

ELDER

GREYFRIARS HOUSE

20 - 30 GREYFRIARS ROAD , READING

AIR QUALITY ASSESSMENT

SAVILLS



Co-Living Scheme at 20-30 Greyfriars Road

Air Quality Assessment

October 2024

Prepared on behalf of Elder

Air Quality Assessment

Quality management			
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1 Introduction

1.1 Overview

- 1.1.1 The Savills UK Air Quality Team was appointed by Elder to complete an Air Quality Assessment (AQA) to accompany the planning application for a co-living development at 20-30 Greyfriars Road, Reading, RG1 1NS. It is proposed to provide 266 co-living units along with associated shared community facilities (the 'proposed development'). A description of the proposed development is as follows:

“Demolition of the existing building and the erection of a part-7, part-13 storey building comprising 266 co-living units (Sui Generis) and associated communal amenity facilities, refuse storage, cycle parking and plant equipment”.

- 1.1.2 The objectives of the AQA are to review existing air quality in the area, assess the potential effects of the development on local air quality and consider appropriate measures to mitigate any effects.
- 1.1.3 The latest planning guidance from Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM) on 'Land-Use Planning & Development Control: Planning for Air Quality' (EPUK and IAQM, 2017) and the IAQM Guidance on the 'Assessment of dust from demolition and construction (Version 2.2)' (IAQM, 2024) were utilised to assess the potential local air quality effects of the proposed development.

1.2 Project Details

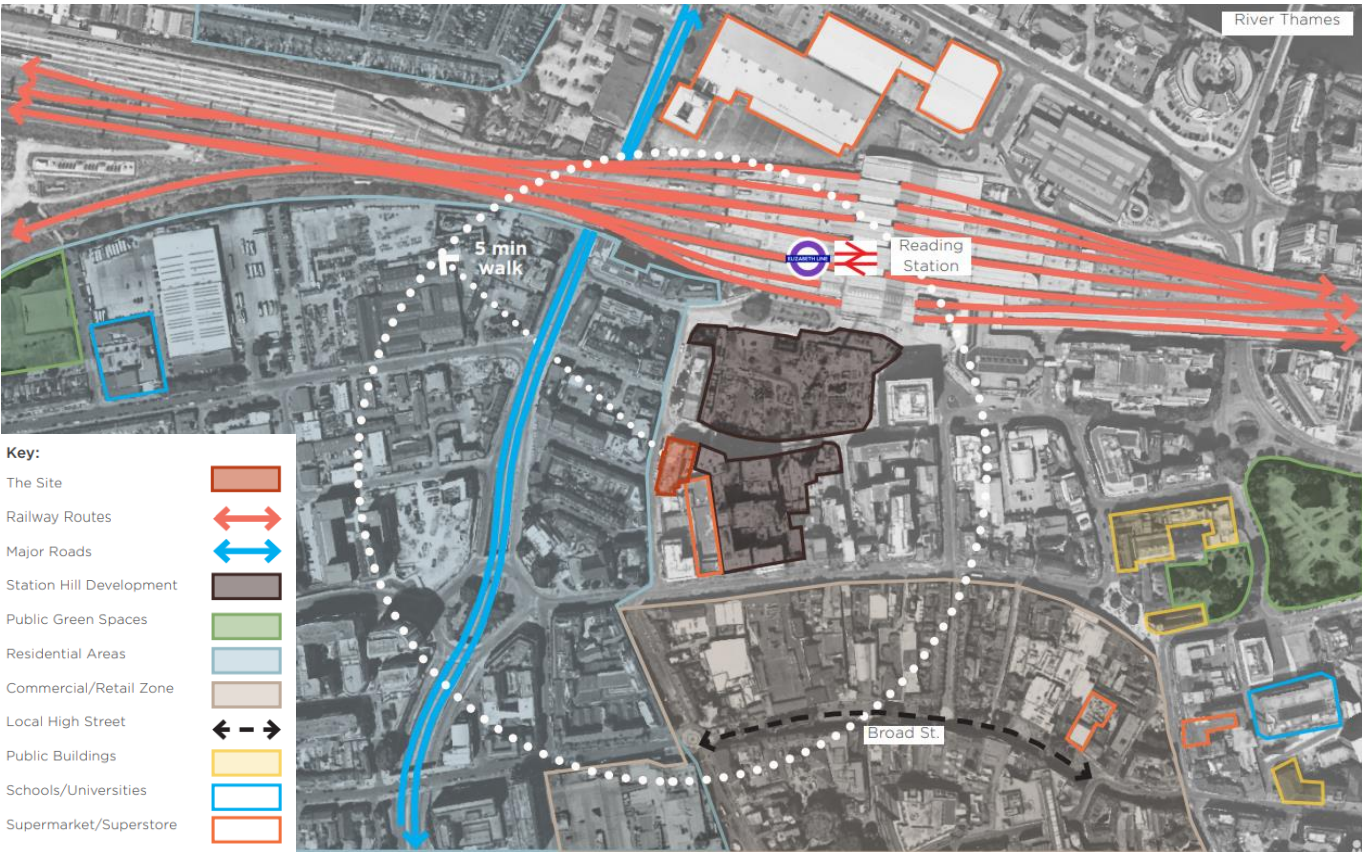
- 1.2.1 The proposed development is located within Reading town centre, just south of Reading Station, as presented in Figure 1.1. The surrounding location is largely residential, with office buildings to the west and a Sainsbury's to the south. The Station Hill development, which is a mixed-use regeneration project consisting of new residential, commercial, leisure and green spaces, is located to the north and east of the site. The site is currently in use as a seven storey office building.
- 1.2.2 The site falls within the administrative boundary of Reading Borough Council. Reading Borough Council has declared one large Air Quality Management Area (AQMA), which is declared in areas where exceedances of air quality objectives are likely. The AQMA covers all the major arterial roads in and out of the town as well as the central area: the site is located within this AQMA.
- 1.2.3 The proposed development will be car-free due to its proximity to Reading Station and the town centre; Reading Station is located approximately 250m to the north east of the site and numerous bus services and town centre uses are within walking or cycling distance. Cycle parking will be provided for 80 bicycles at the proposed development. It is therefore considered that there is ample opportunity for public transport and active transport options, eliminating the need for private vehicles.
- 1.2.4 The proposed development will also be all-electric, eliminating the use of fossil fuels and reducing carbon emissions. Energy efficiency measures will include high-performance building envelopes, energy-efficient lights and appliances, and the use of renewable energy sources. Decentralised

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energy systems, such as heat pumps, will be incorporated to enhance energy resilience and efficiency. Gas-fired boilers are not proposed and so emissions from this source would not occur.

1.2.5 The site is not within or in proximity to any designated ecological areas. The nearest designation, the Lousehill Copse Local Nature Reserve (LNR), is located approximately 2.8km to the west of the site.

Figure 1.1: Site Plan



2 Legislation and Policy

2.1 Legislation

The European Directive on ambient air and cleaner air for Europe

- 2.1.1 European Directive 2008/50/EC of the European Parliament and the Council of 21 May 2008 sets legally binding concentration-based limit values, as well as target values, for the protection of public health and sensitive habitats (European Union, 2008). The Directive was transposed into domestic law by the Air Quality Standards Regulations in England, Scotland, Wales and Northern Ireland in June 2010 (Gov.uk, 2010).
- 2.1.2 The pollutants included are sulphur dioxide (SO₂), nitrogen dioxide (NO₂), oxides of nitrogen (NO_x), particulate matter of less than 10 micrometres (µm) in aerodynamic diameter (PM₁₀), particulate matter of less than 2.5µm in aerodynamic diameter (PM_{2.5}), lead (Pb), carbon monoxide (CO), benzene, ozone (O₃), polycyclic aromatic hydrocarbons (PAHs), cadmium (Cd), arsenic (As), nickel (Ni) and mercury (Hg).

2.2 National level

UK Air Quality Strategy

- 2.2.1 The Environment Act 1995 established the requirement for the government and devolved administrations to produce a National Air Quality Strategy (AQS) for improving ambient air quality (UK Public General Acts, 1995). The AQS for England, Scotland, Wales and Northern Ireland was published in July 2007 and sets out a framework for reducing hazards to health from air pollution and ensuring that international commitments are met in the UK (Defra et al., 2007).
- 2.2.2 The AQS sets standards and objectives for 10 main air pollutants in order to protect health, vegetation and ecosystems. These are benzene, 1,3-butadiene, carbon monoxide, lead, nitrogen dioxide, particulate matter (PM₁₀ and PM_{2.5}), sulphur dioxide, ozone and polycyclic aromatic hydrocarbons.
- 2.2.3 The air quality standards are long-term benchmarks for ambient pollutant concentrations which represent negligible or zero risk to health, based on scientific and medical evidence. Objectives are policy targets expressed as a concentration that should be achieved, all the time or for a percentage of time, by a certain date. These are general concentration limits, above which sensitive members of the public (e.g. children, the elderly and the unwell) might experience adverse health effects.
- 2.2.4 The limit values and objectives relevant to this assessment are summarised in Table 2.1.

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Table 2.1: Summary of relevant objectives of the National Air Quality Strategy (Defra et al., 2007)

Pollutant	Objective ($\mu\text{g}/\text{m}^3$)	Averaging Period	Objective Limitation	Applicable To:
Nitrogen Dioxide (NO_2)	200	1-hour mean	Not to be exceeded more than 18 times a year	UK
	40	annual mean	-	
Particulate Matter (PM_{10})	50	24-hour mean	Not to be exceeded more than 35 times a year	
	40	annual mean	-	
Particulate Matter ($\text{PM}_{2.5}$)	20	annual mean	-	UK (except Scotland)
	Target of 15% reduction in concentrations at urban background		-	UK urban areas

2.2.5 Table 2.2 presents examples relating to the averaging period of the specific objectives to identify where objectives should and should not apply, and are relevant only to the members of the public (Defra, 2022).

Table 2.2: Applying Relevant National Air Quality Objectives (Defra, 2022)

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

^a Such locations should represent parts of the garden where relevant public exposure to pollutants is likely, for example where there is seating or play areas. It is unlikely that relevant public exposure to pollutants would occur at the extremities of the garden boundary, or in front gardens, although local judgement should always be applied.

The Environment Act 2021

- 2.2.6 The Environment Act 2021 established a legally binding duty on the government to set at least two new air quality targets, one of which must be in respect of the annual mean level of PM_{2.5} in ambient air (Environment Act, 2021). In response to this, Defra have set two new legally-binding long-term targets to reduce concentrations of PM_{2.5}. The two new targets are an annual mean concentration of 10 µg/m³ or below by 2040 and a reduction in average population exposure by 35% by 2040, compared to a 2018 baseline (Defra, 2023). These targets are not Air Quality Objectives (AQOs) under the Air Quality Standards Regulations and so the AQOs stated in Table 2.1 remain the most up-to-date AQO, hence are the criteria used throughout this report.

National Planning Policy Framework

- 2.2.7 The National Planning Policy Framework (NPPF) (Department for Levelling Up, Housing and Communities, 2023) sets out the planning policies for England whereby conserving and enhancing the natural environment is a central theme.

- 2.2.8 Paragraph 180, section (e) of the NPPF states that:

“Planning policies and decisions should contribute to and enhance the natural and local environment by preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans.”

- 2.2.9 Paragraph 192 of 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.”

- 2.2.10 The National Planning Practice Guidance (NPPG) (Ministry of Housing, Communities & Local Government, 2019) supports the NPPF and guides a range of topic areas, including air quality. The NPPG states:

“Concerns could arise if the development is likely to have an adverse effect on air quality in areas where it is already known to be poor, particularly if it could affect the implementation of air quality strategies and action plans and/or breach legal obligations (including those relating to the conservation of habitats and species). Air quality may also be a material consideration if the proposed development would be particularly sensitive to poor air quality in its vicinity.”

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- 2.2.11 Additionally, it is recognised in the NPPG that the UK has legally binding limits for ambient air concentrations of major air pollutants (e.g., NO₂, PM₁₀ and PM_{2.5}).

2.3 Local Policy

Reading Borough Local Plan

- 2.3.1 The Reading Borough Local Plan was adopted in 2019 and contains the policies for how Reading will develop up until 2036 (Reading Borough Council, 2019). In terms of air quality, Policy EN15: Air Quality aims to ensure that increased development within Reading does not lead to a net increase in emissions. The policy 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.”*

- 2.3.2 The policy also sets out the requirement for an Air Quality Assessment (AQA). It states that an AQA will likely be required if they are “major developments (10 dwellings or 1,000 sqm of floorspace or more) located within or accessed from the AQMA and:

- *Would lead to a material increase in congestion or HGVs;*
- *Would include significant amounts of car parking, for example 100 spaces, or would significantly increase the current provision, for example by 25%;*
- *Would emit air pollutants that would affect sensitive receptors, including areas of biodiversity importance such as priority habitats; or*
- *An AQA will also be likely to be required if a development of any scale would located new sensitive receptors, such as residential, in areas of particularly poor air quality, such as on the façade of a very busy road”.*

2.4 Guidance

EPUK and IAQM Land Use Planning and Development Control

- 2.4.1 Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM) published the 'Land-Use Planning and Development Control: Planning for Air Quality' guidance in January 2017 (EPUK and IAQM, 2017). This guidance sets out criteria for identifying when a more detailed assessment of operational impacts is required, guidance on undertaking detailed assessments and criteria for assigning the significance of any identified impacts. This guidance has been used where appropriate in this assessment.

IAQM Guidance on dust from demolition and construction

- 2.4.2 The guidance on the assessment of dust from demolition and construction provides an evaluation matrix to determine the potential risk of dust generation from demolition, earthworks, construction and trackout by assessing the dust emission magnitude and the sensitivity of the surrounding area (IAQM, 2024). Dust and air pollutant emissions mitigation measures are recommended depending on the level of risk identified for the site. This guidance has been used where appropriate in this assessment.

3 Methodology

3.1 Introduction

- 3.1.1 The development proposed is for 266 co-living units (i.e., the number of dwellings is 10 or above) and so the development is a 'Major Development' (EPUK and IAQM, 2017).
- 3.1.2 This section discusses the EHO comments received pertaining to air quality, and the methodology used in completing the air quality assessment for the construction and operational phases of the proposed project.

3.2 Consultation with the Environmental Health Officer

- 3.2.1 As part of this AQA, consultation took place with the Environmental Health Officer (EHO) at Reading Borough Council via email correspondence. The following response was received, dated 16th October 2024:

"I can confirm that due to the development being carless, the approach you have outlined appears to be a sensible one."

- 3.2.2 No further consultation has taken place in regard to air quality.

3.3 Construction phase

- 3.3.1 For this assessment, the IAQM's 2024 Construction Dust Guidance (IAQM, 2024) was utilised to assess the potential impacts of dust during the construction phase. The IAQM guidance provides an evaluation matrix to determine the potential risk of dust generation and the associated level of mitigation required.
- 3.3.2 As a component of the dust assessment, receptor sensitivities were identified and impacts due to annoyance from dust soiling and the risk of health effects from an increase in exposure to PM₁₀ were assessed.
- 3.3.3 Additionally, the EPUK and IAQM planning guidance (EPUK and IAQM, 2017) sets out seven indicative criteria for requiring an AQA, as shown in Table 3.1. These criteria were considered in the construction phase assessment.

Table 3.1: Indicative criteria for requiring an AQA (Table 6.2 of EPUK and IAQM Guidance)

The development will:	Indicative criteria to proceed with an AQA:
1. Cause a significant change in Light Duty Vehicle (LDV) traffic flows on local roads with relevant receptors. (LDV = cars and small vans)	A change of LDV flows of: - more than 100 AADT within or adjacent to an AQMA - more than 500 AADT elsewhere.
2. Cause a significant change in Heavy Duty Vehicle (HDV) flows on local roads with relevant receptors. (HDV = goods vehicles + buses >3.5t gross vehicle weight).	A change of HDV flows of: - more than 25 AADT within or adjacent to an AQMA - more than 100 AADT elsewhere.

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The development will:	Indicative criteria to proceed with an AQA:
3. Realign roads, i.e. changing the proximity of receptors to traffic lanes.	Where the change is 5m or more and the road is within an AQMA.
4. Introduce a new junction or remove an existing junction near to relevant receptors.	Applies to junctions that cause traffic to significantly change vehicle accelerate/decelerate, e.g. traffic lights, or roundabouts.
5. Introduce or change a bus station.	Where bus flows will change by: - more than 25 AADT within or adjacent to an AQMA - more than 100 AADT elsewhere.
6. Have an underground car park with extraction system.	The ventilation extract for the car park will be within 20 m of a relevant receptor. Coupled with the car park having more than 100 movements per day (total in and out).
7. Have one or more substantial combustion processes, where there is a risk of impacts at relevant receptors. NB this includes combustion plant associated with standby emergency generators (typically associated with centralised energy centres) and shipping.	Typically, any combustion plant where the single or combined NO _x emission rate is less than 5 mg/s is unlikely to give rise to impacts, provided that the emissions are released from a vent or stack in a location and at a height that provides adequate dispersion. ¹ In situations where the emissions are released close to buildings with relevant receptors, or where the dispersion of the plume may be adversely affected by the size and/or height of adjacent buildings (including situations where the stack height is lower than the receptor) then consideration will need to be given to potential impacts at much lower emission rates. Conversely, where existing nitrogen dioxide concentrations are low, and where the dispersion conditions are favourable, a much higher emission rate may be acceptable.

3.4 Operational phase

3.4.1 The assessment relies on the planning guidance by EPUK and IAQM (EPUK and IAQM, 2017). The impact of existing sources in the local area and the impacts of the proposed development on the local area were considered in the assessment process. As per the guidance, the following factors were also taken into account:

- the background and future baseline air quality and whether this will be likely to approach or exceed the values set by air quality objectives;
- the presence and location of AQMA as an indicator of local hotspots where the air quality objectives may be exceeded;
- the presence of a heavily trafficked road, with emissions that could give rise to sufficiently high concentrations of pollutants (in particular NO₂), that would cause unacceptably high exposure for users of the new development; and,
- the presence of a source of odour and/or dust that may affect amenity for future occupants of the development.

¹ As a guide, the 5 mg/s criterion equates to a 450 kW ultra-low NO_x gas boiler or a 30kW CHP unit operating at <95mg/Nm³. Users of the guidance should quantify the NO_x mass emission rate from the proposed plant, based on manufacturers' specifications and operational conditions.

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- 3.4.2 As for the construction phase, the seven indicative criteria for requiring an AQA (Table 3.1) were utilised in the assessment of the operational phase.

3.5 Assessment Premises

- 3.5.1 The assessment is based on the following premises:
- the construction year is 2025 and the duration is two years;
 - the first year of occupation is 2027;
 - the construction phase assesses impacts for the worst-case scenario, i.e. maximum potential for dust-generating activities; and
 - all mitigation measures proposed in 'Section 6: Proposed Mitigation Measures' will be implemented.

4 Baseline Conditions

4.1 Introduction

- 4.1.1 The following section sets out the baseline conditions for air quality in the area surrounding the proposed development. For this assessment, baseline data was obtained from the most recent Air Quality Annual Status Report (ASR) (Reading Borough Council, 2024) and the background mapping data for local authorities from Defra (Defra, n.d.).

4.2 Existing Baseline Conditions

- 4.2.1 As noted in the ASR, the main air quality issue identified in Reading is vehicle emissions. An AQMA encompassing all the main arterial routes in and out of Reading and the central area was declared in 2009 because of exceedances of NO₂. As previously mentioned, the site is located within this AQMA.
- 4.2.2 Reading Borough Council undertook automatic (continuous) monitoring at three sites and non-automatic (passive) monitoring of NO₂ at 57 sites during 2023. All three continuous monitoring stations were significantly below the annual mean objective of 40 µg/m³ for NO₂, with concentrations decreasing in 2023 compared to 2022.
- 4.2.3 The diffusion tube monitoring results follow a similar pattern, being generally lower than in 2022. There was one exceedance of the NO₂ annual mean objective at roadside site RD048; however, when this was distance-corrected by Reading Borough Council to the location of nearest exposure, the NO₂ concentration is reduced to below 40 µg/m³.
- 4.2.4 Additionally, none of the continuous monitoring stations or diffusion tube locations indicate an exceedance of the 1-hour mean objective. At the continuous monitoring stations, there were also no exceedance of any air quality objectives for PM₁₀ or PM_{2.5}.
- 4.2.5 The continuous monitoring stations are not located in proximity to the proposed development. Figure 4.1 shows the closest non-automatic monitoring sites to the proposed development. Table 4.1 details the monitored NO₂ concentrations for the years 2020-2023 for the 11 sites nearest to the proposed development. This monitoring data shows a largely stable trend in the last three years with some year-to-year fluctuations, setting aside the abnormal data for 2020 affected by restrictions due to the Covid-19 pandemic. Numbers in **bold** show exceedances of the AQOs.

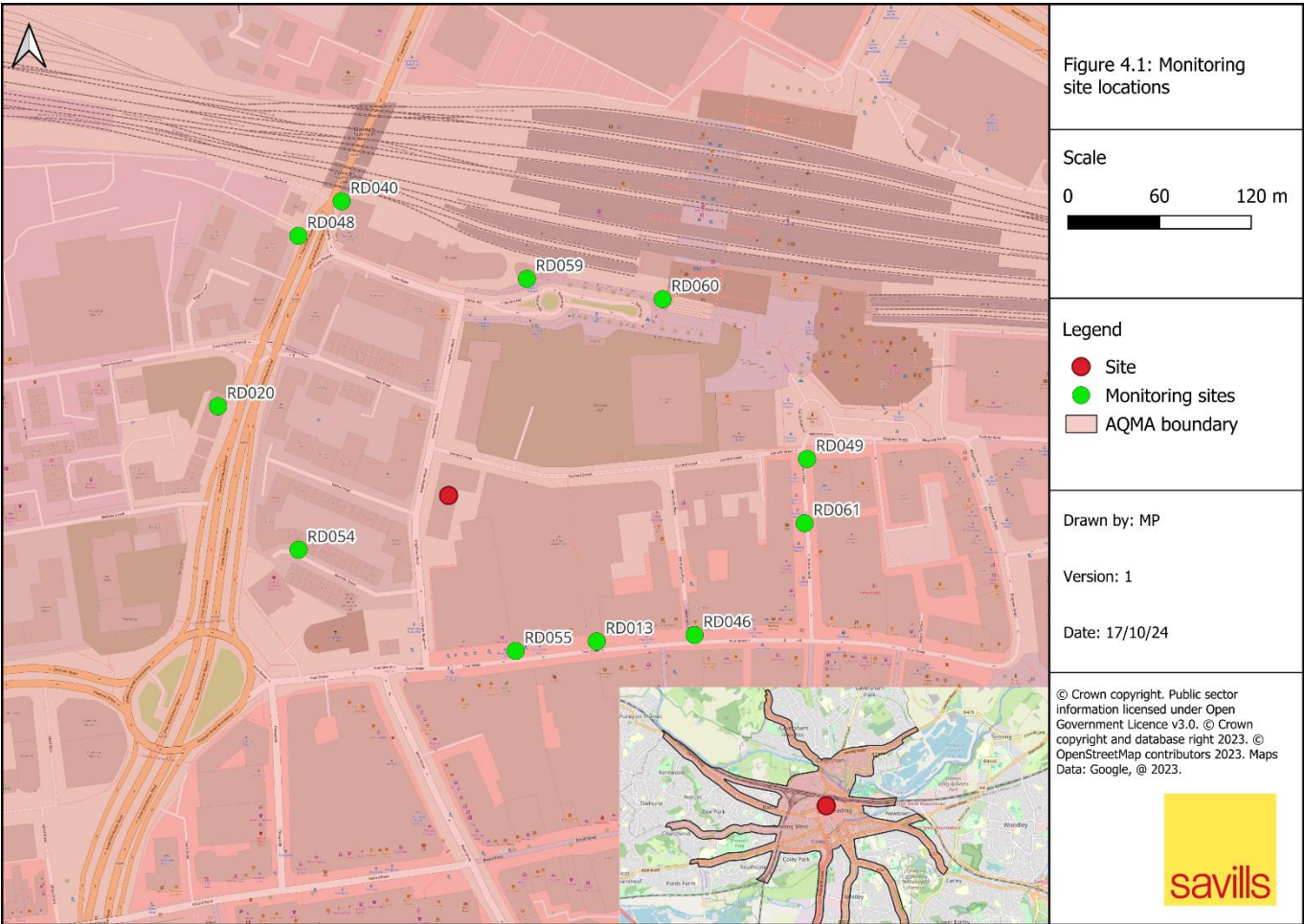
Table 4.1 Monitored annual mean NO₂ concentrations (µg/m³)

Site ID	Site Type	X	Y	Distance from site (m)	Annual mean NO ₂ concentrations (µg/m ³)			
					2020	2021	2022	2023
RD013	Roadside	471373	173584	120	30.6	37.6	38.8	33.9
RD020	Roadside	471123	173734	150	27.0	32.4	30.1	32.9
RD040	Roadside	471202	173869	180	-	-	-	37.1
RD046	Roadside	471437	173589	175	28.5	35.9	38.0	36.7
RD048	Roadside	471174	173846	170	40.0	42.1	43.3	42.6
RD049	Roadside	471509	173705	210	29.1	33.6	35.0	33.2
RD054	Roadside	471177	173641	80	23.6	27.3	26.8	25.8

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Site ID	Site Type	X	Y	Distance from site (m)	Annual mean NO ₂ concentrations (µg/m ³)			
					2020	2021	2022	2023
RD055	Kerbside	471320	173577	85	30.0	38.2	37.6	38.9
RD059	Roadside	471324	173820	130	31.3	32.6	29.0	31.9
RD060	Roadside	471413	173808	165	26.9	29.1	27.4	29.8
RD061	Roadside	471508	173663	215	-	-	-	36.5

Figure 4.1: Monitoring site locations



- 4.2.6 Defra provides background concentration maps to assist local authorities in undertaking their air quality review and assessments. The most recent 2018 reference year background maps are based on the monitoring and meteorological data for 2018 and present projected concentrations for the years 2018 to 2030 (Defra, n.d.). Defra notes that the projections for the 2018-based background maps are based on assumptions before the Covid-19 pandemic; they do not reflect short or long-term impacts on emissions in 2020 due to the pandemic.
- 4.2.7 Based on the 2018-based background maps projected for the year 2027, a separate 1x1km grid file of concentrations for Reading Borough Council was downloaded for NO₂, PM₁₀, and PM_{2.5}. Table 4.2 presents the predicted background concentration for the year 2027 (the earliest year of occupation) within the grid square where the proposed development would be situated.

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Table 4.2: Defra projected background concentration for local authorities

Pollutant	2027 Projected Concentration ($\mu\text{g}/\text{m}^3$)
NO ₂	29.63
PM ₁₀	16.77
PM _{2.5}	11.72
Data presented within the table is derived from the following ordinance survey grid squares: 471500, 173500.	

4.3 Local Sensitive Receptors

- 4.3.1 The site is located in central Reading, with existing and proposed residential properties in the area immediately surrounding the site.
- 4.3.2 There are no ecologically sensitive receptors in the immediate vicinity of the site. The Lousehill Copse LNR is located approximately 2.8 km to the west of the site.

5 Potential Impact

5.1 Construction Phase

5.1.1 Under the IQAM Dust Guidance (IAQM, 2024), there are four categories of dust-generating activities on construction sites to consider:

- demolition;
- earthworks;
- construction; and,
- trackout.

5.1.2 Potential dust impacts from these construction activities can arise from:

- annoyance due to dust soiling;
- the risk of health effects due to an increase in exposure to PM₁₀; and,
- harm to an ecological receptor.

5.1.3 As indicated in Section 4.3, ecological receptors were not assessed as the nearest designated area is located approximately 2.8 km to the west of the site, which is outside the 250m distance for potential dust impacts as set out in the IAQM guidance.

5.1.4 To assess the risk of dust impacts for the relevant activities, the potential impact on dust soiling and human health was treated as being 'high risk' in order to reference mitigation measures for the worst-case scenario and apply those measures which constitute good or best practice. As such, the general measures applicable to a high-risk site are applied and discussed in Appendix A, as outlined by IAQM guidance (IAQM, 2024).

Potential Impacts	Risk *			
	Demolition	Earthworks	Construction	Trackout
Dust Soiling	High Risk	High Risk	High Risk	High Risk
Human Health	High Risk	High Risk	High Risk	High Risk

* Potential impacts on dust soiling and human health were described as being 'high risk' in order to provide mitigation measures for the worst-case scenario, i.e. representing best practice for mitigation.

5.1.5 Construction vehicles may potentially present an additional source of air pollutants within the proposed development site. However, construction traffic is anticipated to be well below 100 LDV and 25 HDV on any local road for the proposed development and any impacts from construction traffic should be minimised and addressed through the mitigation measured proposed in Appendix A, as per the guidance outlined by IAQM (IAQM, 2024). As such, the indicative EPUK & IAQM guidance thresholds presented in Table 3.1 are not exceeded and so assessment of emissions from construction traffic has been scoped out of the AQA.

5.2 Operational Phase

5.2.1 As identified in Section 4.2, the corrected NO₂ monitoring data indicates that the baseline air pollutant concentrations in the most recent year, 2023, are below the AQO of 40µg/m³ at all monitoring sites closest to the proposed development. Considering trends from 2021 to 2023 across all the closest monitoring locations, NO₂ concentrations are broadly stable with some

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(generally 1–2µg/m³) fluctuations while remaining below the AQO. A comparison to 2020 has not been made as this year was strongly influenced by travel restrictions due to the Covid-19 pandemic. The background concentrations mapped by Defra, presented in Table 4.2, are projected to remain below the relevant AQOs for NO₂, PM₁₀ and PM_{2.5} and to show a further improvement in air quality in the opening year.

- 5.2.2 The proposed development will be car-free due to its proximity to Reading Station and the town centre and no car parking spaces being provided. As such, in accordance with the EPUK and IAQM Planning Guidance, the proposed development will not cause a significant change in vehicle traffic flows (the indicative criteria relevant to the proposed development is a change of more than 100 annual average daily traffic (AADT) for LDVs, or more than 25 AADT for HDVs within an AQMA). Additionally, the proposed development will not use gas boilers and so the NO_x emission rate of 5mg/sec limit presented in Table 3.1 is not relevant.
- 5.2.3 None of the indicative criteria proposed in the EPUK and IAQM Planning Guidance requiring further assessment are triggered. As such, the development is not considered to have significant effects on air quality during the operation phase and further assessment is not required. It will not contribute NO₂ emissions during operation that could impact on achievement of air quality objectives for the AQMA in which it would be located.

6 Proposed Mitigation Measures

- 6.1.1 In order to capture best practice, the relevant general mitigation measures for construction impacts appropriate for a 'high risk' site will be applied. These mitigation measures are detailed in Appendix A. The IAQM guidance on the assessment of dust from demolition and construction states that provided the dust control measures are successfully implemented, the resultant effects of the dust exposure will normally be 'not significant'.
- 6.1.2 Overall, the proposed development will incorporate principles of good practice and good design to reduce emissions and exposure of sensitive receptors. The proposed development will be car-free in operation and will provide cycle parking for 80 bicycles. Given the location of the proposed development, residents will be able to utilise public transport services and active travel means. Additionally, the development will be all-electric and include decentralised energy systems, such as heat pumps, so emissions from gas-fired boilers will not occur. Additional mitigation is therefore not considered to be necessary on this basis.

7 Conclusion

- 7.1.1 The Savills UK Air Quality Team was appointed by Elder to complete an Air Quality Assessment (AQA) to accompany the planning application for a co-living development at 20-30 Greyfriars Road, which will provide 266 co-living units along with associated shared community facilities (the 'proposed development').
- 7.1.2 This AQA has reviewed existing air quality in the area, assessed the potential effects of the development on local air quality and considered appropriate measures to mitigate any effects.
- 7.1.3 To address the risk of dust impacts for construction-related activities (i.e., demolition, earthworks, construction and trackout), relevant mitigation measures for construction impacts appropriate for 'high risk' sites, as proposed by the IAQM guidance on dust and demolition (IAQM, 2024), will be applied. This is a best practice approach for mitigating dust impacts from a site at any risk level.
- 7.1.4 Based on the car-free nature of the scheme, the proposed development will not cause a significant change in vehicle traffic flows during the and operational phase. As such, the indicative screening criteria presented by EPUK and IAQM (2017) are not triggered and so the impacts for the operational phase are not considered to have significant effects.
- 7.1.5 Finally, the monitoring data shows that although the proposed development site is within an Air Quality Management Area (which is extensive, covering much of central Reading), monitored air quality at locations around the site is within the applicable air quality objectives and does not show a trend of worsening air quality in the last three years, setting aside the abnormal data for 2020 affected by restrictions due to the Covid-19 pandemic. Defra projections of air quality in the opening year are for this to further improve. Exposure to unacceptably poor air quality for residents is therefore considered to be unlikely and it can be concluded that the proposed development would be acceptable from an air quality perspective.

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Air Quality Assessment

Co-Living Scheme at 20-30 Greyfriars Road

Appendix A:
Mitigation Measures for Construction Impacts

Appendix A: Mitigation Measures for Construction Impacts

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Appendix A: Mitigation Measures for Construction Impacts

1. Proposed Mitigation Measures

- 1.1.1. The IAQM's 2024 Construction Dust Guidance (IAQM, 2024) was utilised in the Air Quality Assessment (AQA) to assess the potential impacts of dust during the construction phase of the proposed development. The IAQM guidance provides an evaluation matrix to determine the potential risk of dust generation and the associated level of mitigation required.
- 1.1.2. To assess the risk of dust impacts for the construction activities, the potential impacts on dust soiling and human health were treated as being 'high risk' in order to obtain mitigation measures for the worst-case scenario and apply those measures which constitute good or best practice.
- 1.1.3. Based on the IAQM guidance, the mitigation measures are divided into general measures applicable to all site and measures applicable specifically to demolition, earthworks, construction and trackout. Based on the AQA, the highest risk category was applied to the site, and as such, the general mitigation measures applicable to the high-risk sites have been applied, where proportionate and within reason.
- 1.1.4. The following table identifies the general mitigation measures proposed to be applied to the development.

Appendix A: Mitigation Measures for Construction Impacts

Key to the table:

H Highly recommended

D Desirable

N Not required

Table 1.1 – Dust and Air Emissions Mitigation Measures (as proposed in the IAQM Guidance (2024))

Mitigation measure	Low Risk	Medium Risk	High Risk	Adopted for the Proposed Development
Mitigation for All Sites – Communications				
1. Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.	N	H	H	Yes
2. 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.	H	H	H	Yes
3. Display the head or regional office contact information	H	H	H	Yes
4. Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the Local Authority. The level of detail will depend on the risk, and should include as a minimum the highly recommended measures in this document. The desirable measures should be included as appropriate for the site. In London additional measures may be required to ensure compliance with the Mayor of London's guidance. The DMP may include monitoring of dust deposition, dust flux, real- time PM ₁₀ continuous monitoring and/or visual inspections.	D	H	H	Yes, including visual inspections.
Site Management				

Appendix A: Mitigation Measures for Construction Impacts

Mitigation measure	Low Risk	Medium Risk	High Risk	Adopted for the Proposed Development
5. 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.	H	H	H	Yes
6. Make the complaints log available to the local authority when asked.	H	H	H	Yes
7. 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.	H	H	H	Yes
8. Hold regular liaison meetings with other high risk construction sites within 250 m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/ deliveries which might be using the same strategic road network routes.	N	N	H	Yes
Monitoring				
9. Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100 m of site boundary, with cleaning to be provided if necessary.	D	D	H	Yes, inspections are proposed to be conducted at an appropriate interval.
10. 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.	H	H	H	Yes

Appendix A: Mitigation Measures for Construction Impacts

Mitigation measure	Low Risk	Medium Risk	High Risk	Adopted for the Proposed Development
11. 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.	H	H	H	Yes
12. 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 a large site, before work on a phase commences. Further guidance is provided by IAQM on monitoring during demolition, earthworks and construction.	H	H	H	Yes, if required, monitoring details will be agreed upon with the Local Authority. Visual inspections will be carried out and recorded on a daily basis.
Preparing and maintaining the site				
13. Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.	H	H	H	Yes
14. Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.	H	H	H	Yes
15. Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period.	D	H	H	Yes
16. Avoid site runoff of water or mud.	H	H	H	No, this is not proposed as it is not practical, although street sweeping will be utilised alongside wheel washing
17. Keep site fencing, barriers and scaffolding clean using wet methods.	D	H	H	No, this is not proposed as it is not practical and in the interests of water conservation
18. Remove materials that have a potential to produce dust from site as soon as possible,	D	H	H	Yes

Appendix A: Mitigation Measures for Construction Impacts

Mitigation measure	Low Risk	Medium Risk	High Risk	Adopted for the Proposed Development
unless being re-used on site. If they are being re-used on-site cover as described below.				
19. Cover, seed or fence stockpiles to prevent wind whipping.	D	H	H	Yes
Operating vehicle/machinery and sustainable travel				
20. Ensure all on-road vehicles comply with the requirements of the London Low Emission Zone and the London NRMM standards, where applicable	H	H	H	N/A
21. Ensure all vehicles switch off engines when stationary - no idling vehicles.	H	H	H	Yes
22. Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.	H	H	H	Yes
23. 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 appropriate)	D	D	H	Yes
24. Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.	N	H	H	Yes
25. Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing)	N	D	H	Yes

Appendix A: Mitigation Measures for Construction Impacts

Mitigation measure	Low Risk	Medium Risk	High Risk	Adopted for the Proposed Development
Operations				
26. 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.	H	H	H	Yes, where practical. The use of power cutting, grinding and sawing will be discouraged.
27. Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.	H	H	H	Yes
28. Use enclosed chutes and conveyors and covered skips.	H	H	H	Yes
29. Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.	H	H	H	Yes
30. 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.	D	H	H	Yes
Waste management				
31. Avoid bonfires and burning of waste materials.	H	H	H	Yes

Note. The AQA does not include emissions associated with contaminated soils.

2. References

IAQM. (2024, January). *Guidance on the assessment of dust from demolition and construction v2.2*. Retrieved from Institute of Air Quality Management: <https://iaqm.co.uk/wp-content/uploads/2013/02/Construction-Dust-Guidance-Jan-2024.pdf>

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