

Air Quality Assessment

Astec House

For Bagri Foundation

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1 Executive Summary

An assessment has been undertaken to define the potential impact on local air quality of the proposed development at Astec House, 187 - 189 Kings Road, Reading.

The proposed development comprises the conversion of the building to create student accommodation with ancillary landscaping and parking.

The construction phase works are primarily internal, therefore dust-related impacts on air quality are expected to be negligible.

Fewer parking spaces are proposed than the extant use, therefore a reduction in operational trips is expected. Impacts on air quality will therefore be negligible.

The existing gas boilers on site will be replaced with high efficiency low-NOx models, reducing the building-related emissions associated with the site.

Local air quality monitoring data indicates that existing pollutant concentrations at the Site are well within the relevant health-based standards. The proposed development will not, therefore, introduce new exposure to poor air quality.

2 Introduction

This report presents an assessment of the potential impact on local air quality of a proposed development at Astec House, 187-189 Kings Road, within the administrative jurisdiction of the Reading Borough Council (RBC).

Dating back to post-1832 as part of Waterloo Place, Nos. 187-189 Kings Road is a Grade II Listed, disused heritage building which was most recently utilised as offices. The proposed development comprises the conversion of the building to create student accommodation with ancillary landscaping and parking.

Potential impacts on local air quality during both the construction and operational phases have been assessed in accordance with all relevant national, regional and local planning policies and air quality guidance.

An assessment has also been undertaken to assess the suitability of the site for student accommodation, with respect to the potential exposure of future users to poor air quality.

2.1 Site

The site is located on Kings Road, approximately 600m west of Cemetery Junction and within the Reading Air Quality Management Area (AQMA).

Existing student accommodation abuts the site to the east with Reading College beyond. Kings Court, to the west, is a commercial building, however there are residential dwellings to the rear, as well as opposite the Site on Kings Road.

The approximate site location is presented in Figure 1..

2.2 Legislation and Policy

A review of the applicable policies for the proposed development has been undertaken with reference to air quality.

The proposed development has been designed to meet and exceed (where feasible) the following main policy drivers and guidance:

- Air Quality Strategy (2023)
- National Planning Policy Framework (2025)
- Planning Practice Guidance (2019)
- Reading Borough Local Plan (2019)
- Reading Borough Council Air Quality Action Plan 2024 – 2029 (2024)

The guidance within these documents at national and local level is presented in more detail in Appendix B.



Figure 1. Approximate site location of Astec House.

3 Methodology

3.1 Construction dust

All construction sites have the potential to generate dust during the construction phase which may have adverse effects at nearby sensitive receptors, both human and ecological.

The potential impact on local air quality during the construction of the proposed development has been assessed in accordance with the Institute of Air Quality Management (IAQM) Construction Dust Guidance (Guidance on the assessment of dust from demolition and construction, IAQM, Version 2.2, January 2024).

Screening criteria are provided such that a detailed risk assessment is required where there are sensitive human health receptors within 250m of the site boundary or within 50m of roads used by construction traffic (up to 250m from the Site entrance). For ecological receptors, the screening distances are 50m from the site boundary and within 50m of roads used by construction traffic (up to 250m from the Site entrance).

The risk of dust Impacts is based on the following:

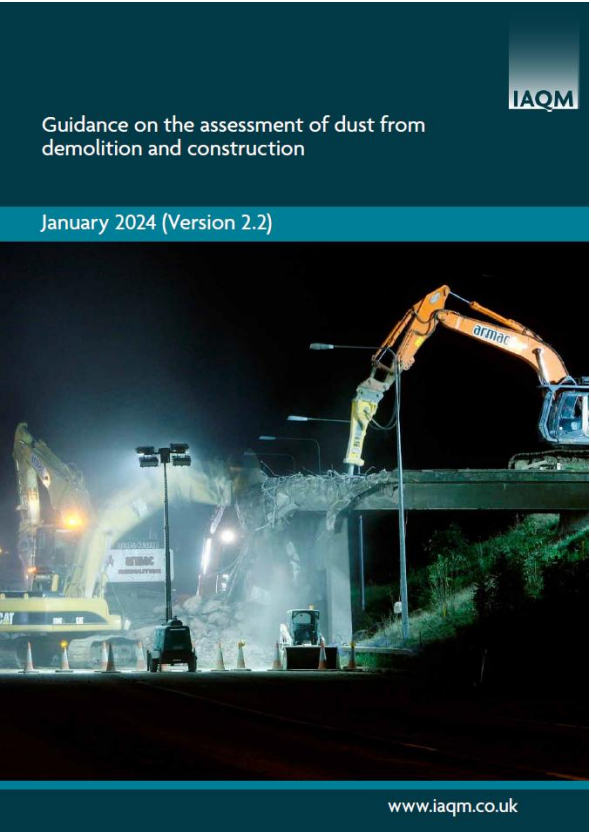
- The sensitivity of the area to health impacts (dependant on the proximity and sensitivity of the nearest receptors, however the risk is higher in locations with existing elevated particulate concentrations);
- The sensitivity of the area to dust impacts (dependant on the proximity and sensitivity of the nearest receptors); and
- The magnitude of the dust emission during demolition, earthworks, construction and from trackout (re-suspended dusty material that has been transported onto the local roads by construction traffic, based on the scale and nature of the proposed works).

These factors are combined to evaluate the potential risk (high, medium or low) and determine the level of mitigation that is required to ensure that any effects are minimised. The identified best practice mitigation measures should be incorporated into an Air Quality and

Dust Management Plan (AQDMP) or Construction Environmental Management Plan (CEMP) for the proposed development.

It should be noted that the assessment of dust risk is also based on professional judgement taking into account factors such as the prevailing wind direction, the proposed construction phasing, the likely duration of dust raising activities and local topography (including potential barriers to the dispersion of dust (such as tall vegetation or buildings)).

Full details of the IAQM construction dust methodology are provided in Appendix A.



3.2 Construction Traffic

The Environmental Protection UK (EPUK)/ IAQM planning guidance (Land-use Planning and Development Control: Planning for Air Quality, January 2017) provides screening criteria to determine the need for a detailed assessment of traffic-related impacts. For developments within or near an AQMA, a detailed assessment is required where:

- There is a change in the annual average daily traffic (AADT) flow of light duty vehicles (LDV) of more than 100 vehicles; and/or
- There is a change in the AADT flow of heavy duty vehicles (HDV) of more than 25 vehicles; and/or
- There is a change in the road re-alignment by more than 5m; and/or
- A new junction is introduced, which will significantly alter vehicle speeds.

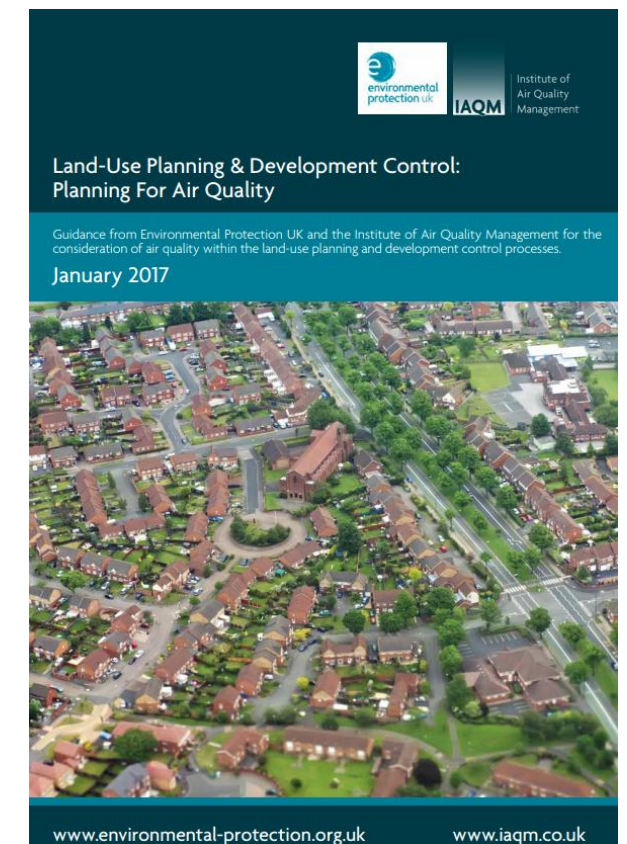
In the context of these screening criteria, LDV refers to vehicles under 3.5 tonnes (e.g., cars and vans) and HDV refers to vehicles above 3.5 tonnes.

Construction traffic trip generation data for the proposed development is not currently available; however, the proposed works are primarily internal, and the number of daily vehicle movements is expected to be well below the above thresholds.

On this basis, the construction traffic emissions will not significantly affect local air quality.

3.3 Operational Traffic

The proposed development will reduce the number of parking spaces associated with the Site and is therefore also expected to reduce the number of trips generated during the operational phase. On this basis impacts on air quality will be negligible.



3.4 Building Emissions

All existing gas boilers will be replaced with high efficiency, ultra-low NOx models. The building-related emissions will therefore be lower than the extant use, which will positively impact local air quality.

3.5 Exposure

The proposed development is a student accommodation scheme and in accordance with the Defra LAQM Technical Guidance (Defra, 2022) exposure should be evaluated with respect to the long and short-term air quality objectives.

A review of the UK Pollutant Release and Transfer Register (<https://prtr.defra.gov.uk>) indicates that there are no significant industrial air emission sources in the area that are likely to affect air quality at the Site. Pollutant concentrations are therefore expected to be primarily influenced by emissions from traffic on the local road network.

A review of local air quality monitoring data has been undertaken to determine whether there is likely to be an exceedance of the objectives at the Site and identify whether mitigation is required to protect future occupants from exposure to poor air quality. This approach has been agreed with the local authority (see Appendix C).

4 Baseline Air Quality

4.1 Local Air Quality Monitoring

Pollutant concentrations are measured in Reading using a combination of automatic monitors and passive diffusion tubes. Details of the of the diffusion tube monitoring locations closest to the proposed development are presented in Table 1. The automatic and diffusion tube locations are shown in Figure 2 and Figure 3, respectively.

Concentrations of NO₂ measured between 2019 and 2025 are presented in Table 2. The data have been obtained from RBC’s 2025 Annual Air Quality Status Report and Air Quality England (<https://www.airqualityengland.co.uk/>).

In 2020, the Covid-19 pandemic lockdown restrictions led to a significant reduction in traffic movements in Reading. The decline in traffic had a positive effect on air quality, reducing annual mean NO₂ concentrations substantially in many locations. Whilst traffic levels have largely recovered, the data indicate that there have been ongoing improvements in air quality in the area since 2021. No exceedances of the air quality objective of 40 µg/m³ have been measured by the diffusion tubes closest to the proposed development since 2019.

Diffusion tubes are not able to measure short-term concentrations, however a study undertaken on behalf of Defra (Analysis of the relationship between 1-hour and annual mean nitrogen dioxide at UK roadside and kerbside monitoring sites, D Laxen and B Marner, July 2003) indicated that where annual mean concentrations are below 60 µg/m³, an exceedance of the 1-hour mean objective is unlikely to occur. The current Defra Local Air Quality Management Technical Guidance (Local Air Quality Management Technical Guidance (TG22), Defra, August 2022) confirms that this remains a valid assumption. Annual mean NO₂ concentrations measured at roadside locations in the area are less than 55% of this threshold, indicating that the risk of a short-term exceedance in the area is negligible.

Concentrations of PM₁₀ and PM_{2.5} measured between 2019 and 2025 are presented in Table 3 and Table 4 , respectively. The data indicate that

particulate concentrations are well within the relevant long and short-term air quality standards at both background and roadside locations.

There is evidence of a declining trend in PM₁₀ concentrations, although this is less pronounced than for NO₂, due to the significant contribution from non-road emissions sources, such as construction works and domestic wood burning.

The AURN data indicates compliance with the EIP annual mean target for PM_{2.5} of 10 µg/m³.

Table 1. Air Quality Monitoring Locations.

Site ID	Site Name	Type	Easting	Northing	Pollutants Monitored
Automatic					
Reading AURN	AURN	Urban Background	473441	173198	NO ₂ , PM ₁₀ , PM _{2.5}
RD4	London Rd	Roadside	473703	173409	NO ₂ , PM ₁₀
Diffusion Tube					
RD011	181 Kings Road	Roadside	472513	173281	NO ₂
RD016	276 Kings Road	Roadside	472715	173227	NO ₂
RD034	Amity Road	Kerbside	473233	173244	NO ₂
RD043	Charles Place, 246 Kings Road	Roadside	472592	173253	NO ₂
RD064	Wycliffe Baptist Church	Roadside	473068	173204	NO ₂
RD069	Wokingham Rd	Roadside	473202	173157	NO ₂

Table 2. Measured NO₂ Concentrations (µg/m³)

Site ID	2019	2020	2021	2022	2023	2024	2025*
Annual Mean (µg/m ³)							
Reading AURN	22	15	20	22	13	11	11
RD4	27	18	21	21	19	18	18
RD011	35	27.9	35.2	32.7	31.7	30.8	-
RD016	26	18.7	21.4	22.0	20.8	19.4	-
RD034	29	21.4	24.1	22.6	22.6	20.2	-
RD043	41	28.2	30.6	32.1	30.9	27.8	-
RD064	39	28.5	33.3	31.5	31.3	29.4	-
RD069	-	-	-	-	-	26.4	-
Number of 1-hour Means > 200 µg/m ³							
Reading AURN	0	0	0	0	0	0	0
RD4	0	0	0	0	0	0	0

* Provisional data

Table 3. Measured Annual Mean PM₁₀ Concentrations (µg/m³)

Site ID	2019	2020	2021	2022	2023	2024	2025*
Annual Mean							
Reading AURN	13	15	15	16	12	10	12
RD4	17	19	17	18	18	15	15
Number of 24-hour Means > 50 µg/m ³							
Reading AURN	0	0	1	0	0	0	0
RD4	4	3	2	0	2	0	1

* Provisional data

Table 4. Measured Annual Mean PM_{2.5} Concentrations (µg/m³)

Site ID	2019	2020	2021	2022	2023	2024	2025*
Reading AURN	8	8	8	8	7	7	8

* Provisional data

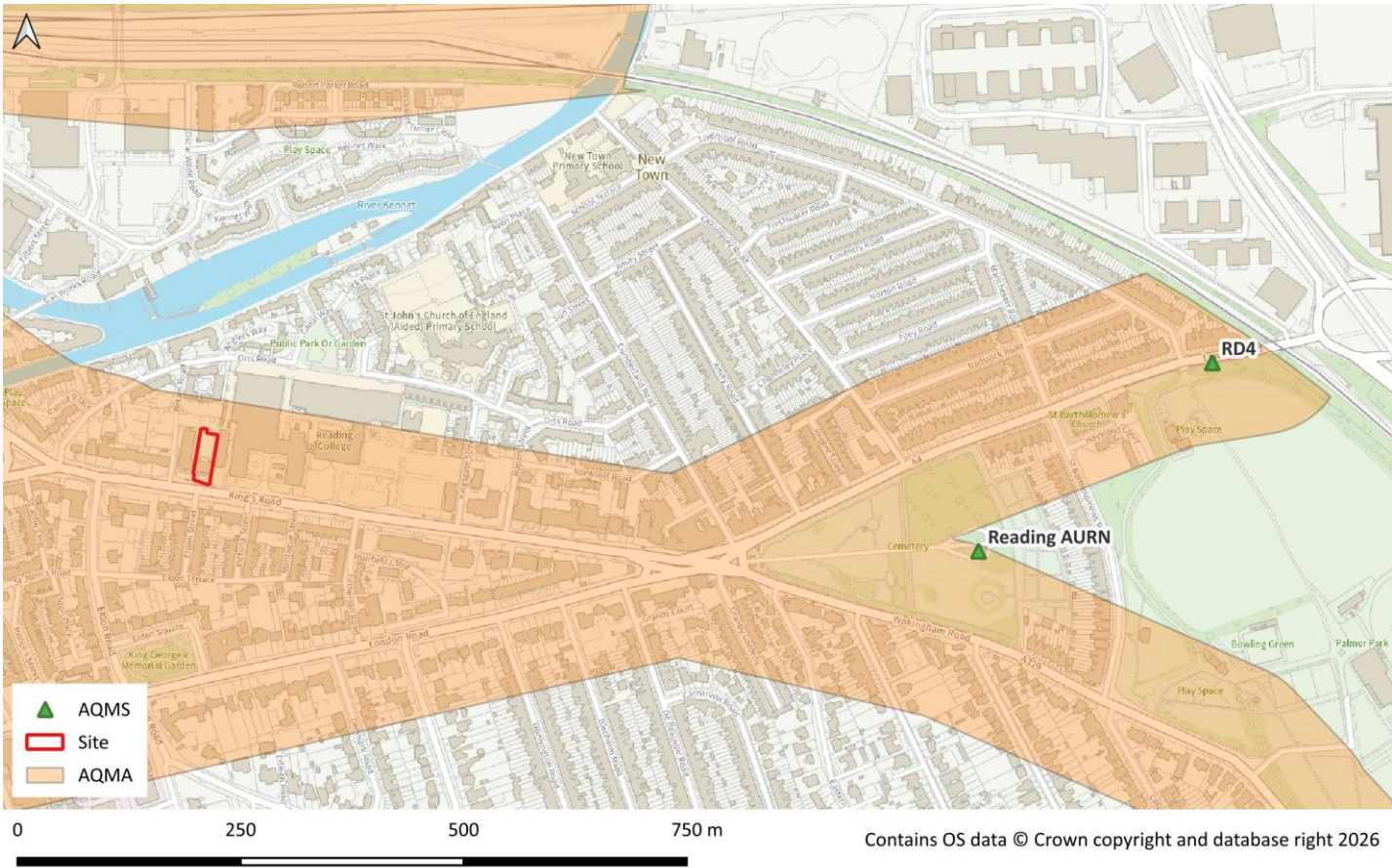


Figure 2. Automatic Monitoring Locations, site location outlined in red.

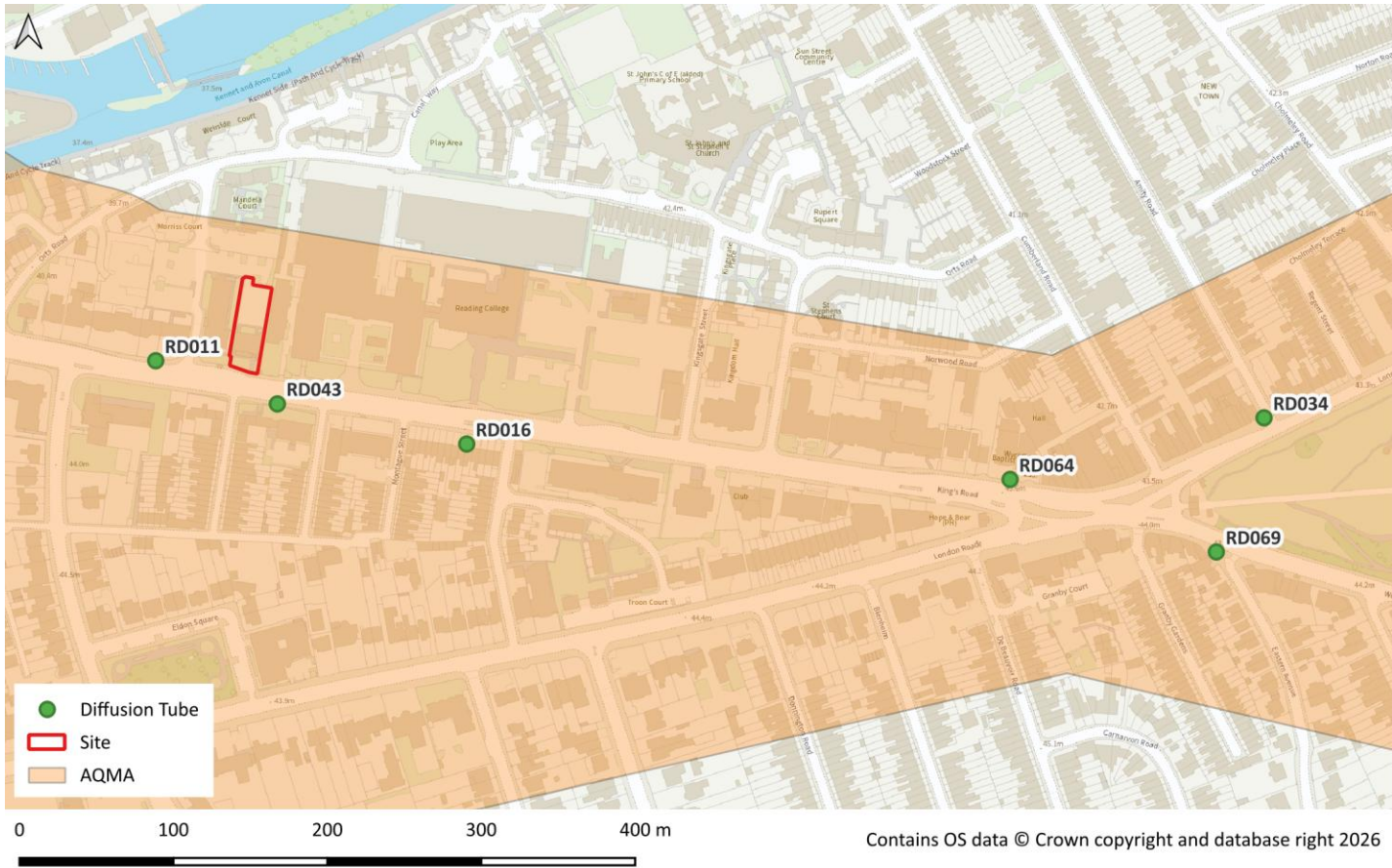


Figure 3. Diffusion Tube Monitoring Locations, site location outlined in red.

5 Exposure Assessment

5.1 Nitrogen Dioxide

Annual mean NO₂ concentrations measured at roadside and kerbside locations on Kings Road are well below the air quality objective of 40 µg/m³.

The concentration measured at Tube RD011 (30.8 µg/m³ in 2024) is likely most representative of worst-case exposure on-site. However, since pollutant concentrations decline rapidly with distance from the kerb, the concentration at the building façade is likely to be somewhat lower.

The measured concentrations on Kings Road are well below the 60 µg/m³ threshold for a potential exceedance of the 1-hour mean objective. On this basis, the risk of an exceedance of the short-term air quality objective at the Site is considered to be negligible.

5.2 Particulate Matter (as PM₁₀)

The annual mean PM₁₀ concentration measured on London Road (RD4) in 2024 and 2025 was just 38% of the air quality objective of 40 µg/m³. The NO₂ diffusion tube data indicate that pollutant concentrations at roadside locations on Kings Road may be slightly higher than close to London Road, however based on the RD4 data, it is unlikely that PM₁₀ concentrations at the Site exceed 50% of the objective.

LAQM.TG22 provides a relationship between predicted annual mean PM₁₀ concentrations and the likely number of exceedances of the short-term (24-hour mean) PM₁₀ objective of 50 µg/m³. The objective allows 35 exceedances per year, which is equivalent to an annual mean of 32 µg/m³. On this basis, the local monitoring data indicates that compliance with the short term PM₁₀ objective will be achieved at the Site.

5.3 Particulate Matter

The Reading AURN data indicates that background PM_{2.5} concentrations in the area are less than 50% of the objective and are also below the EIP target of 10 µg/m³. PM_{2.5} concentrations close to Kings Road will be higher than background level, however the building façade is 11m from the kerb and based on the measured background concentration, it is

possible that compliance with the EIP target will be achieved.

5.4 Summary

The review of local air quality monitoring data indicates that pollutant concentrations at the Site are well within the current air quality standards and objectives for the protection of health. On this basis, the proposed development will not introduce new exposure to poor air quality.

6 Construction Dust Risk Assessment

6.1 Sensitivity of the Area to Health and Dust Soiling Impacts

The area around the site is mixed-use, including existing student accommodation, offices and a college.

A five year average wind rose for Benson (approximately 20 km north-northwest of the site) is presented in Figure 4, which shows that the prevailing wind direction is from the south. Dust soiling impacts would therefore be most likely to affect receptors to the north of the Site.

The sensitivity of the area to impacts on human health is dependent on existing particulate concentrations, such that the risk of dust generated on site resulting in an exceedance of the air quality objectives is higher in locations where existing concentrations are elevated. The locally measured (Reading AURN) annual mean background PM₁₀ concentration is 10 - 12 µg/m³. Whilst roadside concentrations in the area are likely to be a few µg's above background level, based on the PM₁₀ concentrations measured by the roadside monitor on London Road (RD4), it is unlikely that existing concentrations within 250m of the site exceed 24 µg/m³.

A summary of the area sensitivity to health and dust soiling impacts is presented in Table 5 and Table 6, respectively.

There are no local, national or European habitat sites within 50m of the site, therefore impacts on ecology have been screened out of the assessment.

6.2 Magnitude of Dust Emissions

A summary of the potential magnitude of the dust emission arising from the proposed demolition and construction works is presented in Table 7.

The potential risk of dust impacts, prior to mitigation, based on the 'low' and 'high' sensitivity of the area to health and dust soiling impacts respectively, is presented in Table 8. A summary of

the recommended mitigation measures for the site is presented in Section 7.

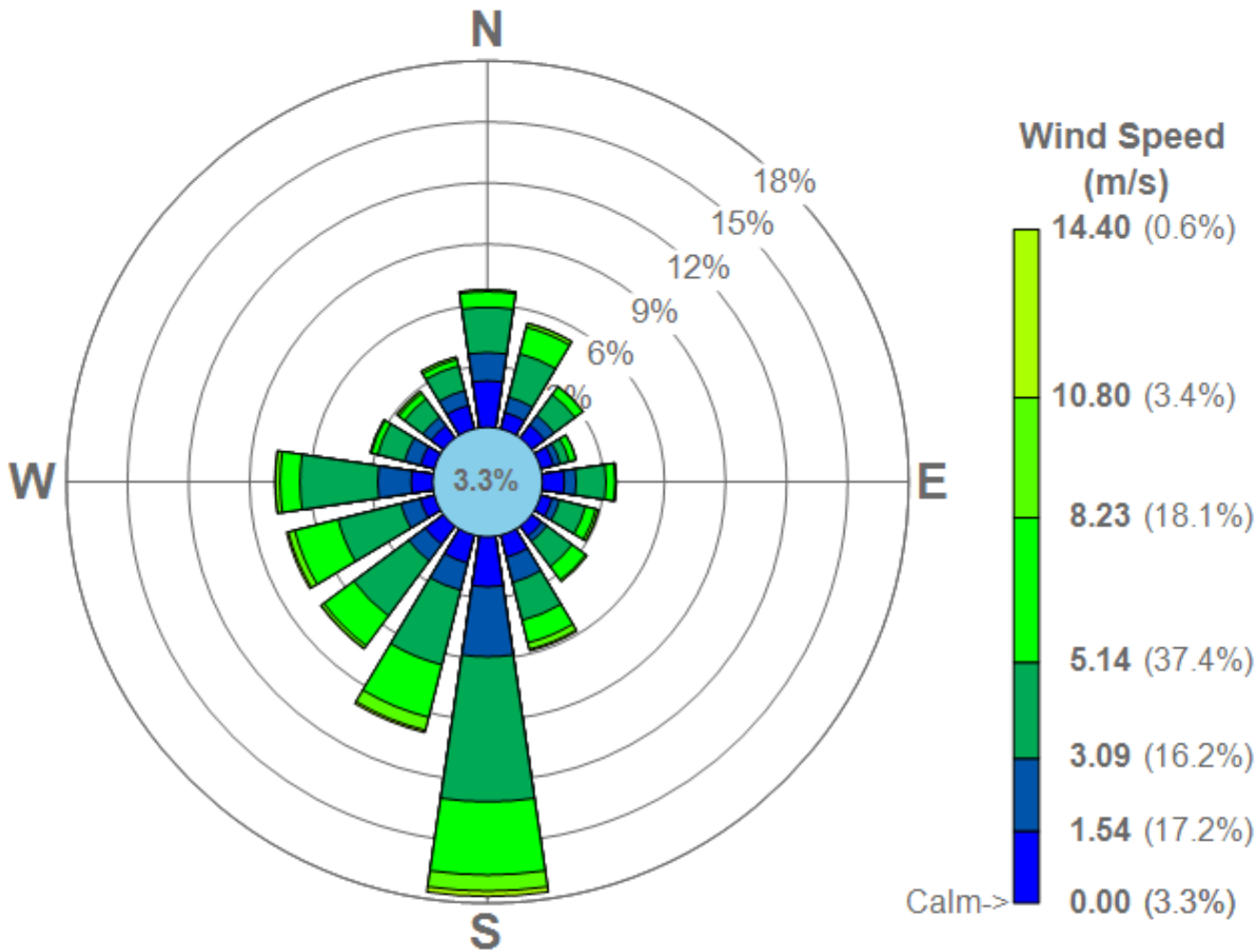


Figure 4. Wind Rose for Benson (2024).

Table 5. Sensitivity of the Area to Health Impacts.

Receptor	Receptor Sensitivity	Distance from Site	Approx number of receptors	Area Sensitivity
Residential dwellings, including adjacent student accommodation	High	<20m	10 - 100	Low
		<50m	>100	Low
Commercial Uses / Workplaces/ College	Medium	<20m	10 - 100	Low
		<50m	>100	Low
Overall Sensitivity of the Area to Health Impacts				Low

Table 6. Sensitivity of the Area to Dust Soiling Impacts.

Receptor	Receptor Sensitivity	Distance from Site	Approx number of receptors	Area Sensitivity
Residential dwellings, including adjacent student accommodation	High	<20m	10 - 100	High
		<50m	>100	High
Commercial Uses / Workplaces/ College	Medium	<20m	10 - 100	Medium
		<50m	>100	Low
Overall Sensitivity of the Area to Dust Soiling Impacts				High

Table 7. Dust Emissions Magnitude.

Dust Source	Proposed Development	Dust Emission Magnitude
Demolition	The proposed development will retain the historic fabric of the building. The majority of the demolition works will be undertaken inside the building to remove internal walls. External demolition works will be minimal but will include the removal of the existing third floor level dormers. No crushing and screening of demolition material will be undertaken on Site.	Negligible
Earthworks	The Site area is <1500 m². The British Geological Survey indicates that the Site is underlain by bedrock from the Sleaford Chalk Formation and Newhaven Chalk Formation with superficial deposits of Taplow Gravel Member. The UK Soil Observatory (UKSO) confirms a layered subsoil of sand and gravel, which is considered to be moderately dusty. Earthworks are expected to be minimal and limited to landscaping.	Negligible
Construction	The proposed development comprises the conversion of an existing office block to residential. Most of the construction works will be internal, and minimal dust will be generated externally. .	Negligible
Trackout	Based on the proposed works, fewer than 5 outward HDV movements per day are anticipated during the peak construction phase. There will be no vehicular access over unmade ground.	Negligible

Table 8. Risk of Dust Impacts Prior to Mitigation.

Dust Source	Risk of Health Impacts	Risk of Dust Soiling Impacts	Overall Risk
Demolition	Negligible	Negligible	Negligible
Earthworks	Negligible	Negligible	Negligible
Construction	Negligible	Negligible	Negligible
Trackout	Negligible	Negligible	Negligible
Overall Risk of Dust Impacts, Prior to Mitigation			Negligible

7 Mitigation

7.1 Construction phase

The risk of human health and dust soiling impacts has been assessed as ‘negligible’ (see Table 8), however, it is recommended that the best practice measures outlined in Table 9 on the following page, are implemented during the construction phase to minimise impacts on local air quality.

Following the successful implementation of the recommended measures, the significance of the off-site construction phase impacts is anticipated to be negligible.

7.2 Operational phase

The review of local air quality monitoring data indicates that concentrations of NO₂, PM₁₀ and PM_{2.5} at the Site are well within the air quality standards and objectives for the protection of health. On this basis on-site mitigation is not required to protect future occupants from poor air quality.

The proposed development will include electric vehicle charging points (EVCPs) and secure cycle parking to encourage sustainable transport and minimise the number of vehicle trips generated by the site.

Table 9. IAQM recommended mitigation measures.

Category	Measure
Highly recommended mitigation measures	
Communications	- 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.
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 logbook.
Operating vehicle/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.
Waste management	- Avoid bonfires and burning of waste materials.
Trackout	- Ensure vehicles entering and leaving sites are covered to prevent escape of material during transport.

8 Conclusions

An assessment has been undertaken to determine the potential impact on local air quality of the proposed development at Astec House, 187 – 189 Kings Road, Reading.

The risk of dust impacts arising during the construction phase has been assessed in accordance with the IAQM's Construction Dust Guidance. Based on the nature of the works, which are primarily internal, the site has been assessed as a 'negligible risk', however best practice mitigation measures are recommended to ensure that any residual impacts on air quality are minimised.

The proposed development comprises a conversion of an existing historical building to student accommodation use. The number of trips generated during the construction phase is therefore expected to fall well below the IAQM/EPUK screening thresholds. The proposed development will reduce the number of parking spaces on Site and therefore the operational trip generation is expected to be lower than the extant office use. Traffic-related impacts on air quality will therefore be negligible.

The existing gas boilers will be replaced with efficient ultra-low NO_x models, reducing the building related emissions associated with the Site.

A review of local air quality monitoring data indicates that NO₂, PM₁₀ and PM_{2.5} concentrations are well below the relevant long and short-term air quality standards for the protection of health. On this basis, the proposed development will not introduce new exposure to poor air quality.

The results of the assessment indicate that air quality is not a constraint to the development of the site, as proposed.

Appendix A – Construction Dust Risk Assessment Methodology

Factors defining the sensitivity of a receptor to dust impacts are presented in Table 10.

The sensitivity of the area is dependent on the number of receptors within each sensitivity class and their distance from the source. Human health impacts are also dependent on the existing PM₁₀ concentrations in the area.

Table 11 and Table 12 summarise the criteria for determining the overall sensitivity of the area to dust soiling and health impacts respectively. The sensitivity of the area to ecological impacts is presented in Table 13.

The magnitude of the dust impacts for demolition, earthworks, construction and trackout is classified as small, medium or large depending on the scale of the proposed works as detailed in Table 14.

For each dust emission source, the worst-case area sensitivity is used in combination with the dust emission magnitude to determine the risk of dust impacts prior to mitigation as illustrated in Table 15 and Table 16.

Table 10. Receptor sensitivity

Sensitivity	Human Health	Dust Soiling	Ecological
High	Locations where members of the public are exposed over a time period relevant to the air quality objective for PM₁₀ (in the case of the 24-hour objectives, a relevant location would be one where individuals may be exposed for eight hours or more in a day) (a) Indicative examples include residential properties. Hospitals, schools and residential care homes should also be considered as having equal sensitivity to residential areas for the purposes of this assessment.	Users can reasonably expect enjoyment of a high level of amenity; or The appearance, aesthetics or value of their property would be diminished by soiling; and The people or property would reasonably be expected to be present continuously, or at least regularly for extended periods, as part of the normal pattern of use of the land. Indicative examples include dwellings, museums and other culturally important collections, medium- and long-term car parks and car showrooms	Locations with an international or national designation and the designated features may be affected by dust soiling; or Locations where there is a community of a particularly dust sensitive species such as vascular species included in the Red Data List For Great Britain (g). Indicative examples include a Special Area of Conservation (SAC) designated for acid heathlands or a local site designated for lichens adjacent to the demolition of a large site containing concrete (alkali) buildings.
Medium	Locations where the people exposed are workers (b), and exposure is over a time period relevant to the air quality objective for PM₁₀ (in the case of the 24-hour objectives, a relevant location would be one where individuals may be exposed for eight hours or more in a day). Indicative examples include office and shop workers, but will generally not include workers occupationally exposed to PM₁₀, as protection is covered by Health and Safety at Work legislation	Users would expect (d) to enjoy a reasonable level of amenity, but would not reasonably expect (d) to enjoy the same level of amenity as in their home; or The appearance, aesthetics or value of their property could be diminished by soiling; or The people or property wouldn't reasonably be expected (d) to be present here continuously or regularly for extended periods as part of the normal pattern of use of the land. Indicative examples include parks and places of work.	Locations where there is a particularly important plant species, where its dust sensitivity is uncertain or unknown; or Locations with a national designation where the features may be affected by dust deposition. Indicative example is a Site of Special Scientific Interest (SSSI) with dust sensitive features.
Low	Locations where human exposure is transient (c) Indicative examples include public footpaths, playing fields, parks and shopping streets.	The enjoyment of amenity would not reasonably be expected (d); or Property would not reasonably be expected (d) to be diminished in appearance, aesthetics or value by soiling; or · there is transient exposure, where the people or property would reasonably be expected (d) to be present only for limited periods of time as part of the normal pattern of use of the land. Indicative examples include playing fields, farmland (unless commercially sensitive horticultural), footpaths, short-term car parks (e) and roads.	Locations with a local designation where the features may be affected by dust deposition. Indicative example is a local Nature Reserve with dust sensitive features.
a. This follows Defra guidance as set out in LAQM.TG22. b. Notwithstanding the fact that the air quality objectives and limit values do not apply to people in the workplace, such people can be affected to exposure of PM₁₀. However, they are considered to be less sensitive than the general public as a whole because those most sensitive to the effects of air pollution, such as young children are not normally workers. For this reason, workers have been included in the medium sensitivity category. c. There are no standards that apply to short-term exposure, e.g., one or two hours, but there is still a risk of health impacts, albeit less certain. d. People’s expectations will vary depending on the existing dust deposition in the area. e. Car parks can have a range of sensitivities depending on the duration and frequency that people would be expected to park their cars there, and the level of amenity they could reasonably expect whilst doing so. Car parks associated with workplace or residential parking might have a high level of sensitivity compared to car parks used less frequently and for shorter durations, such as those associated with shopping. Cases should be examined on their own merits. f. The advice of an ecologist should be sought to determine the need for an assessment of dust impacts on sensitive habitats and plants. A Habitat Regulation Assessment of the site may be required as part of the planning process, if the site lies close to an internationally designated site i.e., Special Conservation Areas (SACs), Special Protection Areas (SPAs) designated under the Habitats Directive (92/43/EEC) and RAMSAR sites. g. Cheffing C. M. & Farrell L. (Editors) (2005), The Vascular Plant. Red Data List for Great Britain, Joint Nature Conservation Committee.			

Table 11. Sensitivity of the Area to Dust Soiling Effects on People and Property

Receptor Sensitivity	Number of Receptors	Distance from the Source			
		<20m	<50m	<100m	<250m
High	>100	High	High	Medium	Low
	10-100	High	Medium	Low	Low
	1-10	Medium	Low	Low	Low
Medium	>1	Medium	Low	Low	Low
Low	>1	Low	Low	Low	Low

Table 12. Sensitivity of the Area to Health Impacts from Dust

Receptor Sensitivity	Annual Mean PM ₁₀	Number of Receptors	Distance from the Source			
			<20m	<50m	<100m	<250m
High	>32	>100	High	High	High	Medium
		10-100	High	High	Medium	Low
		1-10	High	Medium	Low	Low
	28 - 32	>100	High	High	Medium	Low
		10-100	High	Medium	Low	Low
		1-10	High	Medium	Low	Low
	24 - 28	>100	High	Medium	Low	Low
		10-100	High	Medium	Low	Low
		1-10	Medium	Low	Low	Low
	<24	>100	Medium	Low	Low	Low
		10-100	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Medium	>32	>10	High	Medium	Low	Low
		1-10	Medium	Low	Low	Low
	28 - 32	>10	Medium	Low	Low	Low
		1-10	Low	Low	Low	Low
	24 - 28	>10	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
	<24	>10	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Low	-	>1	Low	Low	Low	Low

Table 13. Sensitivity of the Area to Ecological Impacts from Dust.

Receptor Sensitivity	Distance from the Source	
	<20m	<50m
High	High	Medium
Medium	Medium	Low
Low	Low	Low

Table 14. Dust Emission Magnitude Criteria.

Dust Source	Large	Medium	Small
Demolition	Total building volume >75,000m ³ Potentially dusty material (e.g., concrete) Onsite crushing and screening Demolition activities >12m above ground level.	Total building volume 12,000 - 75,000m ³ Potentially dusty material Demolition activities 6 - 12m above ground level.	Total building volume <12,000m ³ Construction material with low potential for dust release (e.g., metal cladding or timber) Demolition activities <6m above ground level Demolition during wetter months
Earthworks	Total site area >110,000m ² Potentially dusty soil type (e.g., clay) >10 heavy earth moving vehicles active at any one time. Formation of bunds >6m in height	Total site area 18,000 - 110,000m ² Moderately dusty soil type (e.g., silt) 5-10 heavy earth moving vehicles active at any one time. Formation of bunds 3 - 6m in height	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	Total building volume >75,000m ³ On site concrete batching Sandblasting	Total building volume 12,000 - 75,000m ³ Potentially dusty construction material (e.g., concrete) On site concrete batching	Total building volume <12,000m ³ Material with low potential for dust release (e.g., metal cladding or timber)
Trackout	>50 HDV movements in any one day (a) Potentially dusty surface material (e.g., high clay content) Unpaved road length >100m	20 - 50 HDV movements in any one day (a) Moderately dusty surface material (e.g., silt) Unpaved road length 50 - 100m	<20 HDV movements in any one day (a) Surface material with low potential for dust release Unpaved road length <50m
i. HDV movements refer to outward trips (leaving the site) by vehicles of over 3.5 tonnes.			

Table 15. Risk of Dust Impacts from Demolition.

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

Table 16. Risk of Dust Impacts from Earthworks, Construction and Trackout

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

Appendix B – Legislation and Policies

The Air Quality Strategy (AQS)

The current Air Quality Strategy was published in August 2023 and sets out policy targets (objectives) for airborne pollutants. The Standards are concentrations measured over a specified time period that are considered acceptable in terms of the effect on health and the environment. The Objectives are the target date on which exceedances of a Standard must not exceed a specified number. The air quality standards and objectives are set into UK law via the Air Quality Standards Regulations 2010 and EU Exit Regulations (2020). In the context of the proposed development, the pollutants of concern are nitrogen dioxide (NO₂) and particulate matter (as PM₁₀ and PM_{2.5}), which in urban locations are primarily associated with road traffic emissions. The current Air Quality Standards for these pollutants, that are applicable in England, are presented in Table 17.

On 31st January 2023 the Government published an Environmental Improvement Plan (IEP) which included a legally binding Annual Mean Concentration Target (AMCT) of 10 µg/m³, to be achieved by 2040. The 10 µg/m³ target for PM_{2.5} has been adopted into UK law via the Environmental Targets (Fine Particulate Matter) (England) Regulations (2023). The 2025 EIP updated the compliance date for the PM_{2.5} target to 31 December 2030.

Table 17. Air Quality standards.

Pollutant	Averaging Period	Concentration (µg/m³)	Comments
NO ₂	1-hour	200	Not to be exceeded more than 18 times per calendar year (equivalent to the 99.8 th percentile of 1-hour means).
	Calendar year	40	-
PM ₁₀	24-hour	50	Not to be exceeded more than 35 times per calendar year (equivalent to the 90.4 th percentile of 24-hour means).
	Calendar year	40	-
PM _{2.5}	Calendar year	20	-
	Calendar year	10	EIP target to be achieved by 2030.

National Planning Policy Framework (NPPF)

The NPPF (Department for Communities and Local Government, National Planning Policy Framework, December 2023) sets out the Government’s policies for planning and how these should be applied. With regard to air quality, the NPPF states that “*planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas.*

Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan”.

The Planning Practice Guidance (PPG)

The PPG (Ministry of Housing, Communities & Local Government, Planning Practice Guidance: Air Quality, November 2019), outlines the principles upon which the planning process can take account of air quality impacts associated with new developments. It outlines the role of Local Plans in promoting sustainability and providing limitations on development in areas of poor air quality. An emphasis is placed on consultation with the planning authority to determine whether there are any local issues with the potential to affect the scope of an air quality assessment. Typical air quality mitigation measures are outlined highlighting the use of planning conditions and funding obligations to off-set any significant impacts.

Reading Borough Local Plan

The Reading Borough Local Plan (2019) sets out the policies guiding new development in the Borough to 2036. Relating specifically to air quality Policy EN15 (Air Quality) states:

“Development should have regard to the need to improve air quality and reduce the effects of poor air quality.

i. Development that would detrimentally affect air quality will not be permitted unless the effect is to be mitigated. The following criteria should be taken into account:

- Whether the proposal, including when combined with the cumulative effect of other developments already permitted, would worsen air quality;
- Whether the development is within, or accessed via, an Air Quality Management Area; and
- Whether it can be demonstrated that a local worsening in air quality that would not detrimentally affect human health or the environment would be offset by an overall improvement in air quality, for instance through reduction in the need to travel.

ii. Where a development would introduce sensitive uses (such as residential, schools and nurseries, hospitals, care facilities) into, or intensify such uses within, an Air Quality Management Area, detrimental effects on that use will be mitigated. Mitigation measures should be detailed in any planning application. If there are significant detrimental effects that cannot be mitigated, the application should be refused.

iii. Where required, planning obligations will be used to secure contributions to measures to tackle poor air quality or for air quality monitoring.”

Reading Borough Council Air Quality Action Plan (2024 – 2029)

RBC carries out frequent review and assessments of air quality and produces Annual Status Reports (ASR's) in accordance with the requirements of Defra.

Historically, air quality routine monitoring has identified widespread exceedances of the air quality objective for NO₂ in the town centre and close to major roads and railway lines. Consequently, in 2009 the Council declared a AQMA (see Figure 5) and produced an Air Quality Action Plan (AQAP) outlining the Council's commitment to improving air quality in the Borough.

Whilst air quality in Reading has improved significantly there are still a small number of locations where exceedances of the annual mean NO₂ objective persist. In addition, there is no evidence of a significant decline in roadside PM_{2.5} concentrations in the town, which has significant implications for health.

RBC's latest AQAP (2024) includes a range of measures to support improvements in air quality including:

- Reducing road transport emissions, particularly on the Inner Distribution Road (IDR)
- Reducing exposure for vulnerable groups (children, older people, those with health conditions)
- Supporting a shift to low- and zero-emission transport
- Promoting active travel and behaviour change
- Tackling domestic wood burning emissions

The effectiveness of the AQAP measures is evaluated through the Council's ongoing air quality monitoring programme.

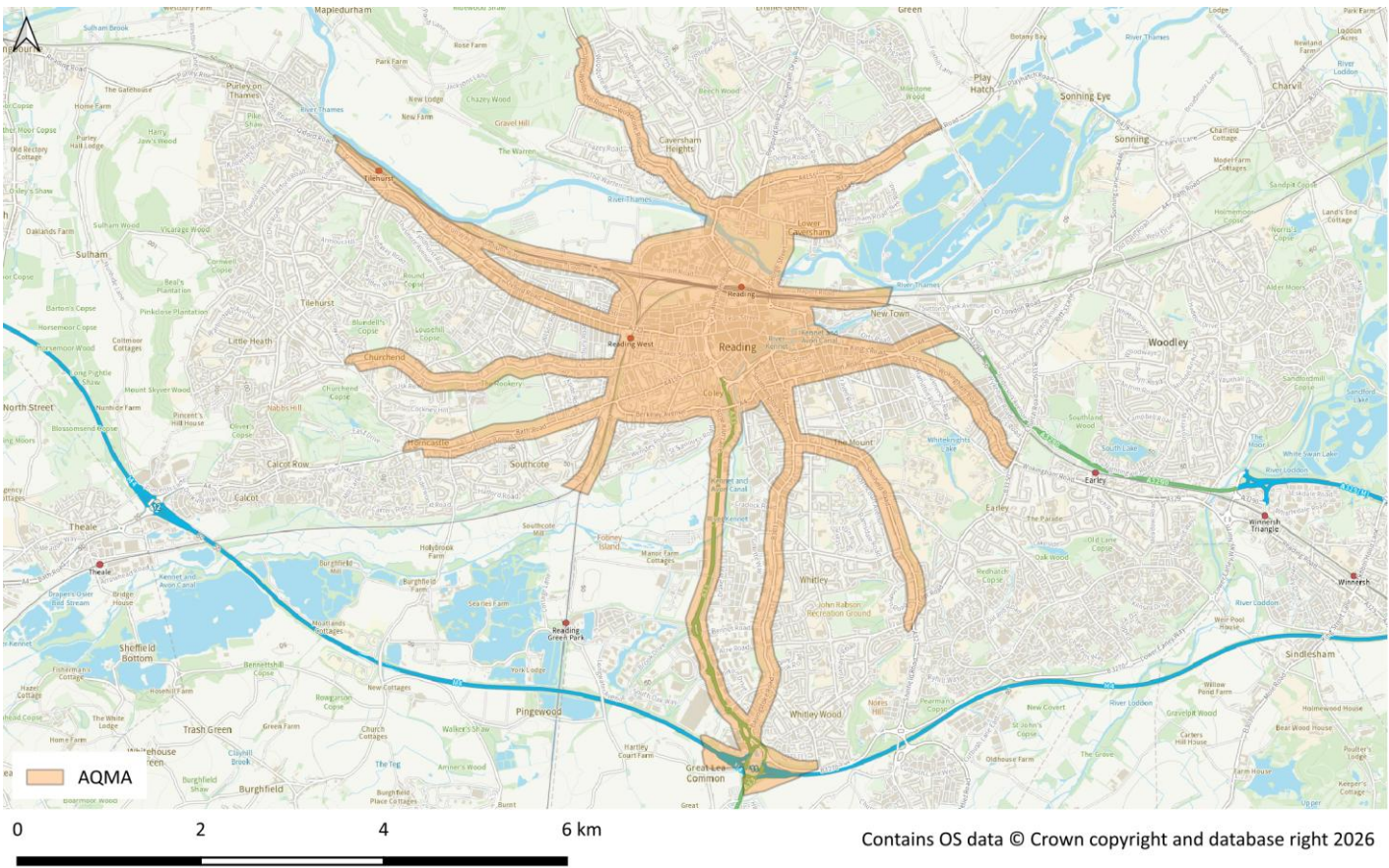


Figure 5. Reading AQMA

Appendix C – Consultation

Proposed Development at Astec House (187 - 189 Kings Road)

From Sarah Irons <sarah@ecolytik.com>
Date Mon 24/11/2025 12:27
To Ross.jarvis@reading.gov.uk <Ross.jarvis@reading.gov.uk>
Cc Kostas Mastronikolaou <kostas@ecolytik.com>

Hi Ross,

I'm working on an AQA for the proposed conversion of the existing Astec House office building on Kings Road to student accommodation (29 rooms). The proposals include parking, but there will be significantly fewer spaces than the existing use, so I'm not expecting any traffic-related impacts on air quality. The nearest diffusion tubes indicate that NO₂ concentrations at the site are likely well within the objectives at the Site and background PM₁₀ and PM_{2.5} concentrations measured by the Cemetery Junction AURN are relatively low. However, I'd be grateful if you could confirm whether you require dispersion modelling to assess potential exposure and whether you have any specific requirements beyond a typical AQA scope (construction dust risk assessment, traffic screening/assessment, exposure).

Thanks for your help.

Kind regards,
Sarah

Sarah Irons
Air Quality Consultant

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RE: Proposed Development at Astec House (187 - 189 Kings Road)

From Jarvis, Ross <Ross.Jarvis@reading.gov.uk>
Date Mon 24/11/2025 14:27
To Sarah Irons <sarah@ecolytik.com>
Cc Kostas Mastronikolaou <kostas@ecolytik.com>

Hi Sarah,

From the information that you have provided it sounds like a screening assessment would be sufficient. Also, a construction dust risk assessment, as it seems impact during construction is likely to be most significant area requiring controls to be in place.

Kind regards

Ross

Ross Jarvis
Principal Air Quality Project Officer
Environmental Protection & Nuisance | Directorate of Economic Growth and Neighbourhood Services
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