PLANNING STAGE AIR QUALITY ASSESSMENT

LAND NORTH OF BALCOMBE ROAD

FAIRFAX ACQUISITIONS LTD

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LAND NORTH OF BALCOMBE ROAD

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1.0	First issued version	HF	AG
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1 INTRODUCTION

This report has been prepared in support of the outline planning application submitted by Fairfax Acquisitions Ltd to Mid Sussex District Council (MSDC). The application description is as follows:

"Outline planning application for the erection of up to 125 dwellings, together with the provision of landscaping, open space, and associated development works, with access from Balcombe Road."

The proposed development will not include any combustion plant (or will use ultra-low NOx boilers) to meet the energy demand for hot water and space heating. It is, however, expected that the development will result in a net increase in daily vehicle movements. The air quality effects of these additional vehicle movements are addressed later within this document.

Air quality planning policy relevant to the assessment is presented and briefly discussed in Section 2 of this report. The pollutants for consideration, along with air quality standards, are presented in Section 3. The site settings and proposed development are described in Section 4, and baseline air quality concentrations are reviewed in Section 5. The air quality assessment and site suitability are presented in Section 6. The dust risk assessment and management plan are presented in Section 7, along with construction and operational mitigation measures in Section 8. The emissions mitigation assessment is presented in Section 9 and the conclusions are presented in Section 10.

2 AIR QUALITY PLANNING POLICY

2.1 National and Regional Planning Policy and Guidance

2.1.1 National Planning Policy Framework (NPPF)

The NPPF[1] presents the Government's planning policies for England and how these are expected to be applied, with the development of local and neighbourhood plans under the framework. Paragraph 187 e of the NPPF identifies that the planning system should aim to conserve 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;...*"

Paragraph 199 states "*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.*".

2.1.2 Planning Practice Guidance (PPG)

PPG[2] for air quality has been produced that gives an indication of details the local authority may want to consider when there are concerns about air quality, special requirements such as the height of chimneys and securing mitigation measures through planning conditions and obligations. The PPG considers that dust can also be a planning concern for effects on local amenity. The guidance considers that assessments should be proportional to the nature and scale of development proposed and the level of concern about air quality. The

[1] Ministry of Housing, Communities & Local Government. National Planning Policy Framework. 2024.

[2] Department for Communities and Local Government. 2019. Planning Practice Guidance – Air Quality. Revision date November 2019.

mitigation of air quality impacts and effects is to depend on the proposed development and should be proportionate to the likely impact.

2.1.3 The IAQM's The Control of Dust and Emissions During Construction and Demolition

The IAQM's Guidance on the assessment of dust from Demolition and Construction[3] seeks to reduce emissions of dust, PM_{10} and $PM_{2.5}$ from construction and demolition activities. The guidance considers that during the pre-application phase, local authorities should provide and advise on controlling dust and emissions and should set out their requirements for the planning application.

During the detailed application phase, the developer should submit an Air Quality and Dust Risk Assessment (AQDRA), which should confirm that an Air Quality and Dust Management Plan (AQDMP), following the guidance in the SPG, will be submitted to the local authority prior to works commencing on-site.

The AQDRA provides a summary of the risk to soiling (dirt deposited on surrounding structures), health and the natural environment, and recommends emission control measures to be implemented as part of the scheme.

This document considers that the activities on construction sites can be divided into four types to reflect their different impact:

i. demolition;
ii. earthworks;
iii. construction; and
iv. trackout.

These activities can lead to three separate dust impacts:

i. the risk of health effects due to an increase in exposure to PM_{10};
ii. annoyance due to dust soiling; and
iii. harm to ecological receptors.

2.2 Local Air Quality Policy, Guidance and Local Air Quality Management

2.2.1 Air Quality and Emissions Mitigation Guidance for Sussex (2021)

Sussex' Air Quality and Emissions Mitigation Guidance[4] is used as a reference guide to improve air quality across Sussex.

Guidance is given for air quality assessments, which tends to be aligned with the guidance provided by the IAQM. It also states that emission mitigation assessments are required for developments that are:

- Classed as a major development, as defined by the Town and Country Planning Order;
- Within an Air Quality Management Area (AQMA);
- In relevant proximity to an AQMA;
- In an area close to exceeding the Air Quality Objectives (AQO); or/and,
- B8 storage and distribution use class with a floorspace of 500 m^2 or more.

If the development does not match any of the above conditions, no mitigation damage cost assessment will be required. If the development does match any of the above conditions, a damage cost calculation should be undertaken to determine an appropriate sum to be spent on mitigating the impact on air quality over a 5-year period.

2.2.2 Mid Sussex District Plan 2014-2031

[3] Institute of Air Quality Management. Guidance on the assessment of dust from Demolition and Construction. V2.2. 2024.

[4] Sussex Air. Air Quality and Emissions Mitigation Guidance. 2021.

MSDC adopted the planning framework[5] in March 2018 and the framework sets out the district's policies covering housing, infrastructure, environmental protection, and community needs, and serves as the primary framework for planning decisions. Specific mention of air quality is included in Policy DP29: Noise, Air and Light Pollution, which states:

"The environment, including nationally designated environmental sites, nationally protected landscapes, areas of nature conservation or geological interest, wildlife habitats, and the quality of people's life will be protected from unacceptable levels of noise, light and air pollution by only permitting development where:

[…] Air Pollution:

1. *It does not cause unacceptable levels of air pollution;*
2. *Development on land adjacent to an existing use which generates air pollution or odour would not cause any adverse effects on the proposed development or can be mitigated to reduce exposure to poor air quality to recognised and acceptable levels;*
3. *Development proposals (where appropriate) are consistent with Air Quality Management Plans."*

2.2.3 Draft Mid Sussex District Council Air Quality Strategy 2026 - 2030

MSDC have produced a draft air quality strategy for 2026 to 2030. The strategy builds on recent improvements in local air quality, particularly following the revocation of the Stonepound Crossroads AQMA in December 2024. The strategy emphasises proactive, long-term interventions to maintain good air quality, including reducing emissions from road traffic, supporting a modal shift toward sustainable transport, and expanding electric vehicle infrastructure in partnership with West Sussex stakeholders. It also integrates with the Council's Sustainable Economy Strategy, highlighting the importance of aligning air quality goals with its net-zero ambitions. Finally, the draft strategy underlines the need for cross-agency collaboration, particularly through the Sussex Air Quality Partnership, to deliver coordinated regional action on air quality.

3 AIR QUALITY – POLLUTANTS FOR CONSIDERATION

3.1 Introduction

The pollutants for consideration within MSDC are nitrogen dioxide (NO_2) and particulate matter (PM).

Oxides of nitrogen include nitric oxide (NO) and nitrogen dioxide (NO_2). NO_2 can cause inflammation of the lungs, lead to shortness of breath and coughing, and can reduce immunity to lung infections such as bronchitis. PM_{10} is the fraction of PM that is 10 µm or less in size, and $PM_{2.5}$ is the fraction of PM that is 2.5 µm or less in size. Both can be drawn into the lungs and can cause respiratory illness, cardiovascular illness and mortality.

3.2 Air Quality Standards

3.2.1 European and National Air Quality Standards

Air Quality Directive 2008/50/EC6 introduced legally binding "limit value" targets for the member governments to reduce air pollution to concentrations at which minimal effects on health are likely to occur. The directive was transposed into law through the Air Quality (England) Standards Regulations[7] with air quality objectives and dates by which they were to be achieved. The sensitive locations at which the standards and objectives apply are places where the population is expected to be exposed to the various pollutants over the averaging period in question. For objectives to which an annual mean standard applies, the most common sensitive receptor locations used to measure concentrations are areas of residential housing, since it is reasonable to expect that people living in their homes could be exposed to pollutants over such a period of time. For shorter averaging periods of between 15 minutes, 1 hour or 1 day, the sensitive receptor location can be anywhere where the public could be exposed to the pollutant over these shorter periods of time. The annual mean

[5] Mid Sussex District Council, Mid Sussex District Plan 2014 – 2031. 2018

[6] Council Directive 2008/50/EC of 21 May 2008 on ambient air quality and cleaner air for Europe.

[7] The Air Quality Standards Regulations 2010, SI 2010/1001

objectives 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 Environmental Targets (Fine Particulate Matter) (England) Regulations 2023[8] defines that "*The annual mean concentration target is that by the end of 31st December 2040 the annual mean level of $PM_{2.5}$ in ambient air must be equal to or less than 10 µg/m³ ("the target level")*". The Air Quality Strategy[9] introduces interim targets to be achieved by January 2028. A summary of the objectives and targets is shown in Table 3.1, as amended by the Brexit regulations.

Table 3.1: Air Quality Objectives for NO_2, PM_{10} and $PM_{2.5}$

Pollutant	Air Quality Objectives for Particulates and NO_2		Date to be Achieved By
	Concentration	Measured as	
NO_2	40 µg/m³	Annual mean	31 December 2005
	200 µg/m³ not to be exceeded more than 18 hours in a year	Hourly mean	31 December 2005
PM_{10}	50 µg/m³ not to be exceeded more than 35 times a year	24-hour mean	31 December 2004
	40 µg/m³	Annual mean	31 December 2004
$PM_{2.5}$	10 µg/m³	Annual mean	2040
	12 µg/m³	Annual mean	January 2028
	20 µg/m³	Annual mean	January 2020
	35% reduction in average population exposure relative to 2018	Annual mean	2040
	22 % reduction in average population exposure relative to 2018	Annual mean	2028

The Environment Act 1995[10] introduced the requirement for local authority management of air quality. Part IV of this Act details the duties of local authorities in carrying out their local air quality management (LAQM) to tackle poor air quality. Part of the requirement is for the Review and Assessment of air quality and production of Updating and Screening Assessments (USA) and Status Reports. Where exceedance of these objectives is shown or anticipated, the local authority is required to produce an Air Quality Action Plan to reduce emissions and pollutant concentrations.

4 SITE SETTING & PROPOSED DEVELOPMENT

4.1 Site Setting

The site is approximately 9.4 hectares in size and is located in a suburban area, approximately 1 km northwest of Haywards Heath railway station, at national grid reference (NGR) 532646, 125875, as shown in Figure 4.1.

[8] Statutory instrument. The Environmental Targets (Fine Particulate Matter) (England) Regulations. 2023.

[9] Defra. Air Quality Strategy. Framework for local authority delivery. 2023.

[10] Office of the Deputy Prime Minister. The Environment Act. 1995.

The site previously had agricultural land use. The southwestern boundary is adjacent to Balcombe Road, Borde Hill Lane and Hanlye Lane, which converge at South Lodge Roundabout. While these roads are not classified as 'A' or 'B' roads, they are expected to carry relatively high traffic flows due to their local function and connectivity. As a result, baseline concentrations of NO_2, PM_{10} and $PM_{2.5}$ across the site are expected to be influenced by nearby road traffic emissions, with conditions broadly comparable to those observed at roadside monitoring locations.

The site is bounded:

- To the north by Sugworth Farmhouse on Borde Hill Estate;
- To the east by residential properties with the railway line beyond;
- To the south by residential properties and Balcombe Road
- To the west by residential properties and Borde Hill Lane

Figure 4.1: Site location plan

The site is not situated within or near an Air Quality Management Area (AQMA).

4.2 Proposed Development

The proposed development of Land at North of Balcombe Road comprises the construction of up to 125 residential dwellings with associated open space, landscaping and car parking. As part of the development, vehicular access to the site will be via a new junction on the South Lodge Roundabout.

The transport consultant provided details of the annual average daily traffic (AADT) generated by the proposed development, stating that the development will result in a maximum increase of 266 AADT on a road link (Balcombe Road, south of the site). Section 6.4 shows the trip generation in more detail. The development will result in a total increase of 605 AADT, which is then split at the site boundary, where the access road joins the road network.

The split is as follows:

- Balcombe Road (south) 266

- Hanlye Lane (west) 182
- Borde Hill Lane (north) 157

The proposed development will not result in a significant change in traffic along the local road network, and will not exceed the IAQM criteria for further assessment. This is discussed in more detail further in this document.

5 BASELINE CONDITIONS

5.1 Local Authority Monitoring Data

Reference has been made to the following information sources:

i. MSDC 2025 Air Quality Annual Status Report (ASR) (published June 2025);
ii. HSC 2025 ASR (published July 2025);
iii. Defra UK-Air[11]
iv. Air Quality England[12].

5.1.1 Automatic Monitoring

MSDC only operate one Continuous Monitoring Station (CMS) which is the roadside monitor located in East Grimstead, known as MSAQ43. It is located on London Road in an urban area, approximately 14 km to the northeast of the proposed site and monitors concentrations of NO_2 and PM_{10}. The nearest CMS is operated by Horsham District Council (HDC) located 11 km to the southwest of the site in the AQMA within Cowfold. Even though neither of these stations is representative of conditions at the site, they have both been summarised in Table 5.1 to get an idea of what concentrations are like in built-up urban areas and within an AQMA.

Table 5.1. Summary of CMS annual mean concentrations in proximity of the development site.

Name (Site ID)	Distance to site (direction)	Type	Pollutant	Annual mean concentrations (µg/m³)					AQO
				2020	2021	2022	2023	2024	
Cowfold (HO5)	11.55 SW	Roadside	NO_2	23.6	20.3	21.0	24.6	16.2	**40**
MSAQ43	14.00 NE	Roadside	NO_2	-	-	24.3	21.1	18.7	
			PM_{10}	-	-	18.8	17.0	16.3	**40**

Table 5.1 shows that annual mean concentrations of NO_2 and PM_{10} have remained below the respective AQO since at least 2020 at the two nearest CMS. It is also important to note that pollutant concentrations at the proposed development site are expected to be substantially lower than those recorded at monitoring site HO5 and MSAQ43, as the site is not situated within an urban environment or an AQMA.

The latest ASRs show that the hourly mean concentrations of NO_2 have not exceeded 200 µg/m³ on greater than the allowable 18 occasions permitted by the AQO at either CMS in recent years.

5.1.2 Diffusion Tube Monitoring

MSDC operates a diffusion tube network across the district to measure concentrations of NO_2. Several diffusion tubes in the vicinity of the proposed development are shown in Figure 5.1 and summarised in Table 5.2.

[11] Defra UK Air Website (accessed 24/11/25 via https://uk-air.defra.gov.uk)
[12] Air Quality in England Website (accessed on 24/11/25 via https://airqualityengland.co.uk/)

Figure 5.1: Diffusion tubes in proximity of the development site

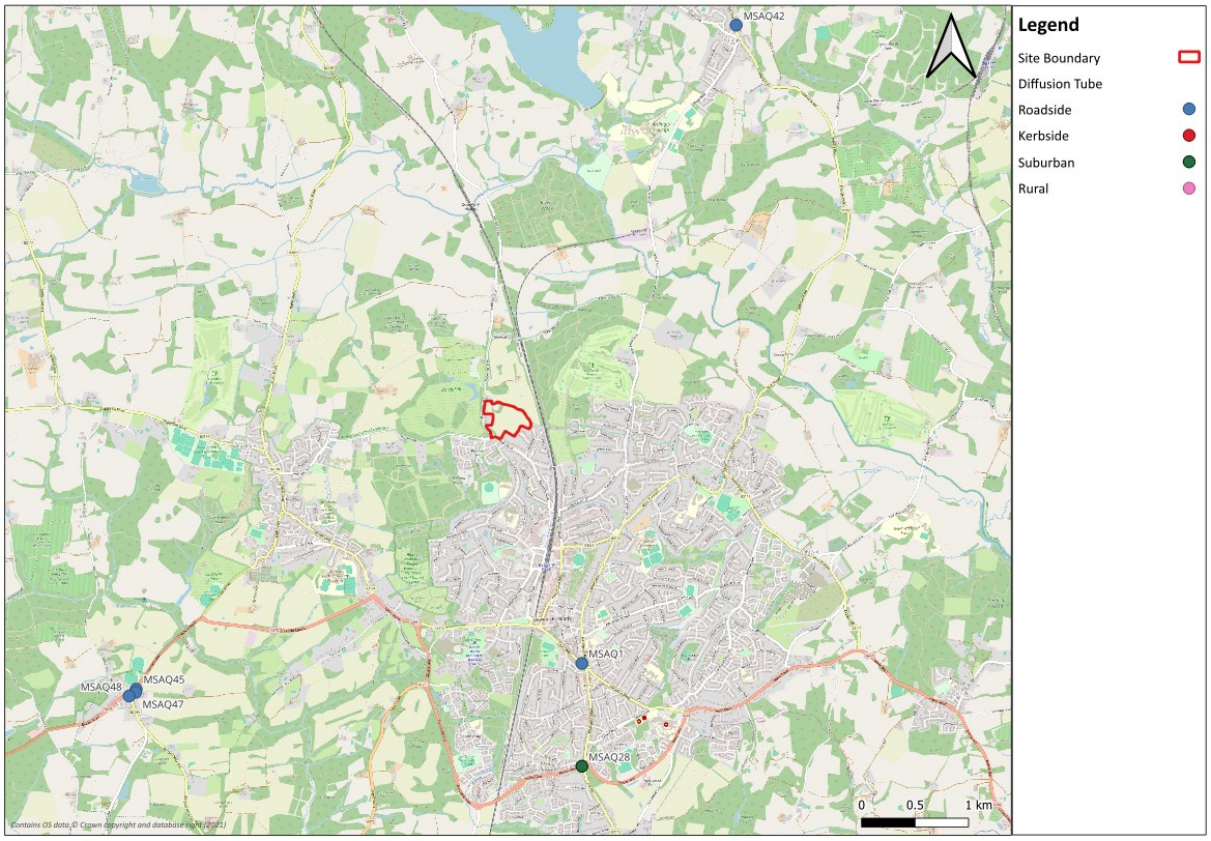

Table 5.2: Annual mean NO_2 concentrations from MSDC diffusion tube monitoring

Site Name (ID)	Distance and direction from site (km)	Type	Annual mean NO_2 concentrations ($\mu g/m^3$)					AQO
			2020	2021	2022	2023	2024	
MSAQ1	2.2 SE	Roadside	12.7	14.8	14.4	12.9	12.3	40
MSAQ28	3.1 SE	Suburban	22.2	22.4	24.5	21.4	21.0	
MSAQ42	4.0 NE	Roadside	-	21.4	20.6	18.6	18.0	
MSAQ45	4.1 SW	Roadside	-	-	-	35.0	32.6	
MSAQ47	4.1 SW	Roadside	-	-	-	-	24.3	
MSAQ48	4.1 SW	Roadside	-	-	-	-	13.2	

Table 5.1 shows that all diffusion tubes in the vicinity of the site stayed well within the AQO in recent years. The nearest diffusion tube (MSAQ1) is located adjacent to South Road (B2272), where relatively high traffic volumes and frequent braking and acceleration near the Sussex Square roundabout have the potential to worsen local air quality. However, monitored NO_2 concentrations at this location remain below the AQO.

After analysing the locations of all of the nearest diffusion tubes, the proposed development is considered to be comparable to concentrations recorded at the suburban diffusion tube MSAQ28.

5.2 DEFRA Background Maps

The UK-AIR background air pollutant concentration maps have also been considered. The background maps are presented in 1 km x 1 km grid squares across England, Wales, Scotland and Northern Ireland. The current version of the background maps (reference year 2021) contains estimates of NOx, NO_2, PM_{10} and $PM_{2.5}$ for the period 2021 through to 2040.

The 2021 reference year background maps are based on monitoring and meteorological data for 2021. Predicted background concentrations for the reference year (2021) and current year (2025) are summarised in Table 5.3.

Table 5.3: Predicted annual mean background map concentrations for grid square centred at [5]32500, [1]25500.

Pollutant	Annual Mean Concentration (µg/m^3)		
	2021	2025	AQO
NO_2	8.70	7.85	**40**
PM_{10}	10.46	10.12	**40**
$PM_{2.5}$	6.48	6.17	**20**

All predicted background concentrations in Table 5.3 indicate that the pollutant concentrations at the proposed development site are well within the respective AQO and have decreased from 2021 to 2025.

5.3 Summary

The proposed development is located at a suburban location and is expected to be influenced by road traffic emissions near to the site access, at the South Lodge roundabout. Following a review of published information sources, baseline concentrations of NO_2, PM_{10} and $PM_{2.5}$ are all assumed to be well within their respective long and short-term AQOs at the proposed development site, even at roadside locations within more built-up areas.

6 AIR QUALITY ASSESSMENT

6.1 Introduction

Developments can introduce new receptors into areas with poor air quality. They can also increase emissions of air pollutants during their construction and operational phases, and so these matters are assessed.

6.2 Site Suitability

The site is not situated within an AQMA and the majority of future occupants are located over 100 m from the nearest significant source of pollution, South Lodge roundabout and the connecting roads.

The proposed development comprises the construction of circa. 120 residential units with associated car parking, landscaping, and open space.

The Local Air Quality Management (LAQM) technical guidance (TG22) states that likely exceedances of the AQO should be assessed in relation to 'the quality of the air at locations which are situated outside of buildings or other natural or man-made structures, above or below ground, and where members of the public are regularly present.'

The focus is therefore on those locations where members of the public are likely to be regularly present and are likely to be exposed for a significant amount of time appropriate to the averaging period of the objective.

Research carried out on behalf of DEFRA[13] concluded that exceedances of the 1-hour mean for NO_2 are unlikely to occur where the annual mean is below 60 µg/m^3. As annual mean concentrations are expected to be below 60 µg/m^3 in the vicinity and within the site, it can therefore be assumed that the short-term (1-hour) mean AQO is not at risk of being exceeded.

From the review of published information sources presented in Section 5, baseline concentrations of NO_2, PM_{10} and $PM_{2.5}$ are anticipated to be well within the respective annual mean and short-term AQOs at the proposed development site.

The site is therefore considered to be suitable for the proposed development from an air quality perspective. Detailed Assessment with dispersion modelling to inform site suitability is not considered to be required, as

[13] AEA Energy and Environment (2008). 'Analysis of the relationship between annual mean nitrogen dioxide concentration and exceedances of the 1-hour mean AQS Objective'

concentrations are not indicated to be over 90% of the AQO and trip generation of the development does not exceed the IAQM guidance.

6.3 Construction Phase

The Proposed Development has the potential to result in emissions of dust and PM_{10} during the construction phase, prior to mitigation. The risk of impacts is assessed in Section 7, with recommended mitigation measures outlined in Section 8.

6.4 Operational Phase

6.4.1 Traffic Emissions

Detailed trips generation figures have been produced by the project's transport consultant, SDP Developers, and shows that the proposed development is anticipated to result in an increase of 605 daily vehicle movements (266 maximum increase on a singular road link), and therefore, a detailed assessment including dispersion modelling is not required. The development will introduce a new junction to create access to the development; however, this is not anticipated to significantly impact traffic flow, and queuing is not expected. Consequently, there will be no significant impact on local air quality. The flows and distribution are shown in Table 6.1.

Table 6.1: two-way AADT development flows on local road network

Road Link	Two-Way Development Flows	
	Traffic Distribution %	AADT
Balcombe Road (south of the site)	44	266
Hanlye Lane (west of the site)	30	182
Borde Hill Lane (north of the site)	26	157
Total	100	605

6.4.2 Building Emissions

The heating and hot water demand is intended to be met by ultra-low NOx boilers or a non-combustion system. Consequently, the proposed development will not introduce any plant that emits significant NOx or PM_{10} concentrations.

6.5 Significance of Effects

The proposed development is in an area of suitable air quality, and there are no significant additional transport or building emissions to consider. Potential construction effects are mitigated through the dust management plan. The air quality effect of the proposed development is therefore considered as "**Not Significant**".

7 CONSTRUCTION DUST RISK ASSESSMENT

7.1 Introduction

The purpose of this assessment is to identify the category of risk from dust emission associated with the demolition, earthworks, construction and track-out phases, and to put in place a suitable management and mitigation strategy, to ensure negative impacts and adverse effects are controlled and reduced.

The first step of the assessment is to conduct screening to establish if there is a need to proceed to detailed assessment. A dust risk assessment typically proceeds if there is a human receptor within 250 m of the boundary of the site or 50 m of the routes used by construction vehicles on the public highway, up to 250 m from the site entrances.

The IAQM guidance indicates that construction impacts on local air quality can be divided into four key areas;

i. Demolition;
ii. Earthworks;
iii. Construction; and
iv. Trackout.

7.2 Dust Emission Magnitude

The dust emission magnitude has been assessed for each of the four key areas above in relation to the Proposed Development. The dust emission magnitude is based on the scale of the anticipated works and is classified as small, medium, or large and is considered prior to mitigation. The following tables have been formatted to demonstrate the criteria that the development is within for the specific measure/detail.

7.2.1 Demolition

The proposed development does not comprise any demolition works and therefore, there is no dust risk associated with demolition.

7.2.2 Earthworks

Table 7.1 shows the IAQM criteria for assessing the dust emission magnitude for earthworks.

Table 7.1: Summary of IAQM criteria and development details for earthworks

IAQM Criteria				Development Details
Measure	**Large**	**Medium**	**Small**	
Total site area	> 110,000 m^2	18,000 m^2 - 110,000 m^2	< 18,000 m^2	Approx. 94,000 m^2
Soil type	Potentially dusty soil type (e.g. clay)	Moderately dusty soil type (e.g. silt)	Large grain soil type (e.g. sand)	Bedrock: Wadhurst Clay Formation – Mudstone and Cuckfield Stone Bed – Sandstone. High to low dust potential.
Heavy earth moving vehicles active at once	> 10	5-10	< 5	5 – 10
Height of bunds	> 6 m	3- 6 m	< 3 m	No bunds

The site is approximately 94,000 m^2 and it is understood that the development will introduce paved haul roads. Due to the size and nature of the development, it is estimated that between five and ten heavy earth-moving vehicles will be active on the site at any given time, and it is not expected that any bunds will be positioned on site.

The British Geological Society (BGS) Open Geology of Britain Viewer indicates that the bedrock geology beneath the site is Wadhurst Clay Formation (mudstone) in the northern section of the site and Cuckfield Stone Bad Formation (sandstone) in the southern section of the site. Mudstone and sandstone have a high to low dust potential when dry.

The potential earthworks dust emission magnitude is considered to be '**Medium'**.

7.2.3 Construction

Table 7.2 shows the IAQM criteria for assessing the dust emission magnitude for construction.

Table 7.2: Summary of IAQM criteria and development details for construction

IAQM Criteria				Development Details
Measure	**Large**	**Medium**	**Small**	
Total building volume	> 75,000 m^3	12,000 m^3 – 75,000 m^3	< 12,000 m^3	Approximately 50,000 m^3
Construction material	High dust potential and on-site concrete batching or sandblasting	Potentially dusty construction material such as concrete	Construction material with low dust potential (e.g. metal cladding or timber)	Brick and tile, no concrete batching on site.

The proposed development comprises the construction of circa. 120 residential dwellings which will result in a total building volume of 12,000 m^3 – 75,000 m^3 (estimated to be approximately 50,000 m^3). It is expected that the dwellings will be two storeys in height and constructed of traditional brick and tile. New access roads will also be constructed.

The potential construction dust emission magnitude is considered to be **'Medium'**.

7.2.4 Trackout

Table 7.3 shows the IAQM criteria for assessing the dust emission magnitude for trackout.

Table 7.3: Summary of IAQM criteria and development details for trackout

IAQM Criteria				Development Details
Measure	**Large**	**Medium**	**Small**	
HDV movements	> 50 HDV outward movements in any one day	20 – 50 HDV outward movements in any one day	< 20 HDV outward movements in any one day	20-50 HDV outward movements
Surface material	Potentially dusty surface material (e.g. high clay content)	Moderately dusty surface material (e.g. high clay content)	Surface material with low dust potential	Clay, silt and gravel. High to low dust potential
Unpaved road length	> 100 m	50 – 100 m	< 50 m	Haulage roads anticipated to be put in place during early stages of construction. Some areas of the site will use unpaved roads to access construction areas.

Trackout dust impacts are associated with HDVs leaving the site after moving over unpaved ground where they will accumulate mud and dirt that can then be tracked out onto the public roads. Trackout impacts are linked to the number of outward HDV movements in a day.

Due to the size of the site and the nature of the development, haulage roads are expected to be constructed during the early stages of the works. These will provide hardstanding routes for deliveries and site traffic, reducing the need to travel across unpaved areas. While some work zones will still require access via unpaved ground, the use of designated haulage roads will minimise vehicle movements on bare earth. As a result, the potential for dust generation from exposed ground will be limited.

The potential dust emission magnitude in the absence of mitigation is considered to be **'Medium'**.

7.2.5 Summary

A summary of the assessed dust emission magnitude, for individual construction activities is displayed in Table 7.4.

Table 7.4: Summary of the potential Dust Emission Magnitude

Phase	Dust Emission Magnitude
Demolition	**N/A**
Earthworks	**Medium**
Construction	**Medium**
Trackout	**Medium**

7.3 Sensitivity of the Area

7.3.1 Introduction

The overall sensitivity of the area (as determined by the number and sensitivity of receptors within a given distance) is summarised in the following sections. Figures 7.1 and 7.2 below show the 20 m, 50 m and 100 m buffers from the site boundary and 20 m and 50 m buffers from the anticipated trackout route. Professional judgement has been applied, and therefore, for trackout impacts, the trackout route for potential dust effects has been considered to be up to 250 m from the site exit, and receptors within 50 m of the anticipated routes for HDVs have been considered.

Figure 7.1: Distance buffers from the development site.

Figure 7.2: buffers from the anticipated trackout route

7.3.2 Dust Soiling Effects

The sensitivity of receptors to dust soiling effects is dependent upon the duration and frequency that people would expect to be exposed to the effects. Residential receptors can be expected to enjoy a high level of amenity and background levels of dust soiling are expected to be low. It can be expected that dust soiling would diminish the aesthetics of their property, and such receptors are therefore assessed as being of high sensitivity. Residential properties, schools, nurseries and care homes are considered to be of high sensitivity for the purpose of this assessment.

Medium sensitivity receptors are those where users would expect to enjoy a reasonable level of amenity but would not reasonably expect to enjoy the same level of amenity as in their home or people or property would not reasonably be expected to be present here continuously or regularly for extended periods as part of the normal pattern of use of the land. Places of work and community uses are considered to be of medium sensitivity for the purpose of this assessment.

Low sensitivity receptors are those where the enjoyment of amenity would not reasonably be expected, or property would not reasonably be expected to be diminished in appearance, aesthetics or value by soiling. Exposure is of a transient nature and people or property would reasonably be expected to be present only for limited periods of time as part of the normal pattern of use of the land.

The buildings closest to the site are residential properties, which are considered to be of high sensitivity with respect to dust soiling. Figure 7.1 and 7.2, shows there are between 10-100 high-sensitivity receptors located within 20 m of the site boundary and the anticipated trackout route.

The sensitivity of the surrounding area with regards to dust soiling effects is therefore considered to be '**High'** with respect to activities undertaken on site and along the trackout route.

7.3.3 Human Health

For health effects of PM_{10}, sensitivities are based on whether or not the receptor is likely to be exposed to elevated concentrations over a 24-hour period.

High-sensitivity receptors are those locations where members of the public are exposed over a time period relevant to the air quality objective for PM_{10} (eight hours or more in a 24-hour period). Indicative examples include residential properties, hospitals, schools, nurseries and residential care homes.

Workers are considered to be of medium sensitivity for the purpose of this assessment and low sensitivity receptors are those locations where human exposure is transient e.g. public footpaths, playing fields, parks and shopping streets.

With reference to monitoring data presented in Section 5, annual mean concentrations of PM_{10} are predicted to be below 24 $\mu g/m^3$ in the vicinity of the site and it is predicted that 10-100 high-sensitivity will be present within 50 m of the site and the anticipated trackout route.

Taking into account the number and sensitivity of receptors identified in the dust-soiling section above and assumed baseline concentrations of PM_{10}, the sensitivity of the surrounding area with regards to human health impacts is considered to be '**Low**'.

7.3.4 Ecological Effects

With reference to the Multi Agency Geographic Information for the Countryside (MAGIC) website[14] there are no sensitive ecological sites within 50 m of the site or trackout route. Therefore, the ecological impact of the proposed development has not been considered further.

7.3.5 Summary

The sensitivity of the area surrounding the site is summarised in Table 7.5. For trackout impacts, receptors have been included up to 250 m from the site entrance and within 50 m of the anticipated routes for HDVs.

Table 7.5: Sensitivity of the Area

Receptor Sensitivity	Sensitivity of the Surrounding Area		
	Earthworks	Construction	Trackout
Dust soiling	High	High	High
Human health	Low	Low	Low
Ecological	N/A	N/A	N/A

7.4 Risk of Impacts

When the dust emission magnitude is combined with the sensitivity of the area, the risk of impacts with no mitigation applied can be determined. This determines the level of mitigation to be applied. The summary of the dust risk assessment is presented in Table 7.6.

Table 7.6: Summary of Dust Risk Impacts

Summary	Earthworks	Construction	Trackout
Dust soiling	Medium	Medium	Medium
Human health	Low	Low	Low

[14] www.magic.gov.uk (accessed 25/11/2025)

In summary, the site is considered as a **'Medium Risk'** during all phases for dust soiling effects and a **'Low Risk'** during all phases for human health effects. The dust risk is used to define the amount of site-specific mitigation that is required. The mitigation measures are described in Section 8.

8 CONSTRUCTION MITIGATION MEASURES

8.1 Construction Phase

With reference to the IAQM guidance, the following measures in Table 8.1 form the dust management plan and are the IAQM recommended measures based on the risk assessment presented in section 7:

Table 8.1 Dust Management Plan

Reference	Mitigation Measure	Notes
Communications		
CM1	Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.	
CM2	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.	
CM3	Display the head or regional office contact information.	
CM4	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, realtime PM_{10} continuous monitoring and/or visual inspections.	
Site Management		
SM1	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.	
SM2	Make the complaints log available to the local authority when asked.	
SM3	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		
MT1	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.	
MT2	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.	
MT3	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.	
MT4	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.	2 no. MCERTS dust monitors on site transects.
Preparing and maintaining the site		
PM1	Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.	
PM2	Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.	
PM3	Fully enclose site or specific operations where there is a high potential for dust production and the site is actives for an extensive period.	
PM4	Avoid site runoff of water or mud.	
PM5	Keep site fencing, barriers and scaffolding clean using wet methods.	
PM6	Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below.	
PM7	Cover, seed or fence stockpiles to prevent wind whipping.	

Operating vehicle/machinery and sustainable travel		
OV1	Ensure all on-road vehicles comply with the requirements of the London Low Emission Zone and the London NRMM standards.	Best practice but not required as not in the ULEZ
OV2	Ensure all vehicles switch off engines when stationary.	
OV3	Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.	
OV4	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).	
OV5	Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing).	
Operations		
OP1	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.	
OP2	Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.	
OP3	Use enclosed chutes and conveyors and covered skips.	
OP4	Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.	
OP5	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		
WM1	Avoid bonfires and burning of waste materials.	
Earthworks		
EW1	Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.	
EW2	Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable.	
EW3	Only remove the cover in small areas during work and not all at once.	
Construction		
CS1	Avoid scabbling (roughening of concrete surfaces) if possible.	
CS2	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.	
CS3	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.	
Trackout		
TO1	Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use.	
TO2	Avoid dry sweeping of large areas.	
TO3	Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.	
TO4	Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.	
TO5	Record all inspections of haul routes and any subsequent action in a site log book.	
TO6	Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.	
TO7	Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).	
TO8	Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits.	

TO9	Access gates to be located at least 10 m from receptors where possible.

8.2 Operational Phase

8.2.1 Introduction

Guidance on mitigating air quality impacts is provided in a document produced by the IAQM. The guidance emphasises that all developments should adopt good design principles to reduce emissions and minimise cumulative impacts regardless of the outcome of individual air quality assessments.

8.2.2 Proposed Operational Mitigation Measures

The site is located in an area where concentrations of all pollutants are expected to be well within the relevant AQOs. The site is considered to be suitable for development without the requirement for mitigation measures to reduce exposure.

The proposed development is not anticipated to generate a significant increase of AADT. Consequently, the development will not contribute any significant additional emissions to the local road network.

The heating and hot water demand for the scheme is anticipated to be met ultra-low NOx boilers or a non-combustion system (e.g. air source heat pumps). This approach ensures good air quality design is applied as minimal localised emissions of NOx or PM will be introduced, if any.

8.3 Summary

The overall effect on local air quality from the construction and operation of the proposed development is considered to be 'not significant' provided the construction mitigation measures in the dust management plan are in place.

9 EMISSIONS MITIGATION ASSESSMENT

In accordance with the published *Air Quality and Emission Mitigation Guidance for Sussex*, an emissions mitigation assessment has been carried out.

The emissions mitigation assessment provides a basis for quantifying the financial commitment required for offsetting potential development-generated emissions. The assessment calculates a damage cost by utilising the current DEFRA Emission Factor Toolkit (EFT) version 13.1[15] to estimate the annual link emissions associated with the additional development generated traffic over a 5-year period.

The calculation attributes a monetary value to those emissions using the figures per tonne outlined by Defra air quality damage cost guidance[16].

The total trip generation in a 24-hour period is 605 vehicles, with 0% HGVs. The guidance follows the standard procedure of assuming an average trip distance of 10 km/trip and the average speed as 50 kph. The calculation was undertaken for both NOx and PM emissions for the base year of 2028 (estimated opening year). The road type 'urban (not London)' has been used within the EFT. The EFT input and output factors have been shown in Table 9.1.

[15] DEFRA Emissions Factor Toolkit version 13.2, 2025. Accessed: https://laqm.defra.gov.uk/air-quality/air-quality-assessment/emissions-factors-toolkit/

[16] DEFRA air quality appraisal: damage cost guidance, 2023. Accessed: https://www.gov.uk/government/publications/assess-the-impact-of-air-quality/air-quality-appraisal-damage-cost-guidance

Table 9.1: EFT input and output

Factor	Value
% HDV	0
AADT	605
Speed assumed (km/h)	50
Distance travelled	10 km
Year	2028 (estimated opening year)
Road type	Urban not London
EFT NOx Kg/Year	279.84943
EFT $PM_{2.5}$ Kg/Year	37.71487

As the NO_2 and $PM_{2.5}$ concentrations at the proposed development site and surrounding area are well below the AQO, the low damage costs have been used. Table 9.2 shows the damage cost per tonne (using 2022 damage costs) and calculates the yearly damage cost and the total damage cost of the development over a 5-year period. Even though it is expected that usage of the low damage costs will suffice as the flows are outside of an AQMA and in areas with low NO_2 and $PM_{2.5}$ concentrations, Table 9.3 shows the calculations using the central damage costs.

Table 9.2 Operational Emission damage costs for NO_2 and $PM_{2.5}$ based on low damage cost

Kg/annum (2027)	Damage cost per tonne (2022 costs)	Damage cost 1 year £ (without mitigation)	Damage Cost 5 year £ (without mitigation)
NOx 279.84943	£1,945 per tonne (road transport low)	£ 544.31	£ 2,621.54
$PM_{2.5}$ 37.71487	£33,533 per tonne (road transport low)	£1,264.69	£ 6,323.46
5 Year Total (NO_X+$PM_{2.5}$)	£ 9,045.00		

Table 9.3 Operational Emission damage costs for NO_2 and $PM_{2.5}$ based on central damage cost

Kg/annum (2027)	Damage cost per tonne (2022 costs)	Damage cost 1 year £ (without mitigation)	Damage Cost 5 year £ (without mitigation)
NOx 161.00874	£11,682 per tonne (road transport central)	£ 3,269.20	£ 16,346.00
$PM_{2.5}$ 19.14820	£84,548 per tonne (road transport central)	£ 3,188.72	£ 15,943.58
5 Year Total (NO_X+$PM_{2.5}$)	£ 32,289.59		

The Air Quality and Emission Mitigation Guidance for Sussex provide standard mitigation measures that applies to all major developments:

- All gas-fired boilers to meet < 40 mg NOx/kWh
- Provide one electric vehicle (EV) charging point per dwelling with dedicated parking or 1 charging point per 10 spaces (unallocated parking).

An emissions mitigation statement will be produced as part of a planning condition discharge and proposed mitigation to meet the agreed emissions damage costs.

10 CONCLUSIONS

Anderson Acoustics Ltd was commissioned by the Fairfax Acquisitions Ltd to undertake an Air Quality Assessment for the proposed development at Land North of Balcombe Road, Haywards Heath. The proposed development comprises the construction of up to 125 residential dwellings.

The site is not situated within an AQMA, and baseline concentrations of monitored air pollutants are well below the annual and short-term AQOs based on a review of published data sources. No specific mitigation

measures are considered necessary to reduce future occupants' exposure to air pollution, and the site is considered to be suitable for the proposed use.

There is a 'medium risk' of dust soiling during all phases of construction and a 'low risk' for human health impacts during all stages of construction, prior to the consideration of mitigation. Recommended mitigation measures are outlined in Table 8.1. With the proposed mitigation in place for the duration of the construction works, the overall effect on local air quality is judged to be 'not significant'.

As the proposed development is expected to generate a net increase of 605 daily trips, emissions damage costs have been calculated to be £9,045.00 for low damage costs for NOx and $PM_{2.5}$ over a 5-year period. The proposed development heating is expected to be through an ultra-low gas boiler or a non-combustion system (which will not result in emissions of NOx or PM on site), the overall effect of the operational scheme on local air quality is judged to be 'not significant'.

Accordingly, the proposed development is considered a suitable use of the site and compliant with relevant air quality policy and guidance.