

RUSTCOTE AVENUE, BANBURY SITE 3

AIR QUALITY ASSESSMENT

VC-0050697-AQ-RP-0001

R05

SEPTEMBER 2021



VANGUARDIA
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1. INTRODUCTION

- 1.1. Vanguardia has been commissioned by Paloma Capital to undertake an air quality assessment, to support a planning application on land forming part of the Jacobs Douwe Egberts (JDE) site in Banbury.
- 1.2. The application site is located circa 1 mile north east of Banbury Town Centre and forms part of the wider JDE site, located on Ruscot Avenue, and within the jurisdiction of Cherwell District Council (CDC). The National Grid Reference for the centre of the site is 444985, 241501. The location of the application site is shown in Figure 1 (Site 3).

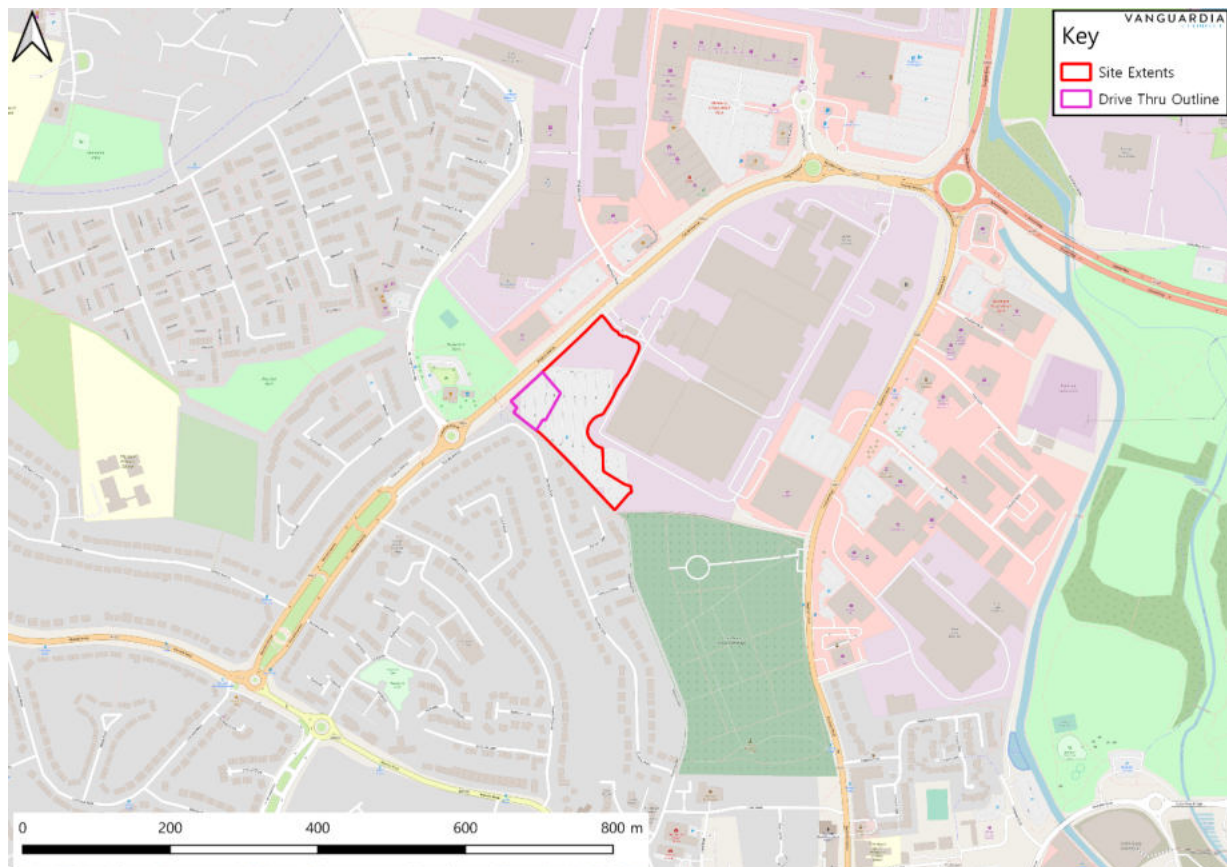


Figure 1 Site Location (Site 3)

- 1.3. An air quality assessment was submitted previously for 'Site 1.' Site 1 involved the change of use of an existing warehouse unit to B1c/B2/B8 and the creation of a new access onto Southam Road. The Site 1 application was consented under reference 18/0126. The building to which Site 1 included previously formed part of the JDE operations and was served by the main JDE car park. The building now has its own access and car parking which is separate from the JDE operations completely.

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- 1.4. The current plans (Sites 2 and 3) involve the relocation and redevelopment of the existing car parking area at the southern end of the Ruscote Avenue frontage. This is being undertaken in two sites as follows:
- Site 2 consists of the demolition of existing vacant office building and erection of a surface level car park to providing 215 replacement car parking spaces; and
 - Site 3 consists of the comprehensive redevelopment of car park, to provide a drive-thru café within Use Class E; together with associated car parking, servicing and access; landscaping and all associated works.”
- 1.5. The proposed site layout is illustrated in Appendix A.
- 1.6. As noted above, no air quality assessment was required for ‘Site 2.’ However, it is understood David Tucker Associates have included the changes in vehicular numbers as part of the traffic information provided for Site 3.
- 1.7. The application site is not located within an Air Quality Management Area (AQMA), however, two AQMA’s are located near to the main road access routes to the site. Both AQMA’s are declared for breaches of the nitrogen dioxide, (NO₂) annual mean objective.
- 1.8. This assessment has been undertaken to assess if the proposed development is likely to give rise to any adverse air quality impacts, and to establish if the site is suitable for the proposed development with respect to the prevailing air quality.

2. POLICY CONTEXT

EUROPEAN LEGISLATION

- 2.1. The following text is taken from the legislation.gov.uk website¹ and sets out how EU Legislation will be retained in the United Kingdom after the Brexit transition:

“The UK is no longer a member of the European Union. EU legislation as it applied to the UK on 31 December 2020 is now a part of UK domestic legislation, under the control of the UK’s Parliaments and Assemblies, and is published on legislation.gov.uk.

EU legislation which applied directly or indirectly to the UK before 11.00 p.m. on 31 December 2020 has been retained in UK law as a form of domestic legislation known as ‘retained EU legislation’. This is set out in sections 2 and 3 of the European Union (Withdrawal) Act 2018 (c. 16).”

- 2.2. Air pollutants at high concentrations can give rise to adverse effects upon the health of both humans and ecosystems. The European Union (EU) legislation on air quality forms the basis for the national UK legislation and policy.
- 2.3. The EU Framework Directive 2008/50/EC came into force in May 2008 and sets out legally binding limits for concentrations of the major air pollutants that can impact on public health. This Directive came into force in England in June 2010. Amendments to this Directive was made following amendments to the 2008/50/EC and 1004/107/EC on air quality made by Directive 2015/1480/EC. The updated Directive, The Air Quality Standards (Amendment) Regulations 2016, came into force on 31st December 2016².

NATIONAL LEGISLATION

- 2.4. Part IV of the Environment Act 1995³ requires local authorities to review and assess the air quality within their boundaries. As a result, the Air Quality Strategy was adopted in 1997, with national health-based standards and objectives set out for the, then, eight key air pollutants including benzene, 1-3 butadiene, carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter and sulphur dioxide.
- 2.5. The purpose of the Air Quality Strategy was to identify areas where air quality was unlikely to meet the objectives prescribed in the regulations. The strategy was reviewed in 2000 and the

¹EU legislation and UK law. Accessible at: <https://www.legislation.gov.uk/eu-legislation-and-uk-law>

² Statutory Instrument, 2016. The Air Quality Standards Regulations’, No. 1184. Queen’s Printer of Acts of Parliament.

³ The Environment Act (1995). HMSO, London.

amended Air Quality Strategy for England, Scotland, Wales and Northern Ireland (2000) was published. This was followed by an Addendum in February 2003 and in July 2007, when an updated Air Quality Strategy was published.

- 2.6. The pollutant standards relate to ambient pollutant concentrations in air, set on the basis of medical and scientific evidence regarding how each pollutant affects human health. Pollutant objectives are the future dates by which each standard is to be achieved, taking into account economic considerations, practical and technical feasibility.
- 2.7. The air quality objectives are managed through the Local Air Quality Management, (LAQM) regime, which is defined within the Air Quality (England) Regulations 2000, (SI 928), The Air Quality (England) (Amendment) Regulations 2002, (SI 3043). Table 1 below shows the objectives with the number of exceedances in each year that are permitted (where applicable) as set out in the Air Quality Standards (Amendment) Regulations 2016, which are relevant to this assessment.

Table 1 Air Quality Objectives

Pollutant	Time Period	Objective
Nitrogen Dioxide (NO ₂)	1-hour Mean	200 µg/m ³ not to be exceeded more than 18 times a year
	Annual Mean	40 µg/m ³
Fine Particles (PM ₁₀)	24-hour Mean	50 µg/m ³ not to be exceeded more than 35 times a year
	Annual Mean	40 µg/m ³ *
Fine Particles (PM _{2.5})	Annual Mean	25 µg/m ³ **

*A proxy value of 32 µg/m³ as an annual mean is used in this assessment to assess the likelihood of the 24-hour mean PM₁₀ objective being exceeded. Measurements have shown that, above this concentration, exceedances of the 24-hour mean PM₁₀ objective are possible (Defra, 2009).

**The PM_{2.5} objective, which is to be met by 2020, is not in Regulations and there is no requirement for local authorities to meet it.

STATUTORY NUISANCE

- 2.8. Under Part III of the Environmental Protection Act (1990)⁴, it is the duty of the local authorities to take steps as reasonably practical to investigate issues that could be a 'statutory nuisance', which include complains of:

- a) *any premises in such a state as to be prejudicial to health or a nuisance;*
- b) *smoke emitted from premises so as to be prejudicial to health or a nuisance;*
- c) *fumes or gases emitted from premises so as to be prejudicial to health or a nuisance*

⁴ UK Public General Acts, 1990. *Environmental Protection Act 1990, Chapter 43. Queen's Printer of Acts of Parliament.*

d) any dust, steam, smell or other effluvia arising on industrial, trade or business premises and being prejudicial to health or a nuisance;

e) any accumulation or deposit which is prejudicial to health or a nuisance;

[...]"

2.9. The local authority must serve an abatement notice on the person, premises owner or occupier if one of the statutory nuisances above occur and is unreasonably interfering with the use or enjoyment of someone's premises and/or is prejudicial to health. Should the abatement notice not be complied with, penalties such as a fine or prosecution. However, it is considered as a defence if the best practicable means to stop or reduce a nuisance are employed.

2.10. Dust is the generic term used in the British Standard document BS 6069 (Part Two)⁵, to describe particulate matter in the size range 1–75µm (micrometres) in diameter. This document has been withdrawn and has been replaced with the BS ISO 4225:2020⁶ document. Dust nuisance is the result of the perception of the soiling of surfaces by excessive rates of dust deposition.

PLANNING POLICY

National Planning Policy

2.11. The National Planning Policy Framework (NPPF)⁷ (2021) sets out the planning policy for England, to help achieve sustainable development within the planning sector.

2.12. Paragraph 105 states:

"The planning system should actively manage patterns of growth in support of these objectives. Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help to reduce congestion and emissions, and improve air quality and public health. However, opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in both plan-making and decision-making. However, opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in both plan-making and decision-making"

2.13. Paragraph 174 states:

⁵The British Standards Institution, 1994. BS6069-2:1994 - Characterization of air quality.

⁶The British Standards Institution, 2020. BS ISO 4225:2020 - Air quality.

⁷Ministry of Housing, Communities & Local Government, 2021. National Planning Policy Framework.

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

[...]

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

[...]”

2.14. Paragraph 185 states:

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

2.15. Paragraph 186 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.”

2.16. Paragraph 188 states:

“The focus of planning policies and decisions should be on whether proposed development is an acceptable use of land, rather than the control of processes or emissions (where these are subject to separate pollution control regimes). Planning decisions should assume that these regimes will operate effectively. Equally, where a planning decision has been made on a particular development, the planning issues should not be revisited through the permitting regimes operated by pollution control authorities.”

2.17. The NPPF also sets out the national planning policy on biodiversity and conservation. This emphasises that the planning system should seek to minimise effects on and provide net gains in biodiversity, wherever possible, as part of the Government's commitment to halting decline and establishing coherent and resilient ecological networks.

2.18. The NPPF is supported by Planning Practice Guidance (PPG)⁸ (DCLG, 2021), which includes guiding principles on how planning can take account of the impacts of new development on air quality.

2.19. Paragraph 001 Reference ID: 32-001-20191101 states:

"The 2008 Ambient Air Quality Directive sets legally binding limits for concentrations in outdoor air of major air pollutants that affect public health such as particulate matter (PM₁₀ and PM_{2.5}) and nitrogen dioxide (NO₂).

2.20. The UK also has national emission reduction commitments for overall UK emissions of 5 damaging air pollutants:

- fine particulate matter (PM_{2.5})
- ammonia (NH₃)
- nitrogen oxides (NO_x)
- sulphur dioxide (SO₂)
- non-methane volatile organic compounds (NMVOCs)

As well as having direct effects on public health, habitats and biodiversity, these pollutants can combine in the atmosphere to form ozone, a harmful air pollutant (and potent greenhouse gas) which can be transported great distances by weather systems. Odour and dust can also be a planning concern, for example, because of the effect on local amenity."

2.21. Paragraph: 005 Reference ID: 32-005-20191101 states:

"Whether air quality is relevant to a planning decision will depend on the proposed development and its location. 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.

⁸ National Planning Practice Guidance web-based resource. Accessible at: <http://planningguidance.planningportal.gov.uk/>

2.22. Where air quality is a relevant consideration the local planning authority may need to establish:

- The 'baseline' local air quality, including what would happen to air quality in the absence of the development;
- Whether the proposed development could significantly change air quality during the construction and operational phases (and the consequences of this for public health and biodiversity); and
- Whether occupiers or users of the development could experience poor living conditions or health due to poor air quality".

National Clean Air Strategy

2.23. The Clean Air Strategy (CAS)⁹ was published in January 2019 and sets out how the government will improve air quality nationally. The document aims to tackle the issue of air quality across all parts of government and society to protect public health and the environment, and identifies what needs to be done to achieve this. The document complements the Industrial Strategy (archived), the Clean Growth Strategy¹⁰ and the 25 Year Environment Plan¹¹ and is a key part of delivering the government's 25 Year Environmental Plan.

2.24. The document has adopted international targets to reduce emissions of fine particulate matter, ammonia, nitrogen oxides, sulphur dioxide and non-methane volatile organic compounds by 2020 and 2030. The document proposes tougher goals to cut public exposure to particulate matter pollution, as recommended by the World Health Organisation.

2.25. The strategy not only targets the reduction of emissions, but also a reduction in exposure.

Reducing Emissions from Road Transport: Road to Zero Strategy

2.26. The *Reducing emissions from road transport: Road to Zero Strategy*¹² (2018) document produced by the Office for Low Emission Vehicles (OLEV), Office for Zero Emission Vehicles (OZEV) and the Department for Transport (DfT) sets out how the government aims to end the sale of new conventional petrol and diesel cars and vans by 2040, with almost every car and van having zero emissions by 2050. Furthermore, the aim of the government is to see at least 50%, and as many as 70%, of new car sales being ultra-low emission by 2030 (and up to 40% of new van sales).

⁹ Department for Environment, Food and Rural Affairs, 2019. *Clean Air Strategy 2019*

¹⁰ Department for Business, Energy and Industrial Strategy, 2017. *The Clean Growth Strategy*

¹¹ Department for Environment, Food and Rural Affairs, 2018. *A Green Future: Our 25 Year Plan to Improve the Environment*

¹² Department for Transport, Office for Low Emission vehicles and Office for Zero Emission Vehicles, 2018. *Reducing emissions from road transport: Road to Zero Strategy*

- 2.27. A number of measures have been set out in the document which outline how the government will support this gradual transition, some of which are consumer incentives, research and development and innovation support based.
- 2.28. Since this document was released, the Prime Minister has announced that, as part of the Ten Point Plan for a Green Industrial Revolution¹³ (2020), the government will end the sale of new petrol and diesel cars and vans from 2030, 10 years earlier than set out in the document above.
- 2.29. This ambitious plan will see road traffic-related NO_x emissions to reduce significantly over the coming decades, likely beyond the scale of reductions forecast in air quality tools used to assess air quality impacts.

LOCAL POLICIES

- 2.30. Cherwell District Council Local Plan¹⁴ was originally adopted in July 2015 and forms part of the Local Development Plan and does contain a policy that relates to air quality.
- 2.31. Policy ESD 10: Protection and Enhancement of Biodiversity and the Natural Environment states:

“Protection and enhancement of biodiversity and the natural environment will be achieved by the following:

[...]

- *Air quality assessments will also be required for development proposals that would be likely to have a significantly adverse impact on biodiversity by generating an increase in air pollution.*

[...]”

- 2.32. Policy ESD 15: Protection and Enhancement of Biodiversity and the Natural Environment, states:

“[...]

New development proposals should:

“Integrate and enhance green infrastructure and incorporate biodiversity enhancement features where possible (see Policy ESD 10: Protection and Enhancement of Biodiversity and

¹³ Department for Transport and Office for Zero Emission Vehicles, 2020, *The Ten Point Plan for a Green Industrial Revolution*

¹⁴ Cherwell District Council (2015) Local Plan

the Natural Environment and Policy ESD 17 Green Infrastructure). Well designed landscape schemes should be an integral part of development proposals to support improvements to biodiversity, the micro climate, and air pollution and provide attractive places that improve people's health and sense of vitality.

[...]"

2.33. Saved policies of the Adopted Cherwell Local Plan 1996¹⁵ remain part of the statutory Development Plan to which regard must be given in the determination of planning applications.

2.34. Policy ENV1, one of the saved policies, states:

"Development which is likely to cause materially detrimental levels of noise, vibration, smell, smoke, fumes or other type of environmental pollution will not normally be permitted".

AIR QUALITY ACTION PLAN

National Air Quality Action Plan

2.35. Defra has produced an Air Quality Plan¹⁶ to tackle roadside nitrogen dioxide (NO₂) throughout the United Kingdom. Along with a package of infrastructure, initiatives and grants, the plan requires Local Authorities to produce local action plans by March 2018, with the aim of reducing the air quality concentrations below the objective as soon as practically possible, should they be predicting exceedances of the air quality objectives beyond 2020.

Local Air Quality Action Plan

2.36. CDC currently has four Air Quality Management Area's declared for NO₂, due to vehicular emissions on main roads. The site is not located within an AQMA, but it is likely people utilising the proposed development will utilise highway links which are included within the AQMA.

2.37. In March 2017 Cherwell District Council released an Air Quality Action Plan¹⁷, which sets out measures to improve air quality. The document sets out five broad topics to improve air quality:

- *"Policy guidance and development control*
- *Promoting low emission transport*

¹⁵ Cherwell District Council, (1996). *Cherwell Local Plan*.

¹⁶ Department for Environment, Food and Rural Affairs, 2018. *UK plan for tackling roadside nitrogen dioxide concentrations*

¹⁷ Cherwell District Council (2017) *Air Quality Action Plan*

- *Promoting travel alternatives to private vehicle use*
- *Transport planning and infrastructure*
- *Public information”*

2.38. Progress on these measures can be seen in the latest air quality annual status report (ASR).

3. ASSESSMENT APPROACH

CONSTRUCTION IMPACTS

- 3.1. During the construction phase, activities may lead to the generation of particulate matter (dust), as well as gaseous emissions from construction vehicles and stationary plant. These emissions could give rise to potential adverse impacts upon human / ecological health.
- 3.2. There is currently no formal assessment criterion for dust. Therefore, the approach developed by the Institute of Air Quality Management (IAQM) (2016)¹⁸, has been utilised as part of this assessment. The assessment consists of a five step processes to assess the potential level of risks, (Large, Medium, Small or Negligible), regarding the four main phases of development, (demolition, earthworks, construction, and trackout). The assessment includes consideration of pre-mitigation, and post-mitigation impacts, based upon the scale and nature of the development.
- 3.3. The approach states that an assessment will normally be required where there are:
 - residential dwellings within 350 m of the site boundary and/or within 50 m of the routes used by construction vehicles on the local highway network and up to 500 m from site entrances; and/or
 - Ecological site within 50 m of the site boundary or within 50 m of the route(s) used by construction vehicles on the public highway, up to 500 m from the site entrance(s).
- 3.4. An ecological site refers to any sensitive habitat that is susceptible to dust soiling. For locations with a statutory designation, such as Ramsar Sites, Sites of Specific Scientific Interest (SSSI), Special Areas of Conservation (SACs) and Special Protection Areas (SPAs), consideration should be given as to whether the particular site is sensitive to dust. Some non-statutory sites (such local nature reserves) may also have to be considered if appropriate.
- 3.5. The degree of risk is then derived by combining the level of the risk, and the sensitivity of the area. To note, not all the criteria for a particular risk class need to be met for magnitude or significance. It is suggested in Institute of Air Quality Management (IAQM) (2016) guidance that other criteria, (such as professional judgement) can be used to justify the assessment.
- 3.6. The full Construction Dust Impact Assessment methodology is set out in Appendix B and the assessment is summarised in Section 5.

¹⁸ Institute of Air Quality Management, 2016. *Guidance on the Assessment of Dust from Demolition and Construction*.

OPERATIONAL IMPACTS

Environmental Protection UK (EPUK) & IAQM Land-Use Planning and Development Control: Planning for Air Quality

- 3.7. Another key guidance document which has been used to determine the potential for impacts upon air quality is the EPUK & IAQM (2017) *Land-Use Planning and Development Control: Planning for Air Quality*.¹⁹ document.
- 3.8. This guidance document provides indicative criteria for the requirements of an Air Quality Impact Assessment. The following criteria have been considered as part of this assessment for the human receptor element of the assessment:

Step 1

If any of the following apply to the development:

- Contains 10 or more residential units or a site area of more than 0.5ha; or
- Contains more than 1,000 m² of floor space for all other uses or a site area greater than 1ha.

Coupled with any of the following:

- The development has more than 10 parking spaces; or
- The development will have a centralised energy facility or other centralised combustion process.

Step 2

A change of cars / LDV's (light duty vehicles) flow of:

- More than 100 Annual Average Daily Traffic (AADT) within or adjacent to an Air Quality Management Area (AQMA); or
- More than 500 AADT elsewhere.

A change of HDV's (heavy duty vehicles) flow of:

- More than 25 AADT within or adjacent to an AQMA; or
- More than 100 AADT elsewhere.

¹⁹ Environmental Protection UK & Institute of Air Quality Management (EPUK & IAQM), 2017. *Land-Use Planning & Development Control: Planning for Air Quality*, EPUK & IAQM, London

3.9. Should these criteria not be met, then the guidance documents consider air quality impacts associated with a scheme to be negligible and no further assessment is required.

3.10. This is further discussed in Section 6.

4. BASELINE CONDITIONS

AIR QUALITY REVIEW AND ASSESSMENT

- 4.1. Under the Air Quality Strategy there is a duty on all Local Authorities to consider the air quality within their boundaries and to report annually to Defra. Local air quality management in the Banbury area has been assessed by CDC through the national Review and Assessment process, in fulfilment of Part IV of the Environmental Act 1995.
- 4.2. CDC has been compliant with the all the pollutants set out in the Air Quality Strategy, apart from nitrogen dioxide (NO₂). The authority has declared four Air Quality AQMA's along sections of the road network within its jurisdiction, due to its non-compliance with the nitrogen dioxide (NO₂) annual mean objective.

LOCAL AIR QUALITY MONITORING

- 4.3. CDC does not have any automatic pollution monitoring sites. However, CDC does have a network of non-automatic diffusion tube monitoring sites across its jurisdiction. To note, particulate matter (PM₁₀ & PM_{2.5}) is not monitored.
- 4.4. Table 2 sets out the closest nitrogen dioxide (NO₂) monitoring data collected between 2015 and 2019. The monitoring locations are shown in Figure 2.



Figure 2 Local Monitoring Locations

Table 2 Summary of Nitrogen Dioxide (NO₂) Monitoring (2015 – 2019)

Site ID	Site Type	Site Name	2015	2016	2017	2018	2019
1	Roadside	Warwick Road North	23.1	26.1	23.3	21.9	20.3
2	Urban Background	Sinclair Avenue	14.5	16.8	14.4	14.3	14.4
3	Roadside	Ruscote Avenue	21.9	23.6	20.1	20.6	18.9
4	Kerbside	North Bar	38.9	36.5	36.9	34.5	34.0
5	Roadside	Horsefair	40.9	38.8	41.8	38.7	38.6
6	Kerbside	High Street	35.3	34.6	35.0	32.3	34.6
7	Kerbside	Oxford Rd / South Bar	33.2	35.5	33.4	36.1	35.3
8	Urban Background	Cranleigh Close	10.9	12.5	10.7	12.3	11.0

9	Roadside	Bankside	16.3	17.9	17.0	18.8	17.2
10	Roadside	Cherwell Street 2014	35.3	37.7	37.3	36.4	29.9
11	Kerbside	Bridge Street	33.6	33.0	33.1	32.0	32.3
12	Kerbside	Middleton Road	32.1	32.7	31.3	28.0	30.8
13	Roadside	Ermont Way 2	29.3	28.1	27.2	29.7	27.1
14	Roadside	Ermont Way 1	28.4	31.0	28.5	30.9	28.0
15	Roadside	Fisher Close 1	26	28.0	-	-	-
16	Roadside	Fisher Close (Upper)	59.8	58.1	-	-	-
		Fisher Close (Lower)	49.3	49.5	-	-	-
17	Roadside	Hennef Way	78.2	83.0	84.8	81.2	77.5
18	Roadside	Stroud Close 1	28.7	28.1	24.9	25.7	23.5
Objective			40				

BOLD indicates exceedance of the objective

- 4.5. A review of the non-automatic diffusion tube monitoring locations indicates that one site was above the annual mean objective ($40 \mu\text{g}/\text{m}^3$) in 2019, which is located within an AQMA. This location was also monitored an annual mean nitrogen dioxide (NO_2) concentration above $60 \mu\text{g}/\text{m}^3$ which is regarded to be an indicator that the hourly mean objective could also be breached.

BACKGROUND CONCENTRATIONS

- 4.6. A review of the monitoring locations set out in Table 2 indicates that Cherwell District Council currently has 2 'urban background' sites near to the site, however none of these are considered to be a good representation of the site.
- 4.7. In the absence of such data, estimates of the background air quality concentrations have been taken from the UK-Air website²⁰.
- 4.8. Within the DEFRA background air quality maps, concentrations are mapped at a grid of $1\text{km} \times 1\text{km}$ for the whole of the UK. The most recent (2018) maps have been projected forward to

²⁰ Defra: UK-AIR. <http://www.uk-air.defra.gov.uk>

2021 for the nearest mapped grid to the development site, (445500, 241500). The data that has been utilised for this assessment is set out in Table 3.

4.9. It be noted that a recent statement from Defra states:

“Users of the updated LAQM tools should be aware that the projections in the 2018 reference year background maps and associated tools are based on assumptions which were current before the Covid-19 outbreak in the UK. In consequence these tools do not reflect short or longer term impacts on emissions in 2020 and beyond resulting from behavioural change during the national or local lockdowns.”

Table 3 Summary of DEFRA Background NO₂, PM₁₀ and PM_{2.5} Concentrations

Site ID	Site Type	2021
NO₂ (µg/m³)		
Defra	Background	19.0
PM₁₀ (µg/m³)		
Defra	Background	19.3
PM_{2.5} (µg/m³)		
Defra	Background	13.8

4.10. Background NO₂ concentrations have been calibrated against Automatic Urban and Rural Network (AURN) sites with more than 75% data capture. The methodology for this is set out in the Air Quality Consultants document²¹.

4.11. The data in Table 3, shows that annual mean background concentrations of NO₂, PM₁₀ and PM_{2.5} at the application site in 2021, are predicted to be below their respective air quality objectives, by 52%, 52% and 42% respectively.

²¹ Air Quality Consultants, 2020. *Calibrating Defra's 2018- based Background NO_x and NO₂ Maps against 2019 Measurements.*

5. CONSTRUCTION PHASE IMPACT ASSESSMENT

5.1. The main air quality impacts associated with construction activities relate to the potential release of particulate matter of both PM₁₀ and PM_{2.5} size fractions. There is also the potential for the evolution of other air quality pollutants. The sources of potential construction impact specifically associated with the Development are set out below.

- Potential for generation of airborne dusts from exposure and movement of soils and construction materials;
- Generation of fumes on-site by construction plant and tools throughout the construction phase;
- Increase in vehicle emissions (smoke/fumes) from vehicles (and potentially as a result of slow moving traffic, should local congestion ensue); and
- Re-suspension of dust as a result of vehicle tyres travelling over dusty surfaces.

5.2. A construction dust assessment has been undertaken in line with the IAQM (2016) guidance methodology as set out in Appendix B and a summary of the process is set out as follows:

SCREENING THE NEED FOR A FULL ASSESSMENT

- 5.3. Having reviewed the Site location, it is evident that the Site has a large number of human receptors within 350 m of the Site boundary and therefore a detailed dust impact assessment is required.
- 5.4. A review of the Defra Magic website²² indicates that no ecological sites of interest are present within the surrounding area. Therefore, this has been scoped out of the dust assessment.

POTENTIAL DUST EMISSION MAGNITUDE

DEMOLITION

- 5.5. A review of the site and the proposals indicates any demolition will be very minimal, and has therefore been scoped out of the assessment.

²² <http://www.natureonthemap.naturalengland.org.uk/MagicMap.aspx>

EARTHWORKS

- 5.6. The total Site 3 area is 3,215 m² which would be considered to be 'Medium', based upon the IAQM (2016) criterion based upon Table B1 (in Appendix B).

CONSTRUCTION

- 5.7. The overall scale of the construction is anticipated to be less than 25,000 m³, which would be considered to be 'Small', based upon the IAQM (2016) criterion based upon Table B1 (in Appendix B).

TRACKOUT

- 5.8. The number of daily HGV vehicles movements which may track out dust and dirt is unknown, but it is likely to be less than 10 HGVs per day, and therefore it is considered the dust emission is 'Small', based upon the IAQM (2016) criterion (based upon Table B1 (in Appendix B)).
- 5.9. Table 4 summarises the dust emission magnitude for the proposed development.

Table 4 Summary of Dust Emission Magnitude

Activity	Dust Emission Magnitude
Demolition	None
Earthworks	Medium
Construction	Small
Trackout	Small

SENSITIVITY OF THE AREA

- 5.10. Step 2B considers the number and the sensitivity of the receptors. A consideration is also made for background PM₁₀ concentrations when looking at human health impacts.

SENSITIVITY OF THE AREA TO EFFECTS OF DUST SOILING

- 5.11. The presence of 10-100 'High' sensitive human (residential receptors) within approximately 20m of the south-west boundary of the site, indicates that the area around the construction site has a 'High' sensitivity, (Based upon Table B3 in Appendix B), to dust soiling effect for both earthworks and construction related activities.

5.12. The routing of construction vehicles is expected to be down Ruscote Avenue, therefore receptors have been considered along this road up to 200 m either side of the proposed site accesses. For trackout, there are between 10 - 100 'High' sensitivity human (residential) receptors within 50 m of where trackout may occur (for a distance of up to 200 m from the site entrance). This would be considered a 'High' sensitivity (Based upon Table B3 in Appendix B).

SENSITIVITY OF THE AREA TO ANY HUMAN HEALTH EFFECTS

5.13. The presence of 10-100 'High' sensitive human (residential receptors) within approximately 20m of the south-west boundary of the site, and background PM₁₀ concentration (detailed in Table 3), would indicate that the area around the construction site, has a 'Low' sensitivity, (Based upon Table B4 in Appendix B), to human health for earthworks and construction related activities.

5.14. The routing of construction vehicles is expected to be down Ruscote Avenue, therefore receptors have been considered along this road up to 200 m either side of the proposed site accesses. For trackout, there are between 10 - 100 'High' sensitive human (residential) receptors within 50 m of where trackout may occur (for a distance of up to 200 m from the site entrance). Along with the background PM₁₀ concentrations, as set out in Table 3, would indicate the area would have a 'Low' sensitivity (Based upon Table B4 in Appendix B).

SENSITIVITY OF THE AREA TO ANY ECOLOGICAL EFFECTS

5.15. As discussed earlier in this Section the ecological sites consideration within the assessment has been scoped out.

RISK AND SIGNIFICANCE

5.16. The dust emission magnitude described in the sections above is combined with the sensitivity of the area as set out in the assessment matrix, (Table B6 of Appendix B). The resulting risk categories for the four construction activities, without mitigation, are set out in Table 5.

Table 5 Summary of Area Sensitivity

Activity	Sensitivity of the Area			
	Demolition	Earthworks	Construction	Trackout
Dust Soiling	None	Medium Risk	Low Risk	Low Risk
Human Health	None	Low Risk	Low Risk	Negligible
Ecological	None	None	None	None

- 5.17. The IAQM (2016) does not provide a method for assessing the significance of effects before mitigation, and advises that pre-mitigation significance should not be determined. With appropriate mitigation in place (as set out in Section 7), the IAQM (2016) guidance is clear that the residual effect will normally be 'not significant'

6. OPERATIONAL PHASE IMPACT ASSESSMENT

SCREENING OF ROAD TRAFFIC EMISSIONS

- 6.1. As the proposals are for an area more than 1,000 m² of commercial space and more than 10 associated parking, this exceeds the criteria in Step 1.
- 6.2. The transport consultant for the proposed development has undertaken a vehicular trip comparison exercise comparing the existing and proposed land uses. The proposed development will generate the following net change in traffic flows (Table 6) compared to the current use.

Table 6 Change in Traffic Flows

Difference	Total Trips			Total HGV's		
	In	Out	Total	In	Out	Total
24 Hour	-287	-278	-565	-6	-6	-12

- 6.3. As set out in Table 6, it is predicted that the Site 3 proposals will generate a net reduction in car / LGV / HGV movements. Based upon this the proposals would not exceed the criteria in Step 2. Therefore, normally a full impact assessment has been scoped out of this assessment.
- 6.4. To note, the proposals for Site 2 involve the relocation of an existing car park and therefore will not in themselves generate additional traffic movements. However, it is understood that the traffic data provided by David Tucker Associates has allowed for the impacts Site 2 will have on Site 3.

AIR QUALITY DAMAGE CALCULATION

- 6.5. On the basis the proposals represent a net reduction in vehicular movements, the impacts are not anticipated to be adverse, therefore, no Air Quality Damage Calculation has been undertaken.

7. MITIGATION

CONSTRUCTION PHASE

- 7.1. A construction dust assessment has been undertaken in Section 5 of this assessment and the outcome of which has been utilised within this section to advise upon the adequate level of mitigation that will be required.
- 7.2. A range of measures are suggested, which could be utilised during the construction phase.
- 7.3. The following measures relates to construction and trackout activities. Further general guidance on potential mitigation measures can be found in Appendix C.

EARTHWORKS

- Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable;
- Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable; and
- Only remove the cover in small areas during work and not all at once.

CONSTRUCTION

- Avoid scabbling (roughening of concrete surfaces) if possible; and
- 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;

TRACKOUT

- Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use;
- Avoid dry sweeping of large areas; and
- Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.

OPERATIONAL PHASE

- 7.4. As set out in Section 6, the potential operational impacts are not considered to be of an order that would adversely impact air quality concentrations, based upon the EPUK & IAQM (2017) guidance.

8. CONCLUSIONS

- 8.1. Vanguardia were appointed by Paloma Capital to undertake an assessment of the likely construction and operational dust / air quality impacts associated with the Site 3 redevelopment works to support a full planning application for a drive-thru drive-thru café within Use Class E on the JDE site.
- 8.2. A qualitative assessment of the potential, temporary dust impacts upon local residential and ecological receptors, has been carried out in line with IAQM (2016) guidance. This assessment identified that due to the close proximity of residential receptors, the construction phase is considered to be a 'Medium' risk for dust soiling and 'Low' risk for human health. Through good site practice and the implementation of suitable mitigation measures, as set out in this assessment, these effects will be reduced, and the residual effects would be expected to be local, temporary, and 'not significant.'
- 8.3. A comparison of the vehicular trip generation of the existing and proposed land uses undertaken by the transport consultant indicates a net reduction in daily vehicle numbers, and therefore an impact assessment has been scoped out.
- 8.4. It can therefore be concluded that the proposed development is not considered to conflict with national, regional or local planning guidance referenced to in this assessment.

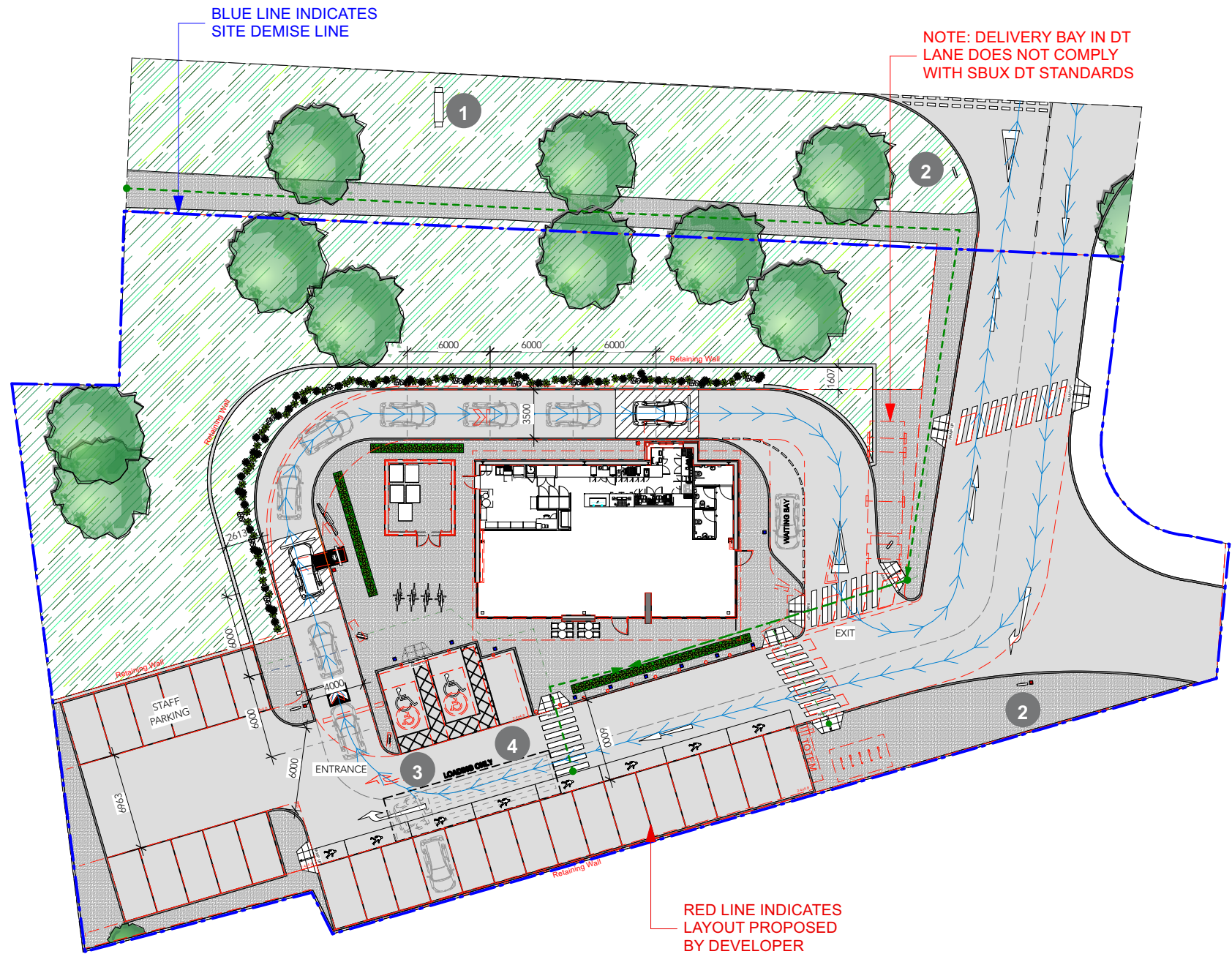
APPENDIX A – PROPOSED SITE LAYOUT

LEGEND:

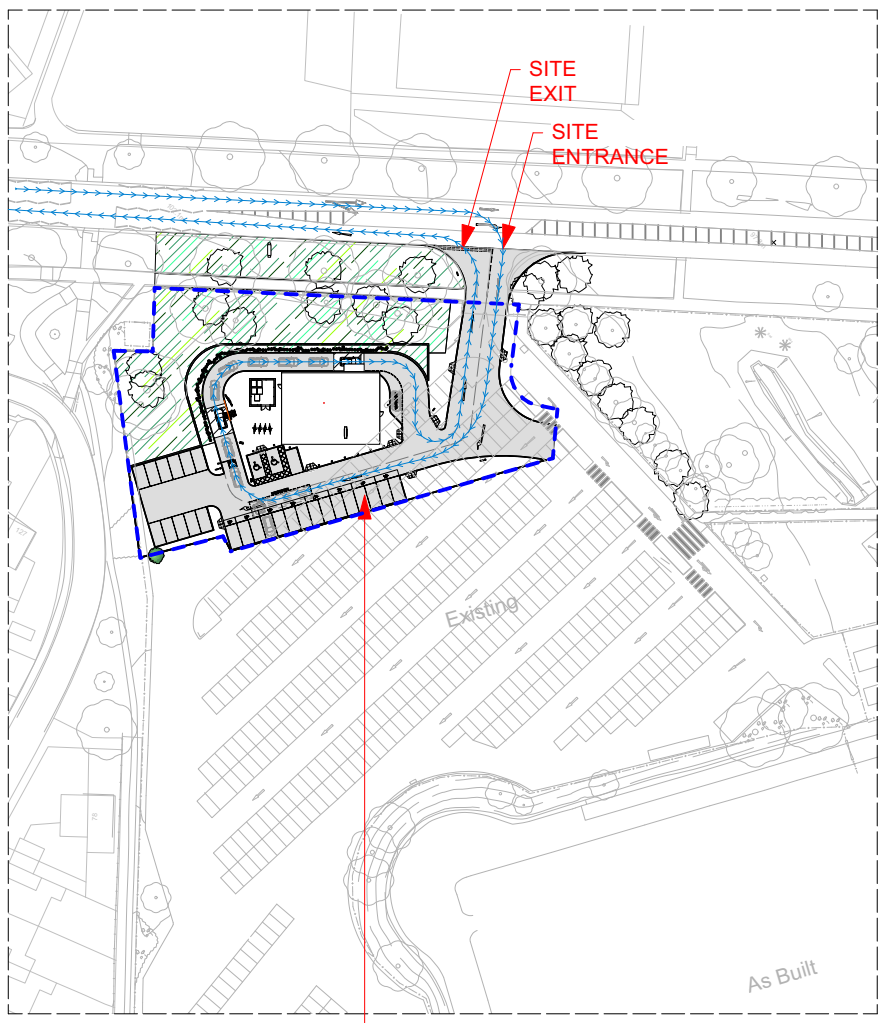
-  ROAD LANE
-  PEDESTRIAN FOOTPATH
-  EXISTING PROPOSED SITE LAYOUT BY LL

- 1** 9M PYLON DISK
- 2** DT MONUMENT SIGN
- 3** DT DIRECTIONAL ENTRY SIGN
- 4** OUT OF HOUR DELIVERY BAY

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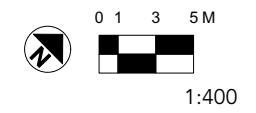


1 SITE PLAN
Scale: 1:400



2 LOCATION MAP
Scale: 1:1500

NOTE: CAR PARK LAYOUT INDICATIVE. FINAL LAYOUT TO BE DETERMINED BY DEVELOPER



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PROJECT NAME:
BANBURY RUSCOTE AVENUE DT

PROJECT ADDRESS:
**UK
BANBURY
RUSCOTE AVENUE**

STORE # **61095**
PROJECT # **86773-001**
PLAYBOOK FORMAT **DRIVE THRU**

INITIAL ISSUE DATE 15/10/21
DESIGN MANAGER ANJA SCHRODER
PROJECT DESIGNER JORDAN LAPHORNE
CHECKED BY NAME
CASEWORK CONCEPT
LEED® AP

REVISION SCHEDULE			
REV	DATE	BY	DESCRIPTION

SHEET TITLE:
Test Fit

SCALE: AS SHOWN (A3)

SHEET NUMBER:
TF1

APPENDIX B - CONSTRUCTION DUST ASSESSMENT METHODOLOGY

The criteria developed by IAQM is divides the activities on construction sites into four different types to assess their different level of impacts upon receptors. These are:

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

The assessment procedure includes four steps summarised below:

STEP 1 - SCREENING THE NEED FOR A FULL ASSESSMENT

The following screening criterion has been applied to the assessment: An assessment will normally be required where there is:

- A 'human' receptor within:
 - 350m of the Site boundary; or
 - 50m of the route(s) used by construction vehicles on the public highway, up to 500m from the site entrance(s).
- An 'ecological' receptor within:
 - 50m of the Site boundary; or
 - 50m of the route(s) used by construction vehicles on the public highway, up to 500m from the site entrance(s).

Should this criterion not be met it can be concluded that the level of risk upon receptors is negligible and there the effects are not significant, and therefore no mitigation measures will be required.

STEP 2 - ASSESS THE RISK OF DUST ARISING

The Site is given a risk classification based upon the following two factors:

- The scale and nature of the construction works, to provide the potential dust emission magnitude (Step 2A); and
- The sensitivity of the area / receptors to the dust impacts (Step 2B).

These two factors are combined in Step 2C, which is to determine the risk of dust impacts with no mitigation applied. The risk categories assigned to the site may be different for each of the four potential sources of dust (demolition, earthworks, construction and trackout).

STEP 2A - DEFINE THE POTENTIAL DUST EMISSION MAGNITUDE

The dust magnitude is categorised by the following:

- Small;
- Medium; or
- Large.

The IAQM provide a brief description upon what could apply for each classification (as set out in Table B1), and should be based upon professional judgement.

Table B1 Dust Magnitude Classification

Magnitude Class	
Demolition	
Large	Total building volume >50,000m ³ , potentially dusty material, on-site crushing and screening, activities >20m above ground level.
Medium	Total building volume 20,000-50,000m ³ , potentially dusty construction material, demolition activities 10-20m above ground level.
Small	Total building volume <20,000m ³ , construction material with low potential for dust release, demolition activities <10m above ground, works during wetter months.
Earthworks	
Large	Total site area over 10,000 m ² , potentially dusty soil type (e.g. clay), >10 heavy earth moving vehicles active at any one time, formation of bunds > 8 m in height, total material moved > 100,000 tonnes.
Medium	Total site area between 2,500 to 10,000 m ² , moderately dusty soil type (e.g. silt), 5 – 10 heavy earth moving vehicles active at any one time, formation of bunds 4- 8 m in height, total material moved 20,000 to 100,000 tonnes.
Small	Total site area less than 2,500 m ² . Soil type with large grain size (e.g. sand), < 5 heavy earth moving vehicles active at any one time, formation of bunds < 4 m in height, total material moved < 10,000 tonnes earthworks during winter months.
Construction	
Large	Total building volume over 100,000 m ³ , activities include piling, on-site concrete batching, and sand blasting. Period of activities more than two years.

Medium	Total building volume between 25,000 and 100,000 m ³ , use of construction materials with high potential for dust release (e.g. concrete), activities include piling, on-site concrete batching. Period of construction activities between one and two years.
Small	Total building volume below 25,000m ³ , use of construction materials with low potential for dust release (e.g. metal cladding or timber), Period of construction activities less than one year.
Trackout	
Large	> 50 HDV (>3.5t) outward movements in any one day, potentially dusty surface material (e.g. high clay content), unpaved road length >100m. (Trackout may occur up to 500m from the site entrance).
Medium	10-50 HDV (>3.5t) outwards movements in any one day, moderately dusty surface material (e.g. high clay content), unpaved road length 50m – 100m. (Trackout may occur up to 200m from the site entrance).
Small	<10HDV (>3.5t) outward movements in any one day. (Trackout may occur up to 50m from the site entrance).

STEP 2B - DEFINE THE SENSITIVITY OF THE AREA

The sensitivity of the area / receptor is defined by taking account of the following factors and the criteria set out in Tables(s) B2 to B5:

- The type of receptors in the area;
- The distance and number of receptors; and
- Background PM₁₀ concentrations.

Table B2 Defining Receptor Sensitivity

Receptor Sensitivity	Human	Ecological
High	Very densely populated area, 10-100 dwellings within 20m of site. Annual mean concentrations of PM ₁₀ close to/in exceedance of the national objective (40 µg m ⁻³). Very sensitive receptors (e.g. residential properties, hospitals, schools, care homes).	Internationally or nationally designated site, the designated features may be affected by dust soiling. A location where there is dust sensitive species present.
Medium	Densely populated area, 1-10 dwellings within 20m of site. Annual mean concentrations of PM ₁₀ below the national objective (> 28 µg m ⁻³). Medium sensitivity receptors (e.g. office and shop workers).	Nationally designated site where the features may be affected by dust deposition. A location with a particularly important plant species where its dust sensitivity is unknown.
Low	Sparsely populated area, 1 dwelling	Locally designated site where the

	<p>within 20m of site. Annual mean concentrations well below the national objectives (< 28 µg m³). Low sensitivity receptors (e.g. public footpaths, playing fields, shopping streets).</p>	<p>features may be affected by dust deposition.</p>
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Table B3 Sensitivity of the Area to Effects on People and Property from Dust Soiling

Receptor Sensitivity	Number of Receptors	Distance from the Source (m)			
		20	50	100	350
High	>100	High	High	Medium	Low
	10 – 100	High	Medium	Low	Low
	1 – 10	Medium	Low	Low	Low
Medium	>1	Low	Low	Low	Low
Low	>1	Low	Low	Low	Low

Table B4 Sensitivity of the Area to Human Health Effects

Receptor Sensitivity	Annual Mean PM ₁₀	Number of Receptors	Distance from the Source (m)				
			<20	<50	<100	<200	<350
High	>32 µg/m ³	>100	High	High	High	Medium	Low
		10 – 100	High	High	Medium	Low	Low
		1 – 10	High	Medium	Low	Low	Low
	28 - 32 µg/m ³	>100	High	High	Medium	Low	Low
		10 – 100	High	Medium	Low	Low	Low
		1 – 10	High	Medium	Low	Low	Low
	24 - 28 µg/m ³	>100	High	Medium	Low	Low	Low
		10 – 100	High	Medium	Low	Low	Low
		1 – 10	Medium	Low	Low	Low	Low
	<24 µg/m ³	>100	Medium	Low	Low	Low	Low
		10 – 100	Low	Low	Low	Low	Low
		1 – 10	Low	Low	Low	Low	Low
Medium	-	>10	High	Medium	Low	Low	Low
	-	1 – 10	Medium	Low	Low	Low	Low
Low	-	>1	Low	Low	Low	Low	Low

Table B5 Sensitivity of the Area to Ecological Effects

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

STEP 2C - DEFINE THE RISK OF IMPACTS

The dust emission magnitude determined at Step 2A is combined with the sensitivity of the area determined at Step 2B to determine the risk of impacts with no mitigation applied. The IAQM provides the matrix in Table B6 as a method of assigning the level of risk for each activity.

Table B6 Defining the Risk of Dust Impacts

Sensitivity of the Area	Dust Emission Magnitude		
	Large	Medium	Small
Demolition			
High	High Risk	Medium Risk	Medium Risk
Medium	High Risk	Medium Risk	Low Risk
Low	Medium Risk	Low Risk	Negligible
Earthworks			
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible
Construction			
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible
Trackout			
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Low Risk	Negligible
Low	Low Risk	Low Risk	Negligible

STEP 3 – IDENTIFY THE NEED FOR SITE SPECIFIC MITIGATION

From the identification of the risk of impacts with no mitigation, it is possible to determine the specific mitigation measures that can be applied in relation to the level of risk associated with the construction activity. The mitigation measures described below are suggested as measures that should be included in a site specific Construction Environmental Management Plan (CEMP). Specific measures of which are included in Section 7 (and general mitigation measures are set out in Appendix D) of this report.

STEP 4 – DETERMINE SIGNIFICANT IMPACTS

The IAQM does not provide a method for assessing the significance of effects before mitigation, and advises that pre-mitigation significance should not be determined. With appropriate mitigation in place, the IAQM guidance is clear that the residual effect will normally be 'not significant.'

APPENDIX C – GENERAL CONSTRUCTION MITIGATION MEASURES

COMMUNICATIONS

- Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager;
- Display the head or regional office contact information; and
- 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.

SITE MANAGEMENT

- Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken;
- Make the complaints log available to the local authority when asked; and
- Record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation in the log book.

MONITORING

- Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100m of site boundary, with cleaning to be provided if necessary;
- Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the local authority when asked; and
- 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.

PREPARING AND MAINTAINING THE SITE

- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible;
- Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site;
- Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period;
- Avoid site runoff of water or mud;
- Keep site fencing, barriers and scaffolding clean using wet methods;
- Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below; and
- Cover, seed or fence stockpiles to prevent wind whipping.

OPERATING VEHICLE/MACHINERY AND SUSTAINABLE TRAVEL

- Ensure all vehicles switch off engines when stationary - no idling vehicles;
- Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable; and
- 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);

OPERATIONS

- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems;
- Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate;
- Use enclosed chutes and conveyors and covered skips;

- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate; and
- Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.

WASTE MANAGEMENT

- Avoid bonfires and burning of waste materials



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