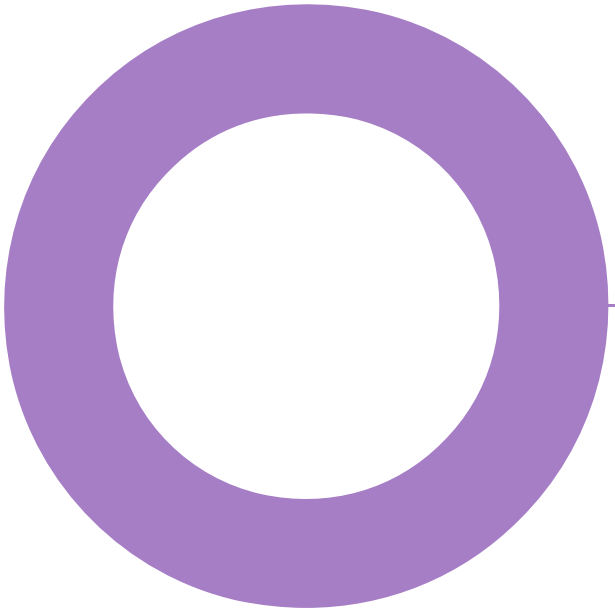
HOARE LEA

Wrexham Gateway, Eastern Zone.
Wrexham.
Wrexham County Borough Council.

AIR QUALITY
AIR QUALITY ASSESSMENT

REVISION 03 – 03 JULY 2025



Audit sheet.

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01	16/05/2025	First Issue	TB	JJ	JJ
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03	03/07/2025	Third Issue	TB	AD	AD

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Contents.

Executive summary.

Hoare Lea have been commissioned by Wrexham County Borough Council to undertake an Air Quality Assessment to support the planning application seeking outline planning permission for the proposed office development and change of use of the existing Jewson building to a brewery, located at Wrexham General Train Station, Wrexham, LL11 2AA (the 'Application Site').

The proposals comprise the redevelopment of a new commercial office building, creation of public realm and landscaping, conversion of existing buildings to brewery, with associated museum and taproom/restaurant, accessibility improvements including new highway infrastructure and pedestrian footbridge, including parking facilities and coach/taxi drop off, with all matters reserved except for access (the 'Proposed Development').

The baseline assessment has shown that the Application Site is not located within or near an Air Quality Management Area (AQMA). There was no exceedance of the annual mean nitrogen dioxide (NO_2) Air Quality objective (AQO) measured at monitoring locations in the baseline year of 2023 within 1 km of the Application Site. There was no exceedance of the 1-hour mean NO_2 AQO monitored at automatic monitoring station WCBC 1 in the baseline year pf 2023. All other pollutants were below their respective short term and long term AQOs. Additionally, 2023 Defra predicted background concentrations are below the relevant AQOs for NO_2 and Particulate Matter (PM_{10} and $PM_{2.5}$) concentrations.

The impacts of demolition and construction work on dust soiling and ambient fine particulate matter concentrations have been assessed and appropriate mitigation measures have been recommended. Provided these mitigation measures are implemented and included within a dust management plan, for example through a planning condition, the residual impacts from the construction phase are considered to be not significant.

The traffic generated by the Proposed Development has been screened against the criteria set-out in the Environmental Protection United Kingdom (EPUK) and Institute of Air Quality Management (IAQM) planning guidance to determine the need for a detailed assessment. This screening assessment has shown that the potential impact of additional road traffic on local air quality is considered insignificant and a detailed assessment is not required.

The proposed energy strategy will be all electric, utilising heat pumps at roof level, a zero-combustion emission technology. As no combustion sources are proposed for the primary energy supply, no local air quality impacts are anticipated and a detailed assessment of impacts of combustion emissions from the energy plant has been screened out of this assessment.

A qualitative Site Suitability Assessment showed that pollutant concentrations are in compliance with the 1-hour mean and annual mean AQOs for NO_2. Therefore, the Application Site is considered suitable for the proposed use without the inclusion mitigation measures.

Based on the assessment results, the Application Site is considered suitable for the Proposed Development without the inclusion of mitigation, air quality should not be considered as a constraint to the planning consent and the Proposed Development conforms to the principles of Future Wales: The National Plan 2040 and the Wrexham County Borough Local Development Plan 2013-2028.

1. Introduction.

Hoare Lea have been commissioned by Wrexham County Borough Council to undertake an Air Quality Assessment to support the planning application seeking outline planning permission for the proposed office development and change of use of the existing Jewson building to a brewery, located at Wrexham General Train Station, Wrexham, LL11 2AA (the 'Application Site').

1.1 Proposed development.

The proposals comprise the redevelopment of a new commercial office building, creation of public realm and landscaping, conversion of existing buildings to brewery, with associated museum and taproom/restaurant, accessibility improvements including new highway infrastructure and pedestrian footbridge, including parking facilities and coach/taxi drop off, with all matters reserved except for access (the 'Proposed Development').

The proposed energy strategy will be all electric, utilising heat pumps at roof level, a zero-combustion emission technology. As no combustion sources are proposed for the primary energy supply, no local air quality impacts are anticipated and a detailed assessment of impacts of combustion emissions from the energy plant has been screened out of this assessment.

The proposed ventilation strategy will utilise Air Handling Units (AHUs) at roof level to serve the office spaces. The ground floor retail spaces will have louvres within their demise for connection of Mechanical Ventilation with Heat Recovery (MVHR) plant.

1.2 Application site description and location.

The Application Site is located within Wrexham County Borough Council (WCBC) administrative area at the approximate National Grid Reference (NGR): X 333000 Y 350750. The Application Site is bound by residential dwellings and the railway line to the north; residential dwellings and commercial units to the east; the A541, to the south with retail units and Premier Inn Wrexham City Centre hotel thereafter; and Wrexham AFC football stadium to the west.

The Application Site is currently developed, consisting of the NCP Arriva car park and bus stops for the Wrexham General train station, the Wrexham district Scouts youth club and the existing Jewson's building.

Figure 1 illustrates the location of the Application Site.

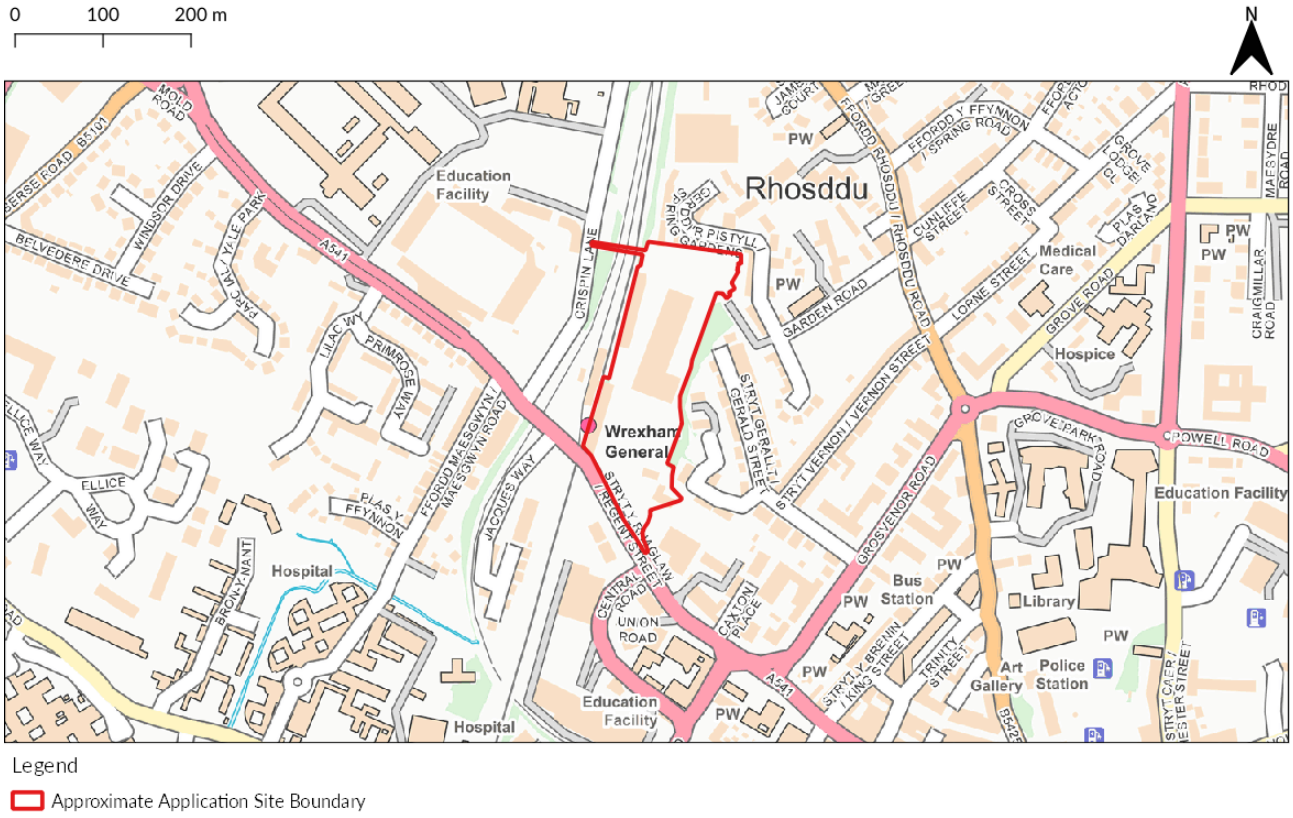

Figure 1: Location of the Application Site. Contains OS Data © Crown Copyright and Database rights 2025.

1.3 Scope of assessment.

An email detailing the proposed methodology for the Air Quality Assessment was provided to WCBC on the 26th of March 2025. A response was received on the 15th of April, supporting the proposed methodology. A copy of the correspondence with WCBC Environmental Health Officer (EHO) has been included in Appendix 1.

A summary of the scope of the assessment includes:

- Review of National and Local Policy;
- Determination of baseline scenario, using WCBC monitoring data and Department for Environmental, Food and Rural Affairs (Defra) predicted background concentrations;
- Assessment of potential air quality impacts during the construction phase;
- Assessment of potential air quality impacts during the operational phase;
- An assessment of the suitability of the Application Site for its proposed office and commercial use; and
- Identification of required mitigation measures.

2. Legislation, policy and guidance documents.

2.1 Legislation.

The following legislation has informed the Air Quality Assessment and is detailed further in the Appendix 2:

- The Environment Act [1,2]
- The Environmental Act Wales
- The Air Quality Strategy[3]
- The Air Quality Standards Regulations 2010[4]
- The Air Quality Standards (Amendment) Regulations 2016[5].
- Air Quality Standards Wales Regulations, 2010[6]
- The Environmental Improvement Plan[7]
- Part III of the Environmental Protection Act (EPA) 1990 (as amended)[8]
- Part F of the Building Regulations (2021)[9]
- The Clean Air Plan for Wales[10]
- Well-being of Future Generations (Wales) Act 2015[11]
- Environment (Air Quality and Soundscapes) (Wales) Bill impact assessments (2023)[12]

2.2 Policy.

The following policy has informed the Air Quality Assessment and is detailed further in the Appendix 2:

- Planning Policy Wales[13]
- Welsh Government Local Air Quality Management in Wales Policy Guidance[14]
- Future Wales: The National Plan 2040[15]

2.3 Guidance.

The following guidance has informed the Air Quality Assessment and is detailed further in the Appendix 2:

- Defra's Local Air Quality Management Technical Guidance[16]. This guidance will be referred to as 'LAQM.TG(22)' throughout this report.
- The Environmental Protection UK (EPUK) and the Institute of Air Quality Management's (IAQM) Air Quality Guidance for Planning[17]. This guidance will be referred to as 'EPUK and IAQM planning guidance' throughout this report.
- The IAQM 'Guidance on the assessment of dust from demolition and construction'[18]. This will be referred to as IAQM construction guidance throughout this report.

2.4 Local policy and guidance.

In addition to the documents outlined in the previous sections above, Table 1 contains a summary of the local Policy and Guidance which are relevant to this assessment.

Table 1: Local policy and guidance documents

Local policy and guidance document	Summary notes
Wrexham County Borough Local Development Plan 2013-2028	The Wrexham County Borough Local Development Plan 2013-2028 was adopted in 2023 to run until 2028[19]. The Local Development Plan sets out the planning requirements for achieving sustainable development in Wrexham County Borough over the period 2013-2028. The following policy is relevant to this assessment: - Policy SP14: Natural Environment
Local Air Quality Management in Wrexham	According to the latest WCBC annual status report[20] from 2023, there are no declared AQMAs within the local borough as monitored air pollution concentration remain below the AQOs. Despite this, WCBC has continued to improve the air quality in the local area by implementing traffic control measures such as speed restrictions to improve air quality within the borough.

2.5 Air quality objectives.

The AQOs for Nitrogen Dioxide (NO_2) and particulate matter (PM_{10} and $PM_{2.5}$) are set out in Table 2. The AQOs for NO_2, PM_{10} and $PM_{2.5}$ were to have been achieved by 2005, 2004 and 2020 respectively and continue to apply in all future years thereafter.

The AQOs apply at locations where members of the public are likely to be regularly present and exposed over the averaging period of the AQO. Examples of where the annual mean AQOs should apply are provided in the LAQM.TG(22), and include building façades of residential properties, schools, hospitals. The annual mean AQOs are not relevant for the building façades of offices or other places of work where members of the public do not have regular access, kerbsides or gardens.

The 24-hour mean AQO for PM_{10} is considered to apply at the same locations as the annual mean AQO, as well as in gardens of residential properties and at hotels.

The 1-hour mean AQO for NO_2 also applies wherever members of the public might regularly spend 1-hour or more, including outdoor eating locations, pavements of busy shopping streets, carparks and bus stations which are not fully enclosed. The 1-hour mean AQO does not apply at kerbside sites where the public do not have regular access.

Table 2: Air Quality Objectives for NO_2, PM_{10} and $PM_{2.5}$

Pollutant	Time Period	Objective
Nitrogen Dioxide (NO_2)	1-hour Mean	200 µg/m^3 Not to be exceeded more than 18 times a year
	Annual Mean	40 µg/m^3
Fine Particles (PM_{10})	24-hour Mean	50 µg/m^3 Not to be exceeded more than 35 times a year
	Annual Mean	40 µg/m^3
Fine Particles ($PM_{2.5}$) *	Annual Mean	20 µg/m^3

Notes:
Measured gravimetrically
*The time period in LAQM.TG(22) states "Work towards reducing emissions/concentrations of fine particulate matter ($PM_{2.5}$)"

2.6 Defra interim $PM_{2.5}$ target.

In 2024, Defra released an interim planning guidance[21] on the consideration of the Environmental Act $PM_{2.5}$ targets. The interim planning guidance outlines the environmental targets (Fine Particulate Matter) (England) Regulations 2023. This is a long-term target of 10 µg/m^3 by 2040. This target has been put in place to focus on reducing concentrations of, and exposure to, $PM_{2.5}$.

3. Methodology of assessment.

3.1 Existing air quality in the study area.

A baseline air quality review was undertaken to determine the existing air quality in the vicinity of the Application Site.

This desk-top study was undertaken using the following sources:

- Air quality data for WCBC, including a review of the WCBC air quality reports[20] and local monitoring data;
- The UK Pollutant Release and Transfer Register[22];
- Background pollution maps from Defra's Local Air Quality Management (LAQM) website[23];
- Pollution Inventory from the Environment Agency[24]
- The UK Ambient Air Quality Interactive Map[25]; and
- Ordnance Survey data and Aerial photography from Google Maps.

3.2 Construction phase impacts.

3.2.1 Construction dust assessment

The assessment of construction dust impacts has been undertaken in line with the methodology outlined in the IAQM construction guidance. Activities on the proposed construction site have been divided into four types to reflect their different potential impacts. These are:

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

The risk of dust emissions has been assessed for each activity with respect to:

- Potential loss of amenity due to dust soiling;
- The risk of health effects due to a significant increase in exposure to PM_{10}; and
- The risk of ecological impacts due to a significant increase in exposure to PM_{10}.

The first stage of the assessment involves screening to determine whether there are any sensitive receptors within the threshold distances defined by the IAQM construction guidance. A detailed assessment of the impact of dust from construction sites will be required where:

- A 'human receptor' is located within 250 m of the boundary of the Application Site or within 50 m of the route(s) used by construction vehicles on the public highway, up to 250 m from the Application Site entrance;
- An 'ecological receptor' is located within 50 m of the boundary of the Application Site or within 50 m of the route(s) used by construction vehicles on the public highway, up to 250 m from the Application Site entrance.

The magnitude of dust emission for each activity is determined on the basis of the guidance, indicative thresholds, information available relating to the project and expert judgement. The risk of dust effects arising is based upon the relationship between the dust emission magnitude and the sensitivity of the area. The risk of impact is then used to determine the mitigation requirements.

Descriptors for magnitude of impact and impact significance used in this assessment of construction phase dust are given in the guidance available online[18].

3.2.2 Construction emissions assessment

3.2.2.1 Construction traffic emissions screening

The screening assessment has been undertaken with reference to the following EPUK and IAQM planning guidance indicative criteria:

– a change of Light Duty Vehicle (LDV) flows of more than 500 Annual Average Daily Traffic (AADT) (outside an AQMA); and/or
– a change of Heavy Duty Vehicle (HDV) flows of more than 100 AADT (outside an AQMA).

3.2.2.2 NRMM emissions screening

Non-Road Mobile Machinery (NRMM) refers to mobile machines, transportable industrial equipment or vehicles which are fitted with an internal combustion engine and not intended for transporting goods or passengers on roads. NRMM emissions have been screened following IAQM construction guidance.

3.3 Operational phase impacts.

3.3.1 Road traffic emissions assessment

The screening assessment has been undertaken following the EPUK and IAQM planning guidance indicative criteria:

– a change of LDV flows of more than 500 AADT (outside an AQMA); and/or
– a change of HDV flows of more than 100 AADT (outside an AQMA).

Where these criteria are exceeded, a detailed assessment is required, although the guidance advises that "*the criteria provided are precautionary and should be treated as indicative*", and "*it may be appropriate to amend them on the basis of professional judgement*".

Where impacts can be screened out there is no need to progress to a more detailed assessment.

3.3.2 Site suitability assessment

An assessment has been undertaken to consider the Site Suitability, which refers to the exposure of future occupants of the Proposed Development to existing air quality. The assessment of Site Suitability will be assessed qualitatively using monitoring data from the North Wales Combined Authorities (NWCA) Annual Status Report (ASR)[20], for which, WCBC is a part of, in combination with Defra predicted background concentrations.

As the Proposed Development is for office and commercial use, the 1-hour mean NO_2 AQO applies. Additionally, in line with Part F of Building Regulations (2021), the annual mean NO_2 AQO will also apply, though not required for planning.

3.4 Assessment of significance.

3.4.1 Construction dust

The IAQM construction guidance states that the primary aim of the construction phase risk assessment is to identify site specific mitigation that, once implemented, should ensure that there will be no significant effect. Therefore, the assessment has been used to determine an appropriate level of mitigation for the construction phase.

The determination of which mitigation measures are recommended include elements of professional judgement and the professional experience of the consultants preparing this report is set out in Appendix 4.

3.4.2 Operational impacts

The EPUK and IAQM planning guidance has been used to assess the potential for significant impacts as a result of vehicle emissions from traffic associated with the Proposed Development. The focus of the guidance is to assess traffic emission impacts and advises on how to describe the air quality impacts and their significance.

3.4.3 Site suitability assessment

To determine the significance of predicted air quality impacts based upon a Site Suitability Assessment, the EPUK and IAQM planning guidance states: "*Where the air quality is such that an air quality objective at the building façade is not met, the effect on residents or occupants will be judged as significant, unless provision is made to reduce their exposure by some means.*"

4. Baseline environment.

This section sets out the available information on air quality in the vicinity of the Application Site.

4.1 Local air quality management review and assessment.

According to the latest NWCA ASR[20], there are no designated AQMAs within the local borough as monitored air pollution concentration remain below the AQOs. Despite this, WCBC has continued to improve the air quality in the local area by implementing traffic control measures such as speed restrictions to improve air quality within the borough.

Monitoring data for 2023 is available for use as the latest year of representative monitoring data which has been provided by the WCBC environmental health team. Therefore, 2023 has been considered the baseline year within this assessment.

4.2 Local air quality monitoring.

The UK Automatic Urban and Rural Network (AURN) is a countrywide network of air quality monitoring stations operated on behalf of Defra. Monitoring data for AURN sites is available from the UK Air Information Resource website (UK AIR). The nearest AURN is WCBC 1, which is classified as roadside and located 760 m south of the Application Site. WCBC 1 measures NO_2, PM_{10} and $PM_{2.5}$ pollutant concentrations.

Additionally, WCBC operate two further automatic monitoring stations which are both located greater than 10 km from the Application Site and as such, have not been considered within this assessment.

Recent monitoring data (2017 to 2023) for the WCBC 1 AURN is detailed in Table 3 and a visual representation of the location of the WCBC AURN is shown in Figure 2.

Table 3: Automatic Monitoring Locations

Monitoring site and distance (m) from site boundary (approx.)	Objective	2017	2018	2019	2020	2021	2022	2023
NO_2								
WCBC 1, Roadside, 760 m	Annual mean (µg/m^3)	16.5	18.2	16.0	13.0	14.7	14.2	13.4
	Number of hours with concentrations >200 µg/m^3	0	0	0	0	0	0	0
PM_{10}								
WCBC 1, Roadside, 760 m	Annual mean (µg/m^3)	-	-	12.0	11.0	11.3	11.7	10.4
	Number of days with concentrations > 50 µg/m^3	-	-	0	0	1	0	0
$PM_{2.5}$								
WCBC 1, Roadside, 760 m	Annual mean (µg/m^3)	-	-	8.0	7.0	7.0	7.1	6.2

Notes:
Concentrations in the WCBC ASR rounded to 1 d.p.
'-' = no data

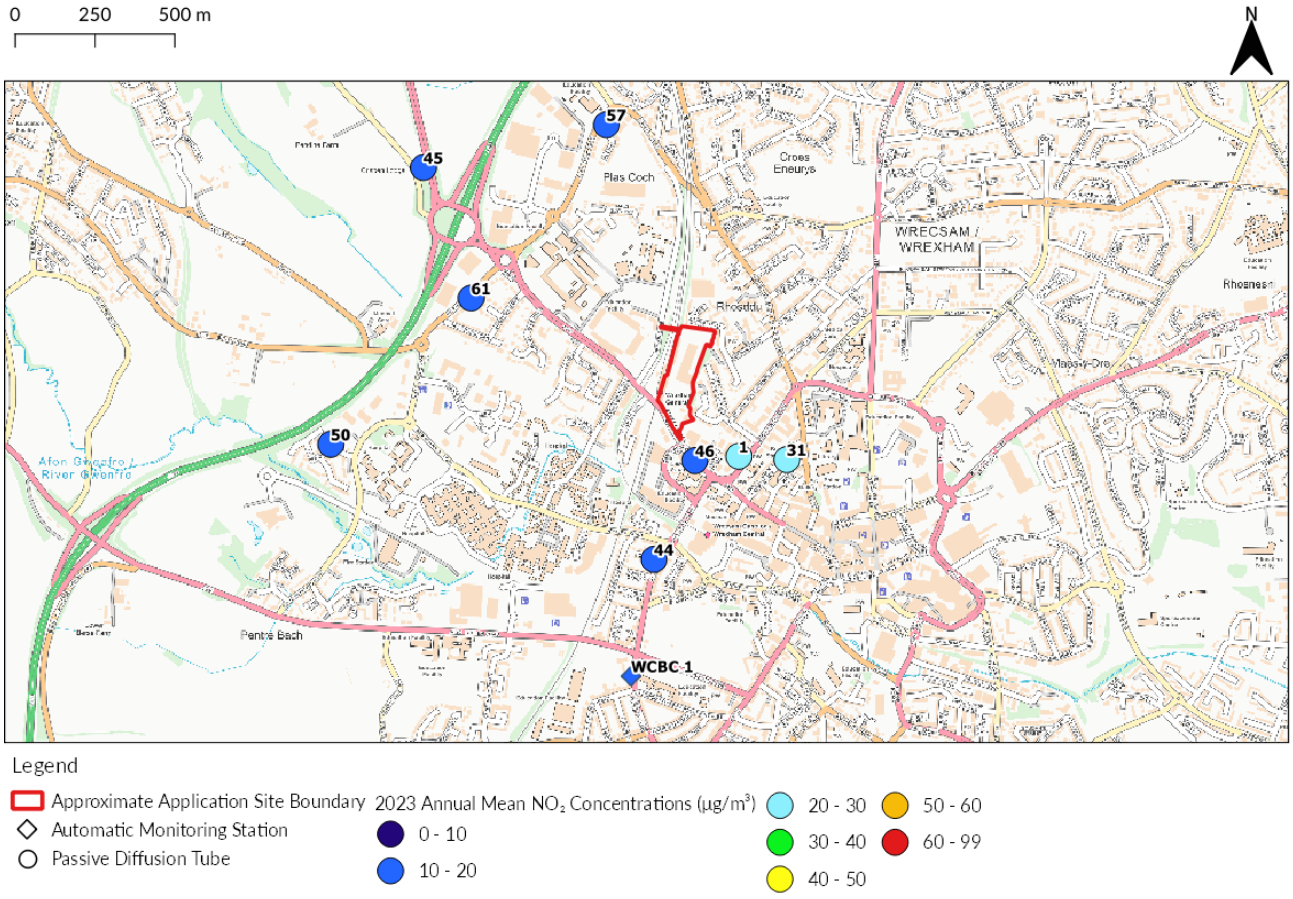

Figure 2: Monitoring Locations within the vicinity of the Application Site. Contains OS Data © Crown Copyright and Database rights 2025.

As listed in Table 3 and illustrated in Figure 2, there were no exceedances of the annual mean NO_2, PM_{10} and $PM_{2.5}$ AQOs in the baseline year of 2023. Furthermore, there was no exceedance of the 1-hour mean NO_2 or 24-hour mean PM_{10} AQOs. The 2023 annual mean $PM_{2.5}$ concentration shows that the interim $PM_{2.5}$ target will be achieved.

WCBC operate 32 passive diffusion tubes to monitor NO_2 concentrations. A review of the most recent monitoring data available indicated that there are eight passive diffusion tube monitoring locations within 1 km of the Application Site. Table 4 details the monitoring results for all passive diffusion tube monitoring locations for the most recent years available (2017 – 2023) and the passive diffusion tube monitoring locations are illustrated in Figure 2.

Table 4: Passive Diffusion Tube Monitoring Results

Site ID	Site Type	Distance (km) from site (approx.)	Annual Mean NO_2 Concentration (µg/m^3)						
			2017	2018	2019	2020	2021	2022	2023
46	Roadside	0.1	23	24	23	16	20	18	18
1	Roadside	0.2	27	25	24	19	23	21	23
31	Roadside	0.3	32	29	27	20	24	23	24
44	Roadside	0.4	22	23	21	16	19	17	18
61	Roadside	0.7	-	-	-	13	15	15	16

Site ID	Site Type	Distance (km) from site (approx.)	Annual Mean NO_2 Concentration (µg/m^3)						
			2017	2018	2019	2020	2021	2022	2023
57	Other	0.7	-	-	18	10	11	11	10
45	Roadside	1.0	18	19	17	14	15	14	18
50	Roadside	1.0	-	-	20	15	15	15	15

Notes:
Concentrations within the WCBC ASR rounded to the nearest whole number
'-' = no data

As shown in Table 4 there were no exceedances of the annual mean NO_2 AQO recorded within 1 km of the Application Site in the baseline year of 2023. The nearest passive diffusion tube, 46, recorded an annual mean concentration of 18 µg/m^3, which is 45% of the AQO.

In line with LAQM.TG(22), an annual mean concentration of 60 µg/m^3 or above is often used to indicate a possible exceedance of the 1-hour mean NO_2 AQO. In the baseline year of 2023, none of the passive diffusion tubes within 1 km of the Application Site have recorded an exceedance of 60 µg/m^3 and, therefore, no exceedance of the 1-hour mean NO_2 AQO is expected.

4.3 Industrial pollution.

A desk-based review of potential industrial sources using the UK Pollutant Release and Transfer Register[22] and the Pollution Inventory[24] from the Environment Agency did not identify any significant industrial or waste management sources of air pollution within 2 km of the Application Site that are likely to affect the Application Site with regard to air quality.

4.4 Defra predicted concentrations.

The background concentrations have been obtained from the national maps published by Defra[23]. These estimated concentrations are produced on a 1 km by 1 km grid basis for the whole of the UK. The Application Site falls into grid squares X 333500 Y 350500 and X 332500 Y 350500. The highest predicted concentrations for these grid square for NO_2, PM_{10} and $PM_{2.5}$ are provided in Table 5 for 2023, the most recent year with available monitoring data and for 2025, the current year and the earliest anticipated opening year of 2028.

Table 5: Predicted Background Concentrations for grid square X 333500 Y 350500 and X 332500 Y 350500

Year	Predicted Background Concentration (µg/m^3)		
	NO_2	PM_{10}	$PM_{2.5}$
2023	8.8	10.7	6.2
2025	8.1	10.5	6.0
2028	7.2	10.3	5.8

As shown in Table 5, background concentrations are well below the relevant AQOs for all pollutants.

4.5 Summary of background data.

The Application Site is not located within or near an AQMA.

There were no exceedances of the annual mean AQOs for NO_2, PM_{10} and $PM_{2.5}$ or the 1-hour NO_2 and 24-hour mean PM_{10} AQOs in the baseline year of 2023 at automatic monitoring station WCBC 1.

There were no exceedances of the annual mean recorded at passive diffusion tube monitoring locations, within 1 km of the Application Site, in the baseline year of 2023.

There are no industrial sources of air pollution in the vicinity of the Application Site that are likely to affect the Application Site with regards to air quality.

Predicted Defra Background concentrations for pollutants NO_2, PM_{10} and $PM_{2.5}$ are below the relevant AQOs in the baseline year of 2023, the current year of 2025 and the earliest anticipated opening year of 2028.

5. Construction phase assessment.

The potential for air quality impacts during the construction of the Proposed Development are assessed in this section.

5.1 Construction phase dust assessment.

The risk of dust impacts is based on the potential dust emissions magnitude and the sensitivity of the area. These two factors are then combined to determine the risk of dust impacts with no mitigation applied. In the absence of any site-specific information, a higher risk category has been applied to represent a worst-case scenario.

5.1.1 Assessment screening

There are 'human receptors' within 250 m of the Application Site but no designated habitat sites within 50 m of the Application Site boundary or within 50 m of the route(s) used by construction vehicles on the public highway, up to 250 m from the Application Site entrance.

The closest ecological receptor to the Application Site is Gatewen Marsh, classified as Site of Special Scientific Interest (SSSI), located approximately 1 km to the northwest.

Therefore, an assessment of construction dust at human receptors is required, but an assessment of construction at ecological receptors can be screened out from this assessment.

5.1.2 Potential dust emission magnitude

The potential magnitude of dust emissions from demolition, earthworks, construction and trackout have been assessed, as identified in Table 6.

Table 6: Predicted magnitude of dust emissions

Activity	Magnitude	Justification
Demolition	Small	The volume of demolition is estimated to be below 12,000 m^3, based on the latest available concept design* and satellite imagery. Demolition activities are expected to be undertaken primarily up to 6 m above ground level. The materials for the existing buildings are predominantly brick, which is a potentially dusty material. Therefore, the dust emission magnitude with regards to demolition has been classed as small.
Earthworks	Medium	The Soil type at the Application Site was reviewed using the application Soilscape[26] which classified the soil type as 'loamy' which can be a potentially dusty soil type. The Application Site is generally flat. The total site area for earthworks is between 18,000 m^2 – 110,000 m^2 based on the latest available site plans*. As such, the dust emission magnitude with regards to earthworks has been classed as medium.
Construction	Medium	The proposals comprise the construction of office and retail buildings up to 5 storeys. The construction volume is between 12,000 m^3 - 75,000 m^3 based on the latest available concept design. The construction materials are likely to primarily involve brick and concrete, which are potentially dusty materials. Therefore, the dust emission magnitude regarding construction has been classed as medium.
Trackout	Small	Outward trips of HDVs during the construction phase were not available at the time of writing this report. A desk-based review of the Application Site using QGIS and satellite imagery shows that there is a low potential for unpaved roads in the Application Site as the existing ground is developed. Additionally, the soil type analysed using the application Soilscape classified the soil as 'loamy' which is a potentially dusty soil type. Due to the length of unpaved roads and the scale of construction activities, the dust emission magnitude regarding trackout has been classed as small.
* Drawing number: al(02)0001 – Site location plan, 13/01/2025 – Stephenson Hamilton Risley Studio		

5.1.3 Sensitivity of the study area

The sensitivity of the area takes into account the following factors:

- The specific sensitivities of receptors in the area;
- The proximity and number of those receptors;
- In the case of PM_{10}, the local background concentration; and
- Site-specific factors, such as whether there are natural shelters, such as trees or other vegetation, to reduce the risk of wind-blown dust.

The IAQM distance bands for sensitivity are illustrated relative to the Application Site in Figure 3.

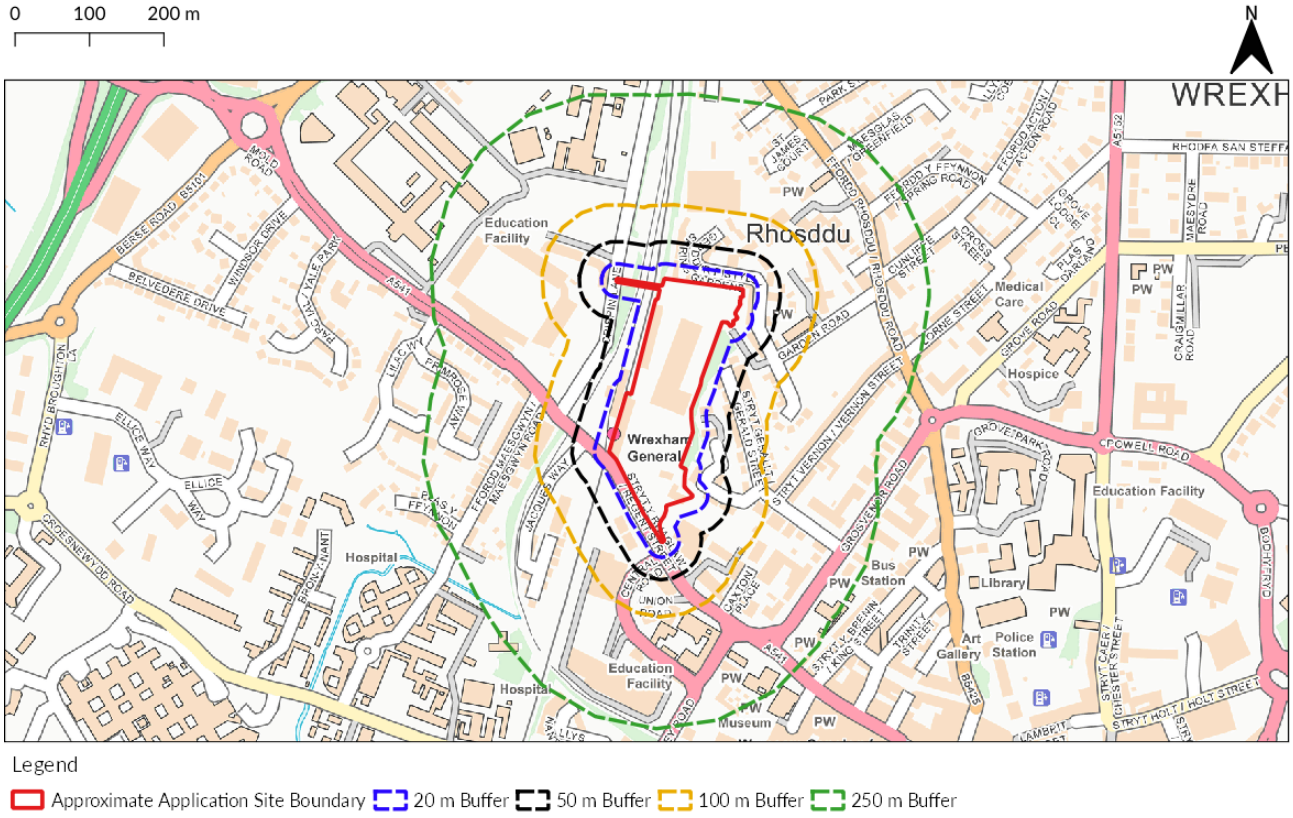

Figure 3: IAQM Demolition and Construction Dust Distance band criteria from the Application Site boundary. Contains Ordnance Survey Data © Crown Copyright 2025.

The sensitivity of the area and the factors considered are detailed in Table 7.

Table 7: Sensitivity of the Area

Sensitivity Type	Factors	Sensitivity of Area	
		On – Site Activity	Trackout
Dust Soiling	As shown in Figure 3, there are between 10 – 100 high sensitivity receptors within 20 m of the Application Site boundary in the form of residential dwellings and 10 - 100 medium sensitivity receptors in the form of places of work and their associated parking spaces. Other receptors up to 250 m will also be considered within this assessment. Therefore, the sensitivity of the area surrounding the Application Site	High	High

Sensitivity Type	Factors	Sensitivity of Area	
		On – Site Activity	Trackout
	has been classified as high sensitivity with regards to dust soiling for on-site activity. For trackout, the distances are measured within 20 m from the side of the roads up to 250 m of the anticipated routes used by construction traffic from the Application Site. There are between 10 - 100 high sensitivity receptors within 20 m of Regent Street and up to 250 from the Application Site. Therefore, the sensitivity of the area surrounding the Application Site, with respect to dust soiling for trackout, has been classified as high.		
Human Health	The WCBC 1 automatic monitoring station recorded a PM_{10} concentration of 10.4 µg/m^3 in the baseline year of 2023. There are between 10 – 100 high sensitivity receptors within 20 m of the Application Site boundary in the form of residential dwellings and 10 - 100 medium sensitivity receptors in the form of places of work and their associated parking spaces. Other receptors up to 250 m will also be considered within this assessment. As the PM_{10} concentration is below 24 µg/m^3, the sensitivity of the area surrounding the Application Site has been classified as low sensitivity with regards to dust soiling for on-site activity. For trackout, the distances are measured within 20 m from the side of the roads up to 250 m of the anticipated routes used by construction traffic from the Application Site access. There are between 10-100 high sensitivity receptors within 20 m of Regent Street and up to 250 from the Application Site. As the PM_{10} concentration is below 24 µg/m^3, the sensitivity of the area surrounding the Application Site, with respect to human health for trackout, has been classified as low.	Low	Low

5.1.4 Risk of dust impacts

The outcomes of the assessments of potential magnitude of dust emissions and the sensitivity of the area are combined to determine the risk of impact. This risk is then used to inform the selection of appropriate mitigation. Table 8 details the risk of dust impacts for demolition, earthworks, construction and trackout activities.

Table 8: Summary of Potential Unmitigated Dust Risks

Potential Impact	Sensitivity	Demolition	Earthworks	Construction	Trackout
Magnitude		Small	Medium	Medium	Small
Dust Soiling Impacts	High	Medium Risk	Medium Risk	Medium Risk	Low Risk
Human Health Impacts	Low	Negligible	Low Risk	Low Risk	Negligible

5.2 Construction phase – vehicular pollutants.

The Application Site is not located within or adjacent to an AQMA and therefore the less stringent screening criteria (i.e. 500 LDV and 100 HDV) would apply.

Information on traffic movements anticipated during construction works was unavailable for the completion of the Air Quality Assessment. However, the development quantum is not anticipated to result in a significant increase in movements above the criteria outlined in the EPUK and IAQM planning guidance. The duration of movements will be short-term in nature and are not considered further within the context of this assessment. Therefore, in accordance with the criteria presented within EPUK and IAQM planning guidance, additional road vehicle trips during the construction phase of the Proposed Development "*can be considered to have insignificant effects*" on air quality.

5.3 Construction phase – non-road mobile machinery.

Pollutants emitted by NRMM that may have the most significant potential effects on local air quality are $PM_{10,}$ $PM_{2.5}$, and NO_x/NO_2. Typically, NRMM is associated with construction sites and, therefore there is a potential for NRMM emissions to adversely affect local air quality as a result of the Proposed Development.

Furthermore, the IAQM construction guidance states that "*Experience of assessing the exhaust emissions from on-site plant (also known as non-road mobile machinery or NRMM) and site traffic suggests that they are unlikely to make a significant impact on local air quality, and in the vast majority of cases they will not need to be quantitatively assessed.*"

6. Operational phase assessment.

The potential for air quality impacts during the operation of the Proposed Development are assessed in this section.

6.1 Road traffic emissions screening assessment.

Road traffic data associated with the Proposed Development has been provided by SK Transport Planning Ltd, the appointed Transport Consultants for the project. The flows indicate that there will be a 24-hour AADT increase of 311 LDV and 15 HDVs on the local road network as a result of the Proposed Development, which looks at the gateway aspect solely.

This is below the indicative criteria in the EPUK and IAQM planning guidance of a change of more than 500 LDV AADT and/or 100 HDV AADT and therefore no further assessment is required.

In accordance with the EPUK and IAQM planning guidance, the impacts on air quality from operational phase traffic generation are considered to be not significant.

6.2 Site suitability assessment.

This section presents a review of WCBC monitoring data and mapped concentrations by Defra in the vicinity of the Application Site, for the purpose of identifying the suitability of the Application Site for office and commercial use and to identify any requirements for potential mitigation to be embedded into the Proposed Developments design.

As presented in Section 2, and in line with LAQM.TG(22), 1-hour mean NO_2 AQO applies to the Proposed Development due to its proposed use. Moreover, Part F of the Building Regulations (2021) also applies at the Proposed Development, though not required for planning. As such, this section considers the annual mean, and the 1-hour mean NO_2 pollutant concentrations at the Application Site.

6.2.1 Predicted NO_2 concentrations

A review of the annual mean NO_2 concentrations monitored within 1 km of the Application Site has been completed as part of the baseline review with recent monitoring results, presented in Table 3 and Table 4.

The nearest automatic monitoring station is WCBC 1, which is classified as roadside, and located 760 m south of the Application Site. In 2023, WCBC 1 recorded an annual mean NO_2 concentration of 13.4 $\mu g/m^3$, which is approximately 34% of the AQO. Additionally, there were no exceedances of the 1-hour mean NO_2 AQO measured at WCBC 1, as such, the 1-hour mean NO_2 AQO is unlikely to be exceeded at the Application Site.

Concentrations monitored at passive diffusion tube 46, located 80 m southeast of the Application Site, represents a worst-case likely scenario of pollutant concentrations experienced at the Application Site. Passive diffusion tube 46 is classed as roadside, located within 3 m of Regent Street. The proposed Development, however, is set back approximately 25 m from Regent Street. As concentrations decrease with increased distance to the road, concentrations experienced at the Application Site are likely to be lower than at passive diffusion tube 46. In 2023, the annual mean NO_2 concentration at passive diffusion tube N26 was 18 $\mu g/m^3$, which equates to 45% of the annual mean NO_2 AQO.

Defra predicted background NO_2 concentrations at the Application Site are 8.8 $\mu g/m^3$ in 2023. As such, the local air quality at the Application Site is considered to be compliant with the annual mean and 1-hour mean NO_2 AQOs.

Therefore, NO_2 concentrations in the vicinity of the Application Site are considered to comply with the annual mean NO_2 AQO (in line with Part F of the Building Regulations (2021), though not required for planning) and the 1-hour mean NO_2 AQO. As such, the Application Site is considered suitable for the proposed use without the inclusion of mitigation measures.

6.2.2 Significance of air quality impacts

To determine the significance of predicted air quality impacts based upon a Site Suitability assessment, such as that undertaken as part of this assessment, the EPUK and IAQM planning guidance states:

"*Where the air quality is such that an air quality objective at the building façade is not met, the effect on residents or occupants will be judged as significant, unless provision is made to reduce their exposure by some means.*"

With regards to the Proposed Development, the unmitigated impact significance associated with the Proposed Development has been predicted in accordance with the stated assessment methodology. The following factors have been considered when providing justification:

- The Proposed Development will not introduce any new receptor into an area of exceedance of the annual or 1-hour mean NO_2 AQOs based upon a review of NO_2 monitoring data and Defra predicted background concentrations within the development locale;

As no exceedances of the considered AQOs are predicted, mitigation measures are not required for the operational phase of the Proposed Development. As such, the overall effect is considered to be 'not significant'.

7. Mitigation.

7.1 Construction phase.

To mitigate the potential impacts during the construction phase it is recommended that mitigation measures as detailed in the IAQM construction guidance are implemented.

It is recommended that WCBC approve a Dust Management Plan (DMP) prior to works commencing on site, and that this is implemented using an appropriately worded planning condition. Table 11, in Appendix 3, details the measures that should be incorporated in the DMP.

These mitigation measures have been carefully selected for the Proposed Development and are based upon the dust risk categories outlined in Table 8 of this report. For general mitigation measures, which excludes those specifically targeted towards demolition, earthworks, construction and trackout (which are given towards the end of the table), Medium risk measures have been applied as these represent the highest risk category determined in Table 8. This approach is consistent with the IAQM construction guidance.

It should be noted that potential dust effects during the construction phase are considered to be temporary and short term in nature. The impacts are determined to be temporary as they will only potentially occur throughout the construction phase and short-term because these will only arise at particular times when certain activities and meteorological conditions combine to create the predicted level of magnitude.

However, with the application of the dust control and mitigation measures outlined in Appendix 3, it is considered that impacts at all receptors will be 'not significant' in accordance with the IAQM construction guidance.

7.1.1 Construction phase road traffic emissions

Potential air quality impacts associated with construction phase road traffic emissions, principally HDV movements, have been screened out for further assessment with associated impacts on air quality predicted to result in an 'insignificant' effect. Therefore, mitigation measures are not considered to be required.

7.1.2 Construction phase NRMM emissions

In accordance with Part 4 of the IAQM construction guidance, all NRMM would need to adhere to the emissions standards for NO_2 and PM_{10} set out for NRMM. It is therefore considered the likely effects of construction plant on local air quality would be insignificant.

7.2 Operational phase.

7.2.1 Road traffic emissions

Potential air quality impacts associated with operational phase development trips have been screened out from further assessment as '*the impacts [on air quality from operational phase movements] can be considered to have insignificant effects*' in accordance with the EPUK and IAQM planning guidance. Therefore, mitigation measures such as a sustainable travel plan are not considered to be required to achieve the AQOs.

7.2.2 Site suitability assessment

A review of WCBC monitoring data in consideration of the Application Site, and mapped concentrations by Defra in the locale of the Application Site, indicates no likely exceedance of the annual and 1-hour mean NO_2 AQOs.

As no exceedances of any considered AQOs are predicted, this follows the 1st hierarchy principle of the EPUK and IAQM planning guidance to *'prevent and avoid'* exposure'. Therefore, no embedded mitigation into the Proposed Development design (in the form of mechanical ventilation, for example) is required and natural ventilation is possible from an air quality perspective.

8. Summary and conclusions.

This report details the potential air quality impacts associated with the construction and operation of a proposed office development and change of use of the existing Jewson building to a brewery, located at Wrexham General Train Station, Wrexham, LL11 2AA.

The findings of the assessment are as follows:

- The baseline assessment has shown that the Application Site is not located within or near an AQMA. There was no exceedance of the annual mean NO_2 AQO measured at monitoring locations in the baseline year of 2023 within 1 km of the Application Site. There was no exceedance of the 1-hour mean NO_2 AQO monitored at automatic monitoring station WCBC 1 in the baseline year pf 2023. All other pollutants were below their respective short term and long term AQOs. Additionally, 2023 Defra predicted background concentrations are below the relevant AQOs for NO_2 and PM_{10} and $PM_{2.5}$ concentrations;
- The impacts of the construction phase on dust soiling and ambient fine particulate matter concentrations have been assessed and appropriate mitigation measures have been identified. Provided these mitigation measures are implemented and included within a dust management plan, for example through a planning condition, the residual impacts are considered to be not significant;
- The traffic generated by the Proposed Development has been screened against the criteria set-out in the EPUK and IAQM planning guidance to determine the need for a detailed assessment. This screening assessment has shown that the potential impact of additional road traffic on local air quality is considered insignificant and a detailed assessment is not required.
- The proposed energy strategy is expected to be all electric, utilising heat pumps at roof level, a zero-combustion emission technology. As no combustion sources are proposed for the primary energy supply, no local air quality impacts are anticipated and a detailed assessment of impacts of combustion emissions from the energy plant has been screened out of this assessment; and
- A qualitative Site Suitability Assessment showed that pollutant concentrations are in compliance with the 1-hour mean and annual mean AQOs for NO_2. Therefore, the Application Site is considered suitable for the proposed use without the inclusion mitigation measures.

Based on the information above, it is considered that air quality should not be viewed as a constraint to planning and the Proposed Development conforms to the principles of Future Wales: The National Plan 2040 and the Wrexham County Borough Local Development Plan 2013-2028.

9. Glossary of terms.

AADT	Annual Average Daily Traffic
AHU	Air Handling Unit
AQAP	Air Quality Action Plan
AQDMP	Air Quality Dust Management Plan
AQMA	Air Quality Management Area
AQO	Air Quality Objective
AQS	Annual Status Report
AURN	Automatic Urban and Rural Network
DMP	Dust Management Plan
Defra	Department for Environment, Food and Rural Affairs
EPA	Environment Protection Act
EPUK	Environmental Protection UK
HDV	Heavy Duty Vehicles (> 3.5 tonnes gross vehicle weight)
IAQM	Institute of Air Quality Management
LAQM	Local Air Quality Management
LDV	Light Duty Vehicles (≤3.5 tonnes gross vehicle weight)
µg/m^3	Micrograms per cubic metre
MVHR	Mechanical Ventilation with Heat Recovery
NGR	National Grid Reference
NO_2	Nitrogen dioxide
NO_x	Nitrogen oxides (taken to be NO_2 + NO)
NPPF	National Planning Policy Framework
NRMM	Non-Road Mobile Machinery
NWCA	North Wales Combined Authority
Objectives	A nationally defined set of health-based concentrations for nine pollutants, seven of which are incorporated in Regulations, setting out the extent to which the standards should be achieved by a defined date. There are also vegetation-based objectives for sulphur dioxide and nitrogen oxides
PM_{10}	Particulate matter with an aerodynamic diameter less than 10 micrometres
$PM_{2.5}$	Particulate matter with an aerodynamic diameter less than 2.5 micrometres
PPG	Planning Practice Guidance
SPG	Supplementary Planning Guidance
Standards	A nationally defined set of concentrations for nine pollutants below which health effects do not occur or are minimal
Trackout	The transport of dust and dirt from the construction / demolition site onto the public road network, where it may be deposited and then re-suspended by vehicles using the network. This arises when heavy duty vehicles (HDVs) leave the construction / demolition site with dusty materials, which may then spill onto the road, and/or when HDVs transfer dust and dirt onto the road having travelled over muddy ground on site
WCBC	Wrexham County Borough Council

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Appendix 1 - EHO consultation.

Good Afternoon,

Hoare Lea have been instructed to undertake an Air Quality Assessment to support the planning application for the proposed redevelopment of Wrexham Gateway East and the construction of two offices, located at Wrexham Gateway, Wrexham, LL11 2AA.

I have set out our proposed assessment approach below and would invite any comments or local air quality considerations you may have. Please see the Site boundary below for reference. Please note that while the Site boundary below is for the entire Application Site, our Air Quality Assessment covers the Gateway element only.

The proposed development consist of the redevelopment of Wrexham Gateway east, to provide office spaces along with associated infrastructure, landscaping and other associated works.

Hoare Lea propose to undertake the assessment using the following methodology:

- A baseline assessment of air quality will be undertaken utilising the Wrexham County Borough Council (WCBC) monitoring data from the most recent Annual Status Report (2024).
- Monitoring data from 2023 will be used to establish the baseline. Could you please confirm you are happy for us to use 2023 monitoring data?
- Defra's background pollution maps published for 2021 reference year, will be used to further establish background concentrations in the area. Could you please confirm you are happy for us to use Defra background pollution maps using 2021 reference year?
- The existing monitoring data and Defra background concentrations will be used to qualitatively inform the suitability of the site for the proposed use.
- An assessment of the construction impacts on air quality and dust using the IAQM methodology, in compliance with the most recent 'The Control of Dust and Emissions During Construction and Demolition' guidance published in January 2024 (v2.2).
- Any construction or operational phase mitigation will be recommended as necessary in line with the IAQM guidance.
- Road traffic data associated with the Proposed Development has been provided by SK Transport Planning Ltd, the appointed Transport Consultants for the project. SK Transport Planning Ltd has advised that there will not be an increase of LDV annual average daily traffic (AADT) or HDV AADT trips above the relevant EPUK and IAQM criteria of 500 LDVs and/or 100 HDVs for development within an Air Quality Management Area. As such, a detailed assessment is not required and a screening assessment will be undertaken.
- The proposed energy strategy is expected to be all electric, utilising zero-combustion emission technology. As no combustion sources are proposed during normal operation and within the primary energy strategy, no local air quality impacts are anticipated and a detailed assessment of impacts of combustion emissions from the energy plant has been screened out of this assessment.
- The assessment will be undertaken in line with the EPUK/IAQM document 'Land-Use Planning & Development Control: Planning for Air Quality' January 2017.
- Air quality policies set out in the Wrexham Local Development Plan 2 and the Supplementary Planning Documents will be taken into account.

It would be appreciated if you could please confirm your acceptance of the proposed methodology and provide me with any comments you may have. However, if you would like to discuss further, please do not hesitate to contact me on the email below.

Please let me know if there are any additional guidance documents that aren't publicly available that you would like us to consider.

Kind regards,

EHO Response:

Good Morning [redacted]

Having reviewed your schedule for the Air Quality Assessment I can confirm that I support your proposals.

For information, the Council has not yet published our 2024 air quality report. However, as it is a combined North Wales report it can be downloaded of Conwy Councils website:

Appendix 2 – Legislation, policy and guidance.

Table 9: Legislation and National Policy Summary Table

Legislation and national policy	Summary notes
The Environment Act 1995 (Part IV)	The Environment Act requires the Secretary of State to publish an air quality strategy and local authorities to review and assess the quality of air within their boundaries (the latter is known as Local Air Quality Management)
The Air Quality Strategy	The Air Quality Strategy provides the policy framework for local air quality management and assessment in the UK. It sets out air quality standards and objectives for key air pollutants. These standards and objectives are designed to protect human health and the environment. The Strategy also sets out how the different sectors of industry, transport, and local government, can contribute to achieving these AQOs
The Environment Act 2021	The Environment Act 2021 acts as the UK's new framework of environmental protection and came into force on 1st April 2022. Regarding air quality, the Environment Act establishes a legally binding duty on government to bring forward at least two new air quality targets in secondary legislation. This was implemented through the Environmental Improvement Plan which outlines new $PM_{2.5}$ targets for future years. These are a long-term target of 10 $\mu g/m^3$ by 2040 and an interim target of 12 $\mu g/m^3$ by 31st January 2028. These targets are expected to focus on reducing concentrations of, and exposure to, $PM_{2.5}$.
Environmental (Wales) Act 2016	The Environment (Wales) Act 2016 sets out the framework for the delivery of sustainable management of natural resources (SMNR). SMNR, which includes air as a natural resource, involves meeting the needs of present generations without compromising the ability of future generations to meet their needs. It sets a legal target of reducing greenhouse gas emissions by a minimum of 80 % by 2050, as well as placing a duty on Welsh Ministers to set interim targets for 2020, 2030 and 2040. The Act contributes towards the achievement of the seven well-being goals set out in the WFG Act.
EU Limit Values.	The European Union has also set limit values for NO_2, PM_{10} and $PM_{2.5}$; these are legally binding and have been implemented into English legislation by The Air Quality Standards Regulations 2010 and The Air Quality Standards (Amendment) Regulations 2016. The limit values for NO_2, PM_{10} and $PM_{2.5}$ are the same as the English objectives (given in Table 2), but applied from 2010 for NO_2, 2005 for PM_{10} and 2015 for $PM_{2.5}$. The limit values apply at all locations (apart from where the public does not have access, where health and safety at work provisions apply and on the road carriageway).
Statutory Nuisance Legislation	Part III of the Environmental Protection Act (EPA) 1990 (as amended) and Section 79 of the EPA. Fractions of dust greater than 10 µm (i.e., greater than PM_{10}) in diameter typically relate to nuisance effects as opposed to potential health effects and therefore are not covered within the UK Air Quality Strategy. In legislation there are currently no numerical limits in terms of what level of dust deposition constitutes a nuisance.
Clean Air Plan for Wales	The Clean Air Plan for Wales was published in 2020 by the Welsh government. The plan aims to improve air quality and reduce the burden of poor air quality on human health, biodiversity and the natural environment. It identifies a series of policies and actions, across various areas, that are required in order to comply with the European and domestic legislative air quality obligations. These actions include: – Enhancing air quality monitoring and assessment capabilities – Proposals for a fit for purpose legislative and regulatory air quality management framework for Wales

Legislation and national policy	Summary notes
	– Increasing public awareness about air pollution and behavioural change communications to help everyone improve air quality and encourage others to do the same Promoting the shift from the private motor vehicle to active travel and public transport
Building Regulations	Part F of the Building Regulations (2021) provides guidance for indoor air quality and the pollutant concentrations that must not be exceeded in both buildings for dwellings and non-dwellings.
Well-Being of Future Generations (Wales) Act 2015	The Well-being of Future Generations Act (WFG Act) focuses on providing sustainable development in order to improve economic, social, environmental and cultural well-being in Wales. Regulations made under the WFG Act require public bodies to consider air quality when carrying out statutory assessments of local well-being. Public bodies are required to adopt the following five ways of working to align with the WFG Act sustainable development principle: – Long-term – the importance of balancing short-term needs with the needs to safeguard the ability to also meet long-term needs – Integration – considering how the public body's well-being objectives may impact upon each of the well-being goals, on their objectives, or on the objectives of other public bodies – Involvement – the importance of involving people with an interest in achieving the well-being goals, and ensuring that those people reflect the diversity of the area which the body serves – Collaboration – acting in collaboration with any other person (or different parts of the body itself) that could help the body to meet its well-being objectives – Prevention – how acting to prevent problems occurring or getting worse may help public bodies meet their objectives.
Planning Policy Wales	Planning Policy Wales sets out the land use planning policies of the Welsh Government. It aims to ensure that the planning system contributes towards the delivery of sustainable development and improves the social, economic, environmental and cultural well-being of Wales. It includes advice for considering air quality during the planning process. Relevant sections are set out below: *Paragraph 6.7.2: "National air quality objectives are not 'safe' levels of air pollution. Rather they represent a pragmatic threshold above which government considers the health risks associated with air pollution are unacceptable. Air just barely compliant with these objectives is not 'clean' and still carries long-term population health risks. Nitrogen dioxide and particulate matter, which are the pollutants of primary national concern from a public health perspective, currently have no safe threshold defined and therefore the lower the concentration of those pollutants the lower the risks of adverse health effects. It is desirable to keep levels of pollution as low as possible."* *Paragraph 6.7.4: "The planning system should maximise its contribution to achieving the well-being goals, and in particular a healthier Wales, by aiming to reduce average population exposure to air and noise pollution alongside action to tackle high pollution hotspots. In doing so, it should consider the long-term effects of current and predicted levels of air and noise pollution on individuals, society and the environment and identify and pursue any opportunities to reduce, or at least, minimise population exposure to air and noise pollution, and improve soundscapes, where it is practical and feasible to do so."* *Paragraph 6.7.6: "In proposing new development, planning authorities and developers must, therefore:*

Legislation and national policy	Summary notes
	– *address any implication arising as a result of its association with, or location within, air quality management areas, noise action planning priority areas or areas where there are sensitive receptors;* – *not create areas of poor air quality or inappropriate soundscape; and* – *seek to incorporate measures which reduce overall exposure to air and noise pollution and create appropriate soundscapes."* *Paragraph 6.7.7: "To assist decision making it will be important that the most appropriate level of information is provided, and it may be necessary for a technical air quality and noise assessment to be undertaken by a suitably qualified and competent person on behalf of the developer."* *Paragraph 6.7.12: "Planning authorities must consider current and future sources of air and noise pollution as part of developing their strategies for locating new development."* *Paragraph 6.7.14: "Proposed development should be designed wherever possible to prevent adverse effects to amenity, health and the environment but as a minimum to limit or constrain any effects that do occur. In circumstances where impacts are unacceptable, for example where adequate mitigation is unlikely to be sufficient to safeguard local amenity in terms of air quality and the acoustic environment it will be appropriate to refuse permission."* *Paragraph 6.7.21: "Regard should be paid to current air quality and noise levels and the quality of the existing soundscape and account taken of any relevant local air quality action plan, noise action plan and/or local or regional air quality strategy as part of development strategies and proposals in development plans and before determining planning applications."* *Paragraph 6.7.26: "Planning authorities must consider the potential for temporary environmental risks, including airborne pollution and surface and subsurface risks, arising during the construction phases of development. Where appropriate planning authorities should require a construction management plan, covering pollution prevention, noisy plant, hours of operation, dust mitigation and details for keeping residents informed about temporary risks."*
Welsh Government Local Air Quality Management in Wales Policy Guidance	The Welsh Government's Local Air Quality Management in Wales Policy Guidance (PG(W)(17)) was published for use by local authorities in Wales. The document provides air quality guidance relating to section 88 of the Environment Act 1995, with a focus on aligning with the principles of the Well-being of Future Generations (Wales) Act 2015
Future Wales: The National Plan 2040	The Future Wales: the National Plan 2040 is the national development framework, which sets the direction for development in Wales up until 2040. The plan addresses key national priorities, including sustaining and developing a vibrant economy, achieving decarbonisation and climate-resilience, developing strong ecosystems and improving the health and well-being of our communities.

Table 10: Primary guidance documents summary table

Primary guidance documents	Summary notes
Local Air Quality Management Technical Guidance	LAQM.TG(22)[16] was published for use by local authorities in their LAQM review and assessment work. The document provides key guidance in aspects or air quality assessment, including screening, use of monitoring data and use of background data that are applicable to all air quality assessments.
EPUK and IAQM 'Air Quality Guidance for Planning'	Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM) have together published guidance (EPUK and IAQM planning guidance)[17] to help ensure that air quality is properly accounted for in the development control process.
IAQM 'Construction and Demolition Dust Guidance'	Guidance on the assessment of dust from demolition and construction has been published by the IAQM (IAQM construction guidance)[18]. The guidance provides a methodology to determine the dust emission magnitude and provides a series of matrices to determine the risk magnitude of potential dust sources associated with construction activities.

Appendix 3 - Mitigation measures for construction phase.

Table 11: Mitigation measures for construction phase

Issue	Mitigation measure
Communications	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.
Dust Management Plan	Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the Local Authority. The DMP may include monitoring of dust deposition, dust flux, real-time PM_{10} continuous monitoring and/or visual inspections.
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 check of surfaces such as street furniture, cars, window sills within 100 m of the 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.
	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 PM_{10} continuous monitoring locations with the Local Authority. Where possible, commence baseline monitoring at least three months before work commences on site or, if it is a large site, before work on a phase commences.
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 cover as described below.
	Cover, seed or fence stockpiles to prevent wind whipping.

Issue	Mitigation measure
Operating vehicles/machinery and sustainable travel	Ensure all vehicles switch off engines when stationary – no idling vehicles.
	Avoid the use of diesel or petrol-powered generators and use mains electricity or battery powered equipment where practicable.
	Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on unsurfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the Local Authority, where applicable).
	Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking and car-sharing)
Operations	Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.
	Ensure an adequate water supply on the site for effective dust/particulate matter 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.
Demolition	Soft strip inside building before demolition (retaining walls and windows in the rest of the building where possible, to provide a screen against dust).
	Ensure effective water suppression is used during demolition activities. Hand held sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed. In addition, high volume water suppression systems, manually controlled, can produce fine water droplets that effectively bring the dust particles to the ground.
	Avoid explosive blasting, using appropriate manual or mechanical alternatives.
	Bag and remove any biological debris or damp down such material before demolition.
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 scrabbling (roughening of concrete surfaces) if possible.
	Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.

Issue	Mitigation 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 powder 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 in continuous use.
	Avoid dry sweeping of large areas.
	Ensure vehicles entering and leaving 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 leaving the site where reasonably practicable).

Appendix 4 - Professional experience.

Andy Day (Hoare Lea), BSc (Hons), MSc, AMIEnvSc, MIAQM
Andy is an Associate Air Quality Consultant with Hoare Lea. He is an Associate Member of the Institute of Environmental Sciences and a Full Member of the Institute of Air Quality Management. He is a chemistry graduate with a Master's specialising in the catalysed removal of harmful volatile organic compounds (VOCs) often generated from the combustion of fuel in car engines.

Andy has worked on a range of projects of varying size across a number of different sectors. His experience focusses on work up to and through planning for air quality assessments and environmental impact assessments. Andy also has experience in detailed dispersion modelling of road traffic and energy combustion plant, emission mitigation statements, damage cost calculations, indoor and outdoor air quality monitoring and assessing the air quality impact at ecologically sensitive sites.

Andy has a particular interest in reducing emissions for the benefit of human health and the environment through the life cycle of a building.

Josh Jones (Hoare Lea), MSci (Hons), MIEnvSc, MIAQM
Josh is a Principal Air Quality Consultant with Hoare Lea. He has over 8 years' experience in the Air Quality field. His role includes the production and project management of air quality assessments, including monitoring and detailed dispersion modelling of dust, odour, roads and industrial emissions, in support of both planning and permit applications for a wide variety of clients across a range of sectors, including residential, industrial, energy and healthcare. He also has detailed knowledge of the LAQM process, the EIA process, co-ordination of multi-disciplinary environmental impact assessment work in support of planning applications and dispersion modelling studies.

T-Jay Brown (Hoare Lea), BSc, MSc, AMIAQM
T-Jay is an Air Quality Consultant with Hoare Lea. He is an Associate Member of the Institution of Environmental Sciences and an Associate Member of the Institute of Air Quality Management. T-Jay has worked on a range of projects within multiple sectors such as industrial, education and residential.

At Hoare Lea, T-Jay has worked on the air quality assessments for projects which have been successfully submitted for planning. Additionally, he has experience in undertaking detailed dispersion modelling of roads, air quality monitoring and producing indoor air quality plans. T-Jays interests lie in air quality management and its relation to public health and wellbeing.

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