2.5} from design stage. Consideration to the interim planning guidance¹⁰, as considered in the development design, is summarised below:
- A review of nearby pollution sources identified road emissions as the main pollutant source in the vicinity of the Site. Upon review of publicly available data, annual mean PM_{2.5} concentrations across and in the vicinity of the Site suggest no exceedances of the 2040 future objective of 10µg.m⁻³.
 - An operational phase screening assessment was undertaken to consider the impact of the proposed development on local air quality. As detailed in Section 5, the proposed development is not anticipated significantly contribute to significantly influence local air quality at nearby existing sensitive receptors.
 - A construction phase dust assessment was conducted to consider the impact of dust. On review of **Table 5.2**, annual mean PM_{2.5} concentrations across and in the vicinity of the Site are below 10µg.m⁻³. Therefore, it is considered that with the implementation of the mitigation measures detailed in Section 5, the residual impacts from the construction phase are considered to be 'not significant'.
- 5.21 Based on the above, the Site was considered suitable for the proposed end use, when considering the 2040 future objective of 10µg.m⁻³. The Site is not anticipated to significantly influence local air quality at existing sensitive receptors.

6. CONCLUSION

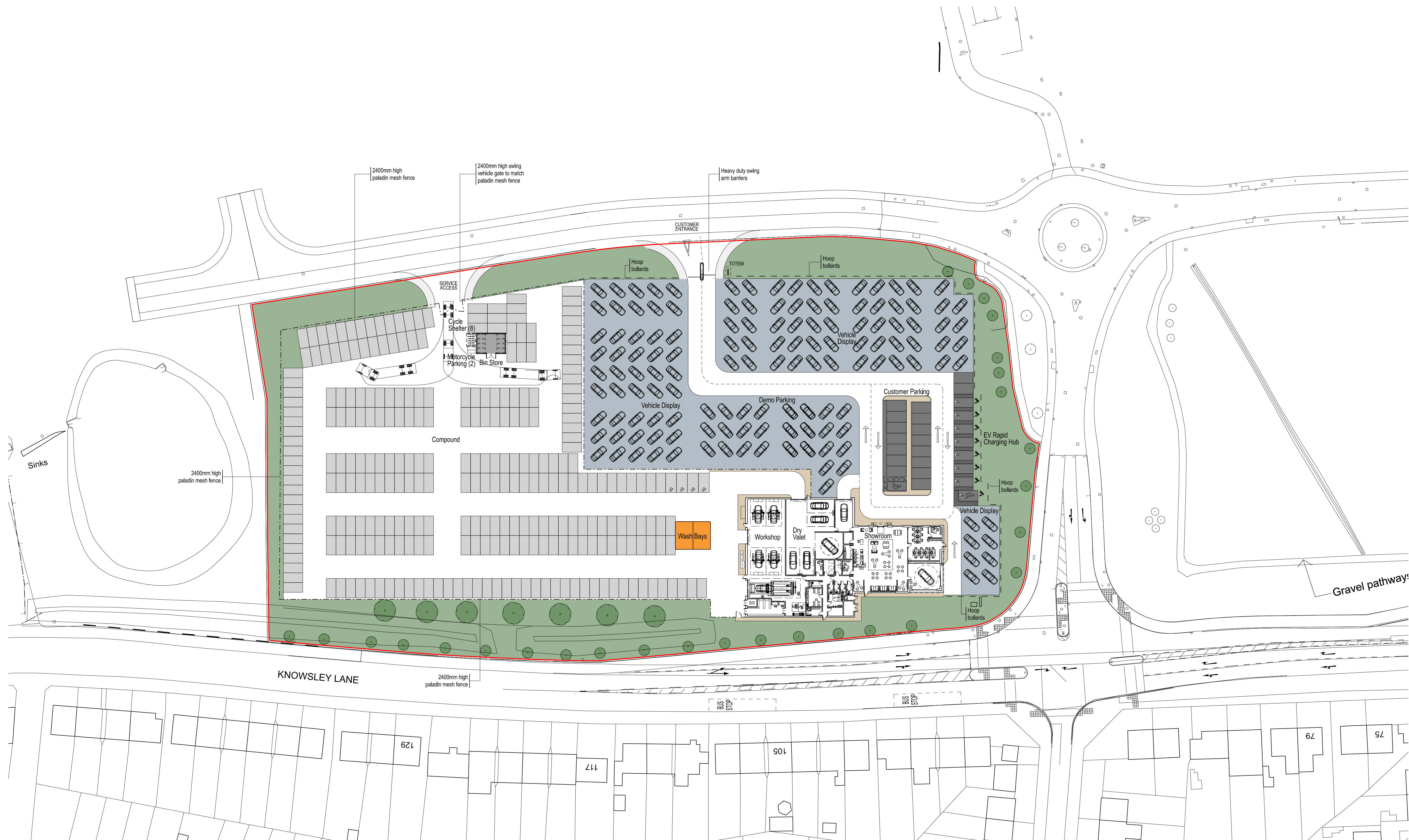
- 6.1 An air quality screening assessment was undertaken for the proposed car showroom off Knowsley Lane, Knowsley.
- 6.2 A qualitative construction phase assessment was undertaken, and measures were recommended to minimise emissions during construction activities. With the implementation of these mitigation measures the impact of construction phase dust emissions is considered to be 'not significant' in accordance with IAQM guidance¹².
- 6.3 The predicted trip generation was screened using IAQM and EPIC (previously EPUK)¹³ two stage screening process to determine whether a detailed road traffic emissions assessment was required. The predicted trip generation was below the relevant screening criteria¹³ for developments outside of an AQMA and therefore detailed dispersion modelling of development-generated traffic was not undertaken. In accordance with the guidance, where the criteria is not exceeded, the impact of the proposed development with regard to the current relevant air quality objectives is considered to be not significant.
- 6.4 Based on the assessment results, the impact of the proposed development on local air quality with regards to the current relevant air quality objectives was considered to be not significant. No mitigation is required but measures included in the development that can be considered beneficial to air quality include a cycle storage facility and EV charging points.

APPENDICES

APPENDIX A: GLOSSARY OF TERMS

	Definition
AADT	Annual Average Daily Traffic flow.
Air quality objective	Policy target generally expressed as a maximum ambient concentration to be achieved, either without exception or with a permitted number of exceedances within a specific timescale (see also air quality standard).
Air quality standard	The concentrations of pollutants in the atmosphere which can broadly be taken to achieve a certain level of environmental quality. The standards are based on the assessment of the effects of each pollutant on human health including the effects on sensitive sub groups (see also air quality objective).
Annual mean	The average (mean) of the concentrations measured for each pollutant for one year. Usually this is for a calendar year, but some species are reported for the period April to March, known as a pollution year. This period avoids splitting winter season between two years, which is useful for pollutants that have higher concentrations during the winter months.
AQAP	Air Quality Action Plan.
AQMA	Air Quality Management Area.
AQS	Air Quality Strategy.
Defra	Department for Environment, Food and Rural Affairs.
EPIC	Environmental Policy Implementation Community (formerly EPUK)
EPUK	Environmental Protection UK.
Exceedance	A period of time where the concentrations of a pollutant is greater than, or equal to, the appropriate air quality standard.
HDV	Heavy Duty Vehicles (HGVs + buses and coaches)
HGV	Heavy Goods Vehicles.
IAQM	Institute of Air Quality Management.
LAQM	Local Air Quality Management.
LDV	Light Duty Vehicles (motorbikes, cars, vans and small trucks)
NO	Nitrogen monoxide, a.k.a. nitric oxide.
NO ₂	Nitrogen dioxide.
NO _x	Nitrogen oxides.
Percentile	The percentage of results below a given value.
PM ₁₀	Particulate matter with an aerodynamic diameter of less than 10 micrometres.
PM _{2.5}	Particulate matter with an aerodynamic diameter of less than 2.5 micrometres.
micrograms per cubic metre (µg.m ⁻³)	A measure of concentration in terms of mass per unit volume. A concentration of 1µg.m ⁻³ means that one cubic metre of air contains one microgram (millionth of a gram) of pollutant.

APPENDIX B: PROPOSED DEVELOPMENT MASTERPLAN



BIN STORE
2200mm high timber/galvanised steel enclosed lockable bin store



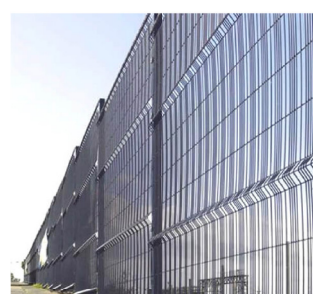
CYCLE STORAGE
Covered steel/GRP cycle store with sheffield style cycle hoops



FIXED SECURITY BOLLARDS
750mm high fixed bollard, finish to be galvanised steel



HEAVY DUTY MANUAL SWING ARM BARRIER
Finish to be galvanised steel



BOUNDARY SECURITY FENCE
2.4m Paladin mesh fence panels, colour to be black RAL 9005



USED VEHICLE DISPLAY
Tarmac finish, colour to be black



PAVING
Paving around showroom to be 200x100mm natural black pavers



VEHICLE CIRCULATION AREAS
Tarmac finish, colour to be black



CUSTOMER PARKING SPACES
Tarmac finish, colour to be black



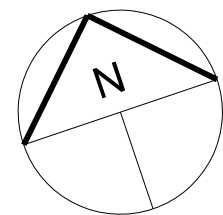
COMPOUND/STAFF PARKING SPACES
Tarmac finish, colour to be black



SOFT LANDSCAPED AREAS
New turf and planting

EXTERNAL FLOOR AREAS	
Main Building	1,240sqm
Wash	64sqm
Total Area	1,304sqm

PARKING SPACES	
Customer Parking	17 Spaces
Accessible Parking	2 Spaces
Customer EV Parking	7 Spaces
Vehicle Display / Demo	139 Spaces
Compound Parking	280 Spaces
Compound EV Parking	4 Spaces
Total Spaces	449 Spaces
Cycle Spaces	8 Spaces



0m 10m 20m 30m 40m

P3	Motorcycle parking added	PM	29.05.25
P2	Do not scale reference removed	LOG	21/05/25
P1	PLANNING ISSUE 1	LOG	29/04/25
2	INFORMATION ISSUE	PM	23.09.24
1	INFORMATION ISSUE	CS	14.08.24
No		Prep	Date

Amendments

All given dimensions are in millimetres
Architect to be notified of discrepancies in figured dimensions
Contractors must check all dimensions from site
This drawing is copyright and is for use on this site only

Project
ACA New Concept
Knowsley Lane Liverpool

Title
Proposed Site Plan

Job No.
6171

Drawing No.
101

Amendment:
P1 P2 P3

Status
PLANNING

Auth LOG
Date April 2025

TAYLORDESIGN
architects

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T: 01625 528181 E: office@taylor-design.co.uk

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APPENDIX C: PLANNING POLICY AND LEGISLATION

National Legislation and Planning Policy

The UK Air Quality Strategy

- C.1 European Union (EU) legislation forms the basis of air quality policy and legislation in the UK. The EU 2008 ambient Air Quality Directive³ sets limits for ambient concentrations of air pollutants including nitrogen dioxide (NO₂) and particulate matter (PM₁₀ and PM_{2.5}). The air quality standards and objectives are prescribed through the Air Quality (England) Regulations 2000⁴, as amended, for the purpose of the Local Air Quality Management Framework. The Air Quality (England) Regulations were amended in 2002⁵ and again in 2010⁶, with miscellaneous amendments added in 2020⁷ following the UK exit from the EU. Additionally, an updated PM_{2.5} objective was published in 2023⁸ with an interim target to be achieved by 2028⁹.
- C.2 The UK Government are required under the Environment Act 1995¹⁷ to produce a national Air Quality Strategy (AQS). The AQS was first published in 1997¹⁸, updated in 2007¹⁹ and most recently reviewed and updated in 2023⁸. The AQS provides an overview of the Government's ambient air quality policy and sets out the air quality standards and objectives to be achieved and measures to improve air quality.
- C.3 The Environment Act 2021²⁰ was granted Royal Assent in November 2021 and contains amendments to Part IV of the Environment Act 1995¹⁷ with regard to the Local Air Quality Management regime. Under the Environment Act 2021²⁰, the Secretary of State must lay a statement before Parliament setting out progress made in meeting air quality objectives and standard in England and steps taken towards achieving the standards. The Environment Act 2021²⁰ also places responsibility on local authorities to co-operate with air quality partners in the preparation of Air Quality Action Plans and identification of measures which should be monitored within the Plan and dates by which they should be implemented.
- C.4 Part IV of the Environment Act²⁰ requires local authorities in the UK to review local air quality within their administrative area and, if relevant air quality standards and objectives are likely to be exceeded, designate Air Quality Management Areas (AQMAs). Following the designation of an AQMA, local authorities are required to publish an Air Quality Action Plan (AQAP) detailing measures to be taken to improve local air quality and work towards meeting the relevant air quality standards and objectives.

National Planning Policy Framework

- C.5 The National Planning Policy Framework (NPPF)²¹ was amended in December 2024 and sets out the Government's planning policies for England and how these are expected to be applied.

¹⁷ HMSO (1995) The Environment Act 1995, London: TSO

¹⁸ Department of the Environment (DoE) (1997) The UK National Air Quality Strategy, London: HMSO

¹⁹ Department of the Environment, Food and Rural Affairs (Defra) (2007) The Air Quality Strategy for England, Scotland, Wales and Northern Ireland, London: HMSO

²⁰ HMSO (2021) The Environment Act 2021, London: TSO

²¹ Ministry of Housing, Communities & Local Government (2024) National Planning Policy Framework, HMSO London

C.6 The NPPF²¹ recognises air quality within Section 15: Conserving and enhancing the natural environment, and states that:

“Planning policies and decisions should contribute to and enhance the natural and local environment by:

[...]

e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans;

[...]

Ground conditions and pollution

[...]

Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development.

[...]

Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan.”

C.7 With regard to assessing cumulative effects the NPPF²¹ states:

“Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development.

[...]”

Planning Practice Guidance

- C.8 The Planning Practice Guidance (PPG) for air quality²² was updated in November 2019 and provides guiding principles on how the planning process can take account of the impacts of new development on air quality.
- C.9 The PPG²² sets out the following with regard to air quality and planning:
- *"What air quality considerations does planning need to address;*
 - *What is the role of plan-making with regard to air quality;*
 - *Air quality concerns relevant to neighbourhood planning;*
 - *What information is available about air quality;*
 - *When could air quality considerations be relevant to the development management process;*
 - *What specific issues may need to be considered when assessing air quality impacts;*
 - *How detailed does an air quality assessment need to be; and*
 - *How can an impact on air quality be mitigated".*
- C.10 The PPG²² sets out the pollutants for which there are legally binding limits for concentrations and those which the UK also has national emissions reduction commitments.
- C.11 The PPG²² states that development plans may need to consider:
- *"what are the observed trends shown by recent air quality monitoring data and what would happen to these trends in light of proposed development and / or allocations;*
 - *the impact of point sources of air pollution (pollution that originates from one place);*
 - *the potential cumulative impact of a number of smaller developments on air quality as well as the effect of more substantial developments, including their implications for vehicle emissions;*
 - *ways in which new development could be made appropriate in locations where air quality is or is likely to be a concern, and not give rise to unacceptable risks from pollution. This could, for example, entail identifying measures for offsetting the impact on air quality arising from new development including supporting measures in an air quality action plan or low emissions strategy where applicable; and*
 - *opportunities to improve air quality or mitigate impacts, such as through traffic and travel management and green infrastructure provision and enhancement".*

²² Ministry for Housing, Communities and Local Government (2019) Planning Practice Guidance Air Quality

C.12 The PPG²² also states what may be considered relevant to determining a planning application and these include whether a development would:

- *“Lead to changes (including any potential reductions) in vehicle-related emissions in the immediate vicinity of the proposed development or further afield. This could be through the provision of electric vehicle charging infrastructure; altering the level of traffic congestion; significantly changing traffic volumes, vehicle speeds or both; or significantly altering the traffic composition on local roads. Other matters to consider include whether the proposal involves the development of a bus station, coach or lorry park; could add to turnover in a large car park; or involve construction sites that would generate large Heavy Goods Vehicle flows over a period of a year or more;*
- *Introduce new point sources of air pollution. This could include furnaces which require prior notification to local authorities; biomass boilers or biomass-fuelled Combined Heat and Power plant; centralised boilers or plant burning other fuels within or close to an air quality management area or introduce relevant combustion within a Smoke Control Area; or extraction systems (including chimneys) which require approval or permits under pollution control legislation;*
- *Expose people to harmful concentrations of air pollutants, including dust. This could be by building new homes, schools, workplaces or other development in places with poor air quality;*
- *Give rise to potentially unacceptable impacts (such as dust) during construction for nearby sensitive locations;*
- *Have a potential adverse effect on biodiversity, especially where it would affect sites designated for their biodiversity value”.*

C.13 The PPG²² provides guidance regarding what should be included within an air quality assessment. Examples of potential air quality mitigation measures are also provided.

Local Planning Policy

Knowsley Local Plan Core Strategy

C.14 KC has adopted the Knowsley Local Plan Core Strategy¹. This document sets out the vision, objectives and policies for the district up to 2028 and includes the following policies related to air quality:

Policy CS2: Development Principles

“New development in Knowsley and the preparation of subsequent stages of the Local Plan will be expected to support the following development principles:

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

- e) Mitigating potential negative impacts of traffic growth and road traffic on highway safety, air quality, noise and health; [...]*

j) Minimising negative impact upon [...] air quality [...] 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

"New development will be required to be: [...]"

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

Earlsfield Park Supplementary Planning Document (Knowsley Lane Sustainable Urban Extension)

- C.15 KC has also adopted the Earlsfield Park (SPD) (Knowsley Lane Sustainable Urban Extension)² in 2017. This document sets out the requirements for development, design and infrastructure for Earlsfield Park, in which the Site is located within and includes the following policy related to air quality:

KL2: Earlsfield Park Masterplan

"[...]"

The masterplan should be accompanied by technical reports (the scope to be agreed with the council) which identify constraints, potential impact, and proposed mitigation (including technical and layout responses) across the following themes:

[...]

J. Air quality

[...]"

- C.16 The above policies were taken into consideration throughout the undertaking of the assessment.

APPENDIX D: CONSULTATION WITH KC



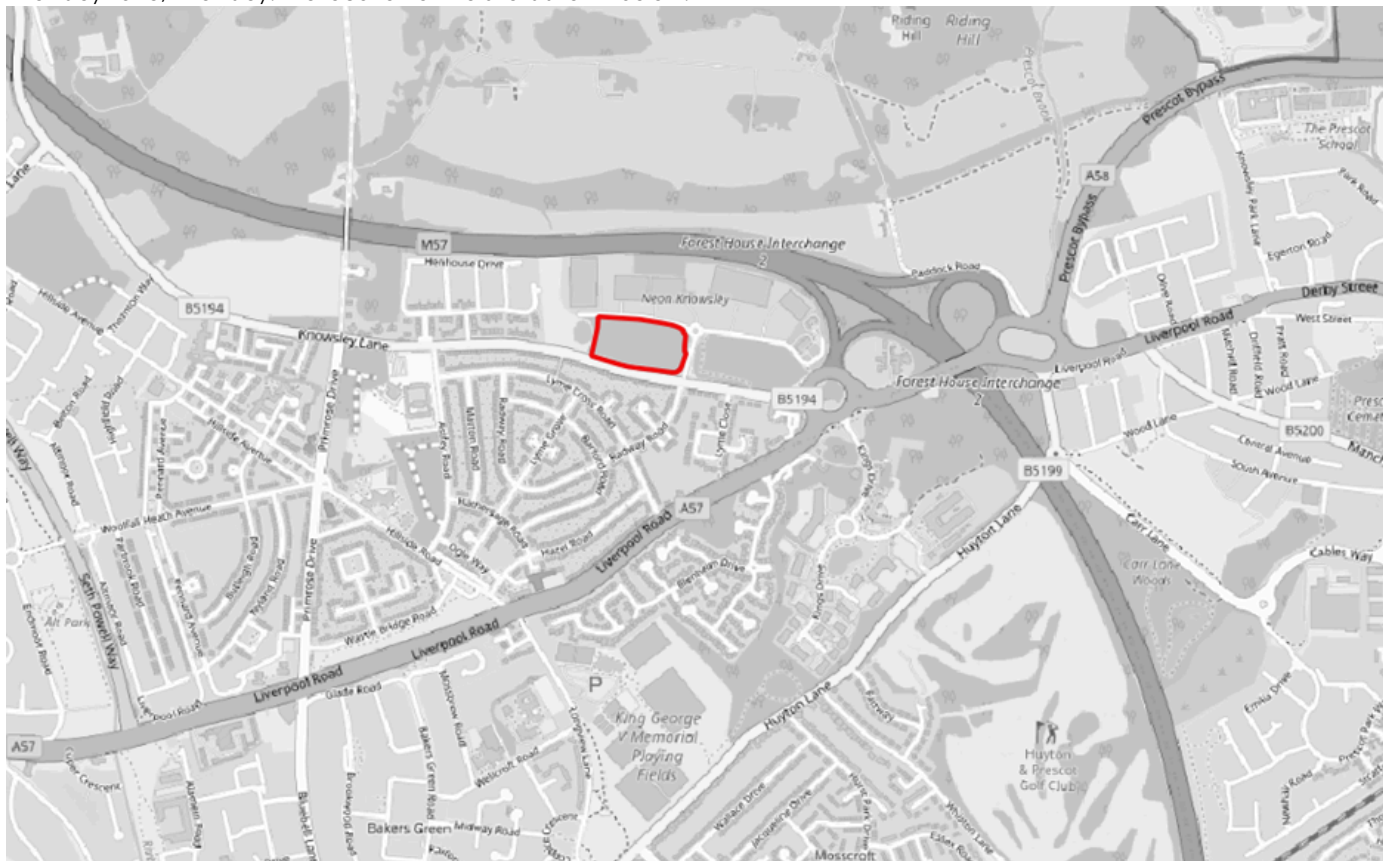
244775 Knowsley, Air Quality Assessment Methodology

From Hannah Lillis <[REDACTED]>
Date Mon 3/3/2025 11:06 AM
To Environmental.health@knowsley.gov.uk <Environmental.health@knowsley.gov.uk>
Cc Eirini Tsermentseli <[REDACTED]>

Dear Sir/Madam,

I hope my email finds you well.

BWB have been appointed to undertake an air quality assessment for a proposed car showroom development at land off Knowsley Lane, Knowsley. The location of the Site is shown below.



I was hoping to kindly check with you that our proposed scope and methodology are acceptable to Knowsley Council (KC).

Construction Phase Dust Assessment

We propose to undertake a construction dust assessment in accordance with the Institute of Air Quality Management (IAQM) guidance. The assessment will utilise the most recently published 2024 version of the guidance. Mitigation measures will be specified to mitigate dust and particulate matter emissions during the construction phase.

Operational Phase Road Traffic Emissions Assessment

The Site is not within an Air Quality Management Area (AQMA). The proposed development trip generation is likely to exceed the Institute of Air Quality Management (IAQM) and Environmental Policy and Community (EPIC) (formerly EPUK) criteria of 500 Light Duty Vehicle (LDV) flows and/or 100 Heavy Duty Vehicles (HDVs) outside of an AQMA for when a detailed road traffic emissions impact assessment may be required. We therefore propose to undertake a detailed assessment of road traffic emissions associated with trips generated by the development proposals.

The detailed assessment will be undertaken using the dispersion model ADMS-Roads (v 5.0.1.3) to predict concentrations of nitrogen dioxide (NO₂) and particulate matter (PM₁₀ and PM_{2.5}) at identified existing sensitive receptor locations within the vicinity of the Site. The assessment will be undertaken in accordance with Defra Technical Guidance (LAQM.TG22) and the IAQM and EPIC (formerly EPUK) guidance will be used to determine the significance of the any impacts on local air quality. The assessment will take into consideration the current relevant legal air quality objectives.

We will utilise the latest tools available from Defra within the assessment including the latest version of the Emission Factor Toolkit, version 12.1. The following model inputs will be utilised within the assessment:

- Meteorological data – 2023 data will be utilised from the Liverpool meteorological recording station. This is considered the most representative of the Site given its proximity to the Site.

- A surface roughness of 1m and a Monin-Obhukov (MO) length of 30m will be used for the Site representative of its urban location in Knowsley and outside of Liverpool.
- A surface roughness of 0.5m and a Monin-Obhukov (MO) length of 30m will be used for meteorological station representative of their mixed urban and industrial location.
- Backgrounds – No representative background monitoring is undertaken in close proximity to the Site, therefore background pollutant concentrations will be taken from Defra background mapping.
- Verification – We propose to utilise the latest available monitoring data (2023). On review of the 2023 data, it is considered that the P1a&P1b, P2a&P2b, and P3a&P3b diffusion tube monitoring locations will be used in the verification process, as the closest and most representative monitoring sites.

The following scenarios will be modelled:

- 2023 Verification;
- 2025 Base Year;
- Opening Year without Development; and
- Opening Year with Development.

The new Defra PM_{2.5} Interim Guidance will also be considered throughout the assessment.

If you could please confirm your acceptance of the air quality assessment, that would be most appreciated. However, if you have any queries or would like to discuss in more detail, please do not hesitate to get in touch.

Kind regards,

Hannah Lillis MSc BSc (Hons) AMIAQM AMEnvSc
Air Quality Consultant

11 Borough High Street, London, SE1 9SE
M: [REDACTED] | **W:** bwbconsulting.com





244775 Knowsley, Air Quality Assessment Methodology

From Bradshawe, Helen <[REDACTED]>
Date Mon 3/3/2025 2:09 PM
To Hannah Lillis <[REDACTED]>
Cc Eirini Tsermentseli <[REDACTED]>

This email originated from outside of our organisation. Please exercise caution with content, links and attachments.

Hi,

The information is acceptable. Please see Knowsley ASR reports as support for the assessment.

[Air quality | Knowsley Council](#)

Kind Regards

Helen Bradshawe
Senior Environmental Protection Officer
Environmental Health and Consumer Protection

Mobile: [REDACTED]

Knowsley Council, Huyton Municipal - Second Floor, Archway Road, Huyton, Knowsley, L36 9YU



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- D.1 Consultation was undertaken with the Environmental Health department at KC via email on 3rd March 2025. KC responded via email on 3rd March 2025, agreeing to the proposed methodology to undertake a detailed air quality assessment.
- D.2 Upon review of the proposed trip generation for the development, further consultation was undertaken via email on 12th June with the proposed methodology to undertake an operational phase road traffic emissions screening assessment in place of the detailed road impact assessment. KC responded via email on 18th June 2025, agreeing to the proposed methodology updates. Details of the consultation process are shown below.
-

APPENDIX E: CONSTRUCTION DUST ASSESSMENT METHODOLOGY

- E.1 The construction phase of the proposed development will involve a number of activities which have the potential to impact on local air quality. These include emissions of dust generated through construction, earthworks and trackout activities, exhaust pollutant emissions from construction traffic on the local highways network, and exhaust emissions from non-road mobile machinery (NRMM) within the construction site itself.
- E.2 The location of sensitive receptors in relation to construction activities will affect the potential for such construction activities to cause dust soiling, nuisance and local air quality impacts. Meteorological conditions and the use of control measures will also contribute to the effects experienced.

Step 1: Screen the Need for a Detailed Assessment

- E.3 Step 1 of the IAQM guidance¹² involves a screening assessment to consider whether a more detailed construction phase dust assessment is required.
- E.4 In accordance with the guidance¹², a detailed assessment is required if:
- Human receptors are located within 250m of the boundary of the site or 50m of routes used by construction vehicles on the public highways, up to 250m from the site entrances; or
 - Ecological receptors are located within 50m of the boundary of the site or 50m of routes used by construction vehicles on the public highways, up to 250m from the site entrances.
- E.5 From a review of the Multi Agency Geographic Information for the Countryside (MAGIC) website²³, no ecological designations were identified within the above screening distance and therefore the impact on ecological designations was not considered further. However human receptors are located within the above screening distances, with the closest of these receptors located off the B5194 Knowsley Lane. A construction phase assessment was therefore undertaken.

Step 2: Assess the Risk of the Dust Impacts

Step 2A: Define the Potential Dust Emission Magnitude

- E.6 The dust emission magnitudes for the construction activities were defined using the criteria detailed in the IAQM guidance¹² as detailed in **Table E.1**. Demolition is not proposed as part of the development and therefore was not considered further in the assessment.

Table E.1: Dust Emission Magnitude

Activity	IAQM Dust Emission Magnitude	Dust Emission Magnitude
Earthworks	Large	Total site area >110,000m ² , potentially dusty soil type (e.g. clay, which will be prone to suspension when dry due to small particle size), >10 heavy earth moving vehicles active at any one time, formation of bunds >6 m in height.

²³ <https://magic.defra.gov.uk/>

	Medium	Total site area 18,000m ² – 110,000m ² , moderately dusty soil type (e.g. silt), 5 - 10 heavy earth moving vehicles active at any one time, formation of bunds 3m - 6m in height.
	Small	Total site area <18,000m ² , soil type with large grain size (e.g. sand), <5 heavy earth moving vehicles active at any one time, formation of bunds <3m in height.
Construction	Large	Total building volume >75,000m ³ , on site concrete batching, sandblasting.
	Medium	Total building volume 12,000m ³ – 75,000m ³ , potentially dusty construction material (e.g. concrete), on site concrete batching.
	Small	Total building volume <12,000m ³ , construction material with low potential for dust release (e.g. metal cladding or timber).
Trackout	Large	>50 HDV (>3.5t) outward movements in any one day, potentially dusty surface material (e.g. high clay content), unpaved road length >100m.
	Medium	20 - 50 HDV (>3.5t) outward movements in any one day, moderately dusty surface material (e.g. high clay content), unpaved road length 50m – 100m.
	Small	<20 HDV (>3.5t) outward movements in any one day, surface material with low potential for dust release, unpaved road length <50m.

E.7 The following dust emissions magnitudes were defined for the Proposed Development.

- Earthworks – The total Site area is between 18,000m² and 110,000m². The dust emissions magnitude for earthworks were therefore defined as **Medium**.
- Construction – The proposed development comprises of a car showroom and separate workshop building. The total building volume is between 12,000m³ and 75,000m³. The dust emission magnitude for construction activities was therefore defined as **Medium**.
- Trackout – Due to the scale of the development, it is anticipated that there will be no more than 20 outward HDV movements in any one day. The dust emission magnitude for the trackout route was therefore defined as **Small**. The trackout distance utilised in the assessment was set to 250m from the Site access in accordance with the guidance¹².

E.8 A summary of the defined dust emissions magnitude for the development are provided in **Table E.2**.

Table E.2: Summary of Dust Emission Magnitudes

Activity	Dust Emission Magnitude
Earthworks	Medium
Construction	Medium
Trackout	Small

Step 2B: Define the Sensitivity of the Area

- E.9 The assessment requires the determination of the sensitivity of the area for the purposes of dust soiling and human health. The sensitivity of the study area takes into account the specific receptors in the vicinity of the site, the proximity and number of those receptors, the local background concentration of PM₁₀ and site-specific factors. **Figure E.1** was utilised to determine the number of receptors located within the distance bands provided in the IAQM guidance¹² for determining receptor sensitivity.
- E.10 The sensitivity of the area is defined below, in accordance with the IAQM criteria¹² and summarised in **Table E.3**.
- Dust Soiling – Residential dwellings are considered to be highly sensitive to dust soiling activities. There are between 10 and 100 highly sensitive residential receptors located within 20m of the proposed Site boundary and trackout route. As such, sensitivity of the area to dust soiling, associated with earthworks, construction and trackout activities is defined as '**High**'.
 - Human Health – Residential dwellings are also considered to be highly sensitive to human health impacts of PM₁₀. There are between 10 and 100 highly sensitive residential dwellings within 20m of the Site boundary and trackout route. Upon review of **Table 5.2**, background PM₁₀ concentrations in the vicinity of the Site are below 24µg.m⁻³. The sensitivity of the area to dust soiling, associated with earthworks, construction and trackout is defined as **Low**.

Table E.3: Summary of the Sensitivity of the Area to Dust Soiling and Human Health Impacts

Activity	Sensitivity		
	Earthworks	Construction	Trackout
Dust Soiling	High	High	High
Human Health	Low	Low	Low

Step 2C: Define the Risk of Impacts

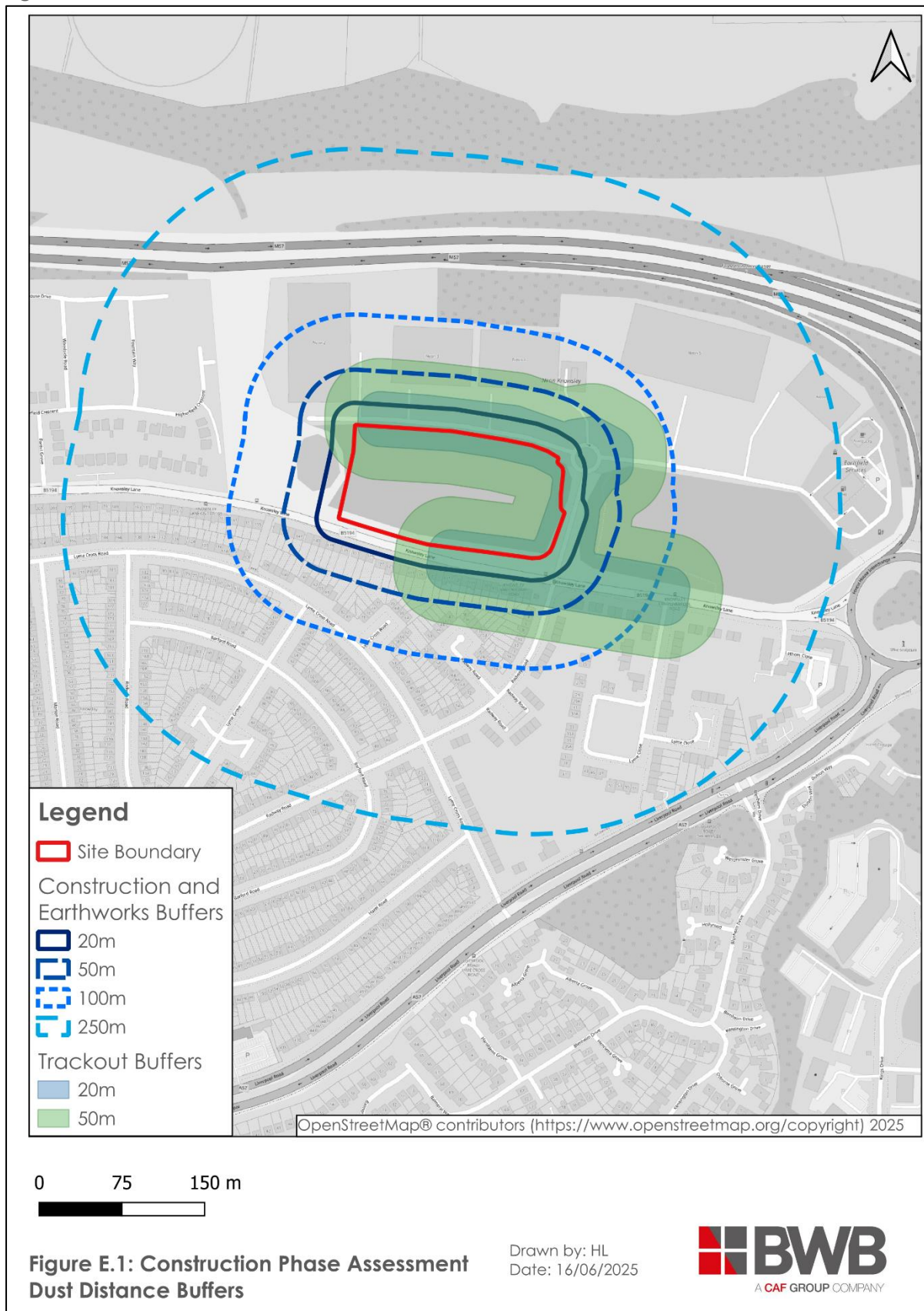
- E.11 The dust emission magnitude determined in Step 2A is then combined with the sensitivity of the area determined in Step 2B to define the risk of dust impacts with no mitigation applied. The results of this assessment are detailed in **Table E.4**.

Table E.4 – Risk of Dust Impacts

Activity	Step 2A: Dust Emission Magnitude	Step 2B: Sensitivity of the Area	Step 2C: Risk of Dust Impacts
Dust Soiling Effects on People and Property			
Earthworks	Medium	High	Medium Risk
Construction	Medium	High	Medium Risk
Trackout	Small	High	Low Risk

Human Health Effects			
Earthworks	Medium	Low	Low Risk
Construction	Medium	Low	Low Risk
Trackout	Small	Low	Negligible Risk

Figure E.1: Construction Phase Assessment Dust Distance Buffers



Step 3: Site-Specific Mitigation

- E.12 The risk of dust impacts, defined in Step 2C of the assessment, is used to determine the mitigation measures required to minimise the emission of dust during construction phase activities. The IAQM guidance¹² provides details of highly recommended and desirable mitigation measures which are commensurate with the risk of dust impacts defined in Step 2C for construction, earthworks and trackout activities. Where the mitigation measures are general in nature, the highest risk category was applied in accordance with the guidance¹². The highest risk category identified was '**Medium Risk**' and the recommended mitigation taken from the IAQM guidance¹² is detailed in **Table E.5** and **Table E.6**.

Table E.5: Mitigation Measures for a Medium Risk Site

Category	Mitigation Measures for a Medium Risk Site	
	Highly Recommended	Desirable
Communication	Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.	None
	Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environmental 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.	
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.	None
	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	Carry out regular site inspections to monitor compliance with the DMP, record inspections results, and make an inspection log available to the local authority when asked.	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 100m of the site boundary, with cleaning to be provided as necessary.
	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.	

Category	Mitigation Measures for a Medium Risk Site	
	Highly Recommended	Desirable
Preparing and maintaining the site	Plan the site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.	None
	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 extended 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.	
Operating vehicle/ machinery and sustainable travel	Ensure all vehicles switch off engines when stationary – no idling vehicles.	Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on un-surfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate).
	Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.	Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing).
	Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.	
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.	None
	Ensure an adequate water supply on site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.	
	Use enclosed chutes and conveyors and covered skips.	

Category	Mitigation Measures for a Medium Risk Site	
	Highly Recommended	Desirable
	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 and 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.	None

Table E.6: Mitigation Measures Specific to Demolition Earthworks, Construction and Trackout

Category	Mitigation Measures	
	Highly Recommended	Desirable
Earthworks (Medium Risk Site)	None	Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.
		Use Hessian, mulches or tackifiers 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 (Medium Risk Site)	Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.	Avoid scabbling (roughening of concrete surfaces) if possible.
		Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos 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 (Low Risk Site)	None	Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any materials 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 the sites are covered to prevent escape of materials during transport.
		Record all inspections of haul routes and any subsequent action in a site log book.
		Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to

Category	Mitigation Measures	
	Highly Recommended	Desirable
		leaving the site where reasonably practicable).

Step 4: Determine Significant Effects

E.13 In accordance with the IAQM guidance¹², with the implementation of the mitigation measures detailed in Step 3, the residual impacts from the construction phase are considered to be 'Not Significant'.

