BANBURY 200, SOUTHAM ROAD, BANBURY

AIR QUALITY ASSESSMENT

VC-102710-AQ-RP-0001
R01

JUNE 2018

VANGUARDIA

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CONTENTS

1. INTRODUCTION

1.1. Vanguardia has been commissioned by Graftongate Properties Ltd to undertake an air quality assessment, to accompany a planning application for the proposed redevelopment of an existing commercial unit (made up of 17,475sqm of B8 warehouse space and 520sqm of office space), currently accessed off Ruscote Avenue, Banbury and within the jurisdiction of Cherwell District Council. The National Grid Reference for the centre of the site is 445140, 241470. The location of the application site is shown in Figure 1.

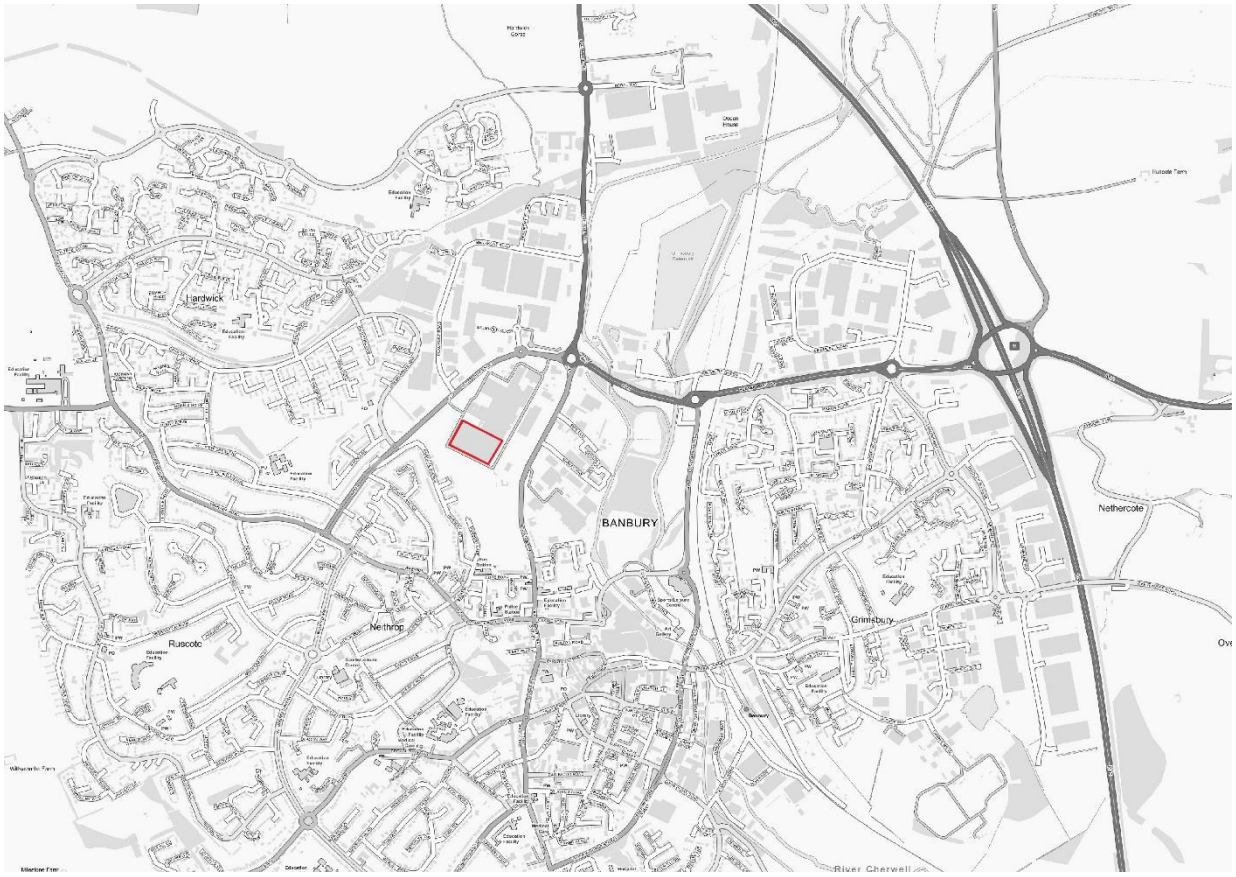

Figure 1 Site Location

1.2. The proposals to which this assessment supports, include the change of use of the Banbury Finished Goods Warehouse from B8 use to a mixture of B1c, B2 B8, as well as the erection of 592sqm of new office ancillary space. The gross internal area will increase from 18,214 sqm to 18,639 sqm.

1.3. To note, the site is currently accessed from Ruscote Avenue. It is proposed that the site access will change to Southam Road via the already existing access which was approved and built as part of the Waitrose planning application (ref: 15/00831/F).

1.4. The proposed site layout is illustrated in Figure 2.

Figure 2 Proposed Site Layout

1.5. 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, (NO_2) annual mean objective.

1.6. 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.

1.7. The scope of work was discussed and agreed with the relevant environmental health officer at Cherwell District Council.

2. POLICY CONTEXT

EUROPEAN LEGISLATION

2.1. 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.

2.2. 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.

NATIONAL LEGISLATION

2.3. Part IV of the Environment Act 1995[1] 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.

2.4. 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 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.

2.5. 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.

2.6. 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 shows the objectives with the number of exceedances in each year that are permitted (where applicable).

1 Department for Environment, Food and Rural Affairs (1995) The Environment Act. HMSO, London.

Table 1 Air Quality Objectives

Pollutant	Time Period	Objective
Nitrogen Dioxide (NO_2)	1-hour Mean	200 µg/m³ not to be exceeded more than 18 times a year
	Annual Mean	40 µg/m³
Fine Particles (PM_{10})	24-hour Mean	50 µg/m³ not to be exceeded more than 35 times a year
	Annual Mean	40 µg/m³*
Fine Particles ($PM_{2.5}$)	Annual Mean	25 µg/m³**

*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 PM_{10} objective being exceeded. Measurements have shown that, above this concentration, exceedances of the 24-hour mean PM_{10} 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.

AIR QUALITY STANDARDS REGULATIONS AND LEGISLATION

2.7. The Air Quality Standards Regulations (2010)[2] impose duties on the Secretary of State relating to achieving of the limit values set out in them.

2.8. The statutory nuisance regime applies to dust within section 79(d) of the Environmental Protection Act 1990[3] and is defined as:

'Any dust or effluvia arising from an industrial, trade or business premises and being prejudicial to health or a nuisance'

2.9. It is recognised that major construction works may give rise to dust emissions within the PM_{10} and $PM_{2.5}$ size fraction.

PLANNING POLICY

NATIONAL POLICIES

2.10. The National Planning Policy Framework (NPPF) (2012)[4] sets out the planning policy for England, to help achieve sustainable development within the planning sector. Paragraph 109 states:

2The Environment Act. 1990 HMSO, London.

3 The Environment Act 1995HMSO, London.

4 Department of Communities and Local Government (2012). National Planning Policy Framework. HMSO, London.

"The planning system should contribute to and enhance the natural and local environment by preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability".

2.11. Paragraph 120 states:

"To prevent unacceptable risks from pollution and land instability, planning policies and decisions should ensure that new development is appropriate for its location. The effects (including cumulative effects) of pollution on health, the natural environment or general amenity, and the potential sensitivity of the area or proposed development to adverse effects from pollution, should be taken into account."

2.12. Paragraph 124 states:

"Planning policies should sustain compliance with and contribute towards EU limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and the cumulative impacts on air quality from individual sites in local areas. Planning decisions should ensure that any new development in Air Quality Management Areas is consistent with the local air quality action plan."

2.13. 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.

2.14. The NPPF is supported by Planning Practice Guidance (PPG) (DCLG, 2014)[5], which includes guiding principles on how planning can take account of the impacts of new development on air quality. The PPG states that:

"Defra carries out an annual national assessment of air quality using modelling and monitoring to determine compliance with EU Limit Values."

and

5 Department for Communities and Local Government (2014). National Planning Policy Guidance. HMSO, http://planningguidance.planningportal.gov.uk/.

"It is important that the potential impact of new development on air quality is taken into account … where the national assessment indicates that relevant limits have been exceeded or are near the limit."

2.15. The role of the local authorities is covered by the LAQM regime, with the PPG stating that local authority Air Quality Action Plans should:

"identify measures that will be introduced in pursuit of the objectives."

2.16. The PPG makes clear that:

"Air quality can also affect biodiversity and may therefore impact on our international obligation under the Habitats Directive."

2.17. In addition, the PPG makes clear that:

"Odour and dust can also be a planning concern, for example, because of the effect on local amenity"

2.18. The PPG states that:

"Whether or not 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 generate air quality impact in an area where air quality is known to be poor. They could also arise where the development is likely to adversely impact upon the implementation of air quality strategies and action plans and/or, in particular, lead to a breach of EU legislation (including that applicable to wildlife)."

2.19. The PPG sets out the information that may be required in an air quality assessment, making clear that:

"Assessments should be proportional to the nature and scale of development proposed and the level of concern about air quality." It also provides guidance on options for mitigating air quality impacts, as well as examples of the types of measures to be considered. It makes clear that *"Mitigation options where necessary, will depend on the proposed development and should be proportionate to the likely impact."*

LOCAL POLICIES

2.20. Cherwell District Council Local Plan[6] was originally adopted in July 2015 and forms part of the Local Development Plan. 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.*

[…]

NATIONAL AIR QUALITY ACTION PLAN

2.21. Defra has produced an Air Quality Plan[7] to tackle roadside nitrogen dioxide (NO_2) 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

2.22. Cherwell District Council currently has four Air Quality Management Area's declared for NO_2, 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.

2.23. In March 2017 Cherwell District Council released an Air Quality Action Plan[8], which sets out measures to improve air quality. The document sets out five broad topics to improve air quality:

6 Cherwell District Council (2017) Local Plan

7 Defra (2017) UK plan for tackling roadside nitrogen dioxide concentrations

8 Cherwell District Council (2017) Air Quality Action Plan

- *"Policy guidance and development control*
- *Promoting low emission transport*
- *Promoting travel alternatives to private vehicle use*
- *Transport planning and infrastructure*
- *Public information"*

3. ASSESSMENT APPROACH

APPROACH TO THE ASSESSMENT

3.1. This Air Quality Assessment has been undertaken by means of:

- A consultation with the Local Authority;
- A review of the existing air quality information;
- A review of the development proposals;
- A qualitative assessment of the construction dust impacts;
- A qualitative assessment of the operational impacts;
- Provision of recommendations of mitigation measures, where appropriate, designed to minimise any adverse effects on air quality; and
- The identification of any residual impacts resulting from the proposed development.

CONSTRUCTION IMPACTS

3.2. 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 complaints regarding potential impact upon human / ecological receptor health.

3.3. There is currently no formal assessment criterion for dust. Therefore, the approach developed by the Institute of Air Quality Management (2014)[9] 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.

3.4. The approach states that an assessment will normally be required where there are:

- residential receptors within 350m of the site boundary and/or within 50m of the routes used by construction vehicles on the local highway network and up to 500m from site entrances; and/or

9 Institute of Air Quality Management (2014) *Guidance on the Assessment of Dust from Demolition and Construction*.

- Ecological receptors within 50m of the site boundary or within 50m of the route(s) used by construction vehicles on the public highway, up to 500m from the site entrance(s).

3.5. An ecological receptor refers to any sensitive habitat that is susceptible to dust soiling. For locations with a statutory designation, such as 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

3.6. The degree of risk is then derived from the level of the risk, and the sensitivity of the receptor being considered. To note, not all the criteria for a particular risk class need to be met for magnitude or significance. It is suggested in IAQM guidance that other criteria (such as professional judgement) can be used to justify the assessment.

3.7. The full Construction Dust Impact Assessment methodology is set out in Appendix A and the assessment is described in Section 5.

OPERATIONAL IMPACTS

3.8. Three key guidance documents have been used to determine the potential for impact upon air quality. These are the Design Manual for Roads and Bridges (DMRB)[10], Environmental Protection UK (EPUK) Development Control: Planning for Air Quality (2010 update)[11] and the EPUK & IAQM (2017) Land-Use Planning and Development Control: Planning for Air Quality.[12]

3.9. The more stringent EPUK & IAQM (2017) guidance, provides indicative criteria for the requirement of an Air Quality Impact Assessment. The following criteria have been considered as part of this assessment:

LOCAL HIGHWAY NETWORK

Step 1

- If any of the following apply to the development:

10 Highways Agency (2007). Design Manual for Roads and Bridges (DMRB), Volume 11: Environmental Assessment, Section 3: Environmental Assessment Techniques, Part 1, HA 207/07

11 Environmental Protection UK (2010). Development Control: Planning for Air Quality, (2010 Update) This guidance has been produced to help ensure that air quality is properly accounted for in local development control processes.

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

- Contains 10 or more residential units or a site area of more than 0.5ha; or
- Contains more than 1,000 m^2 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 LGV (light goods vehicle) flow of:
  - More than 100 AADT within or adjacent to an AQMA; or
  - More than 500 AADT elsewhere.
- A change of HGV (heavy goods vehicle) flow of:
  - More than 25 AADT within or adjacent to an AQMA; or
  - More than 100 AADT elsewhere.

3.10. 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.

3.11. As the proposals are for an area greater than 1ha and associated parking, this exceeds the criteria in Step 1.

3.12. The transport consultant for the proposed development has undertaken a vehicular trip comparison exercise comparing the existing and proposed land uses. The proposed development is predicted to generate 207 additional LGV movements, but 117 less HGV movements. Based upon this and the site being located outside an AQMA, this would not exceed the criteria in Step 2. Therefore, a full impact assessment has been scoped out of this assessment. Further information on the potential traffic impacts are set out in Section 5.

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 Cherwell District Council through the national Review and Assessment process, in fulfilment of Part IV of the Environmental Act 1995.

4.2. Cherwell District Council has been compliant with the all the pollutants set out in the Air Quality Strategy, apart from nitrogen dioxide (NO_2). The authority has declared four Air Quality Management Area's (AQMA's), due to its non-compliance with the nitrogen dioxide (NO_2) annual mean objective along sections of the road network within its jurisdiction.

4.3. The closest AQMA's to the site are AQMA No.1 and No.2. Figure 3 illustrates the site in relation to the AQMA's.

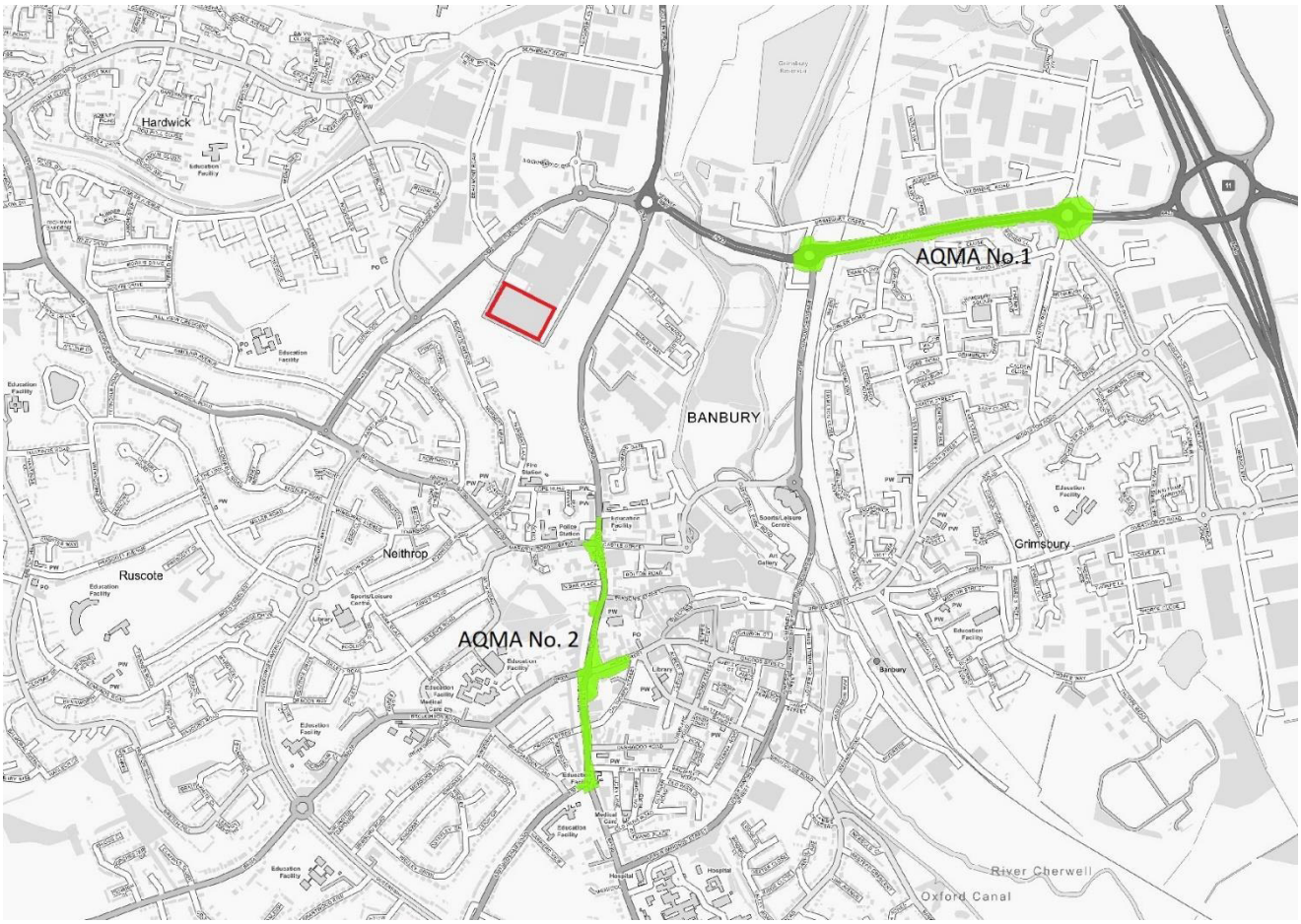

Figure 3 Site in Relation to AQMA's

LOCAL AIR QUALITY MONITORING

4.4. Cherwell District Council does not have any automatic pollution monitoring sites. However, Cherwell District Council do have a network of 45 non-automatic diffusion tube monitoring sites across its jurisdiction. To note, particulate matter (PM10 & PM2.5) is not monitored.

4.5. Table 2 sets out the closest nitrogen dioxide (NO_2) monitoring data collected between 2012 and 2016. The monitoring locations are shown in Figure 4.

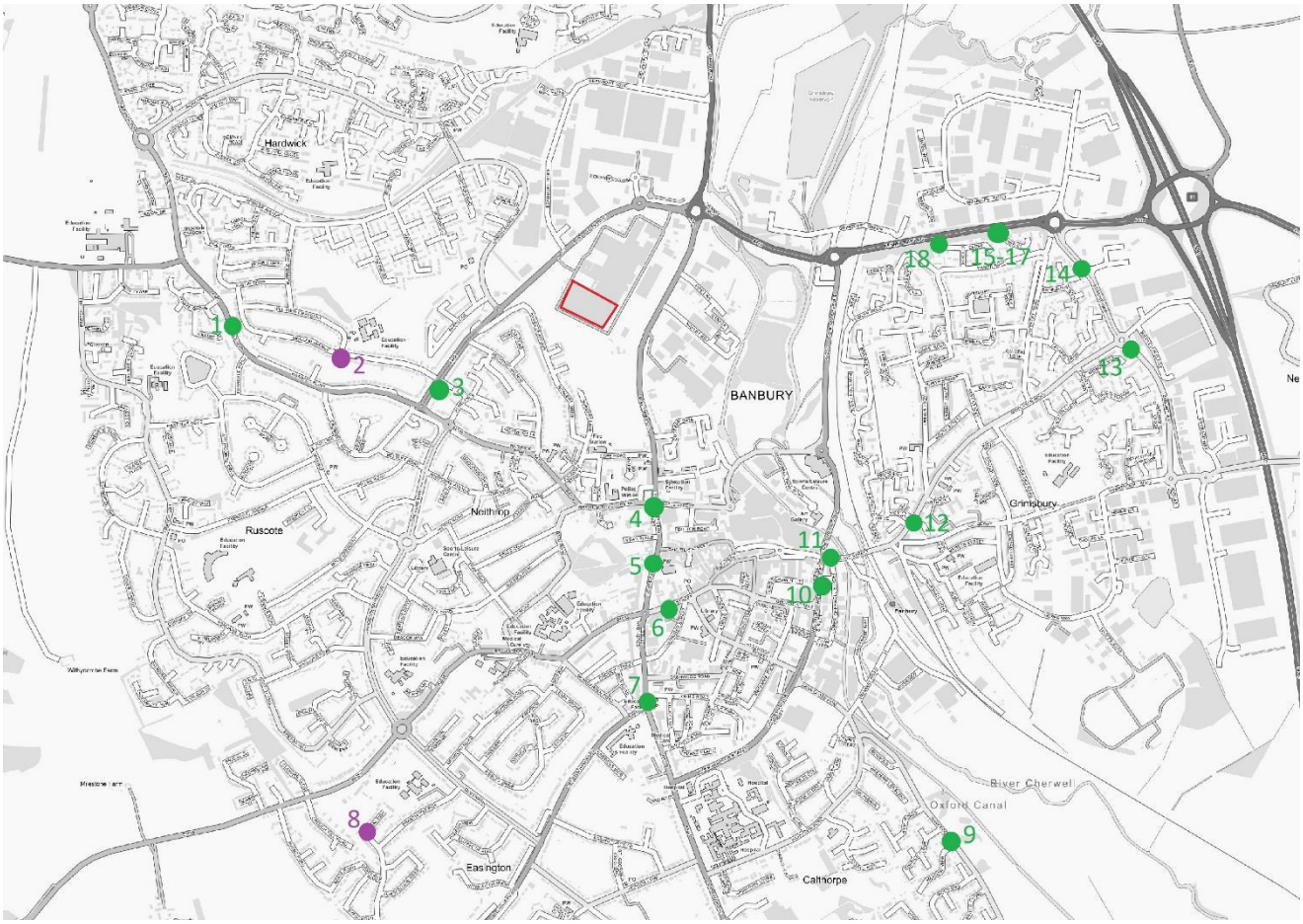

Figure 4 Local Monitoring Locations

Table 2 Summary of Nitrogen Dioxide (NO_2) Monitoring (2012 – 2016)

Site ID	Site Type	Site Name	2012	2013	2014	2015	2016

Diffusion Tubes – Annual Mean (µg/m³)

1	Roadside	Warwick Road North	-	-	24.6	23.1	26.1
2	Urban Background	Sinclair Avenue	16.8	17.4	14.7	14.5	16.8
3	Roadside	Ruscote Avenue	-	-	22.7	21.9	23.6
4	Kerbside	North Bar	**40.3**	39.6	39.6	38.9	36.5
5	Roadside	Horsefair	**45.4**	**42.2**	**42.4**	**40.9**	38.8
6	Kerbside	High Street	39.6	38.3	38.3	35.3	34.6
7	Kerbside	Oxford Rd / South Bar	38.3	39.9	37.6	33.2	35.5
8	Urban Background	Cranleigh Close	12.9	13.5	11.8	10.9	12.5
9	Roadside	Bankside	20.2	19.9	18.4	16.3	17.9
10	Roadside	Cherwell Street 2014	-	-	29.3	35.3	37.7
11	Kerbside	Bridge Street	34	34.1	32.8	33.6	33.0
12	Kerbside	Middleton Road	30.3	33.8	31.6	32.1	32.7
13	Roadside	Ermont Way 2	37.1	35.4	33.9	29.3	28.1
14	Roadside	Ermont Way 1	32.2	33.3	31.8	28.4	31.0
15	Roadside	Fisher Close 1	28.2	28.7	26	26	28.0
16	Roadside	Fisher Close (Upper)	-	-	**59.1**	**59.8**	**58.1**
		Fisher Close (Lower)	-	-	**52.1**	**49.3**	**49.5**
17	Roadside	Hennef Way	**85.3**	**81.2**	**79.6**	**78.2**	**83.0**
18	Roadside	Stroud Close 1	27.3	30.4	26.6	28.7	28.1
Objective			**40**				

BOLD indicates exceedance of the objective

4.6. A review of the non-automatic diffusion tube monitoring locations indicates that 4 sites were above the annual mean objective (40 µg/m³) in 2016 and were all located within declared AQMA's.

4.7. One of the monitored sites, Hennef Way reported annual mean nitrogen dioxide (NO_2) concentrations above 60 µg/m^3 (ID:16) which is regarded to be an indicator that the hourly mean objective could also be breached.

BACKGROUND CONCENTRATIONS

4.8. 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.

4.9. In the absence of such data, estimates of the background air quality concentrations have been taken from the UK-Air website[13].

4.10. Within the DEFRA background air quality maps, concentrations are mapped at a grid of 1km x 1km for the whole of the UK. The most recent (2015) maps have been projected forward to 2018 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.

Table 3 Summary of DEFRA Background NO_2, PM_{10} and $PM_{2.5}$ Concentrations

Site ID	Site Type	2018
NO_2(µg/m^3)		
Defra	Background	16.83
PM_{10}(µg/m^3)		
Defra	Background	15.97
$PM_{2.5}$(µg/m^3)		
Defra	Background	11.09

4.11. The data in Table 3, shows that annual mean background concentrations of NO_2, PM_{10} and $PM_{2.5}$ at the application site in 2018, are predicted to be below their respective air quality objectives.

4.12. The data shows that, NO_2, PM_{10} and $PM_{2.5}$ concentrations are predicted to be below the air quality standard by 58%, 60% and 56% respectively.

13 Defra: UK-AIR. http://www.uk-air.defra.gov.uk

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 PM_{10} 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 (2014) 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 350m of the Site boundary and therefore a detailed dust impact assessment is required.

5.4. A review of the Defra Magic website[14] indicates that no ecological sites of interest are present within the surrounding area. Therefore, this has been scoped out of the dust assessment.

14 http://www.natureonthemap.naturalengland.org.uk/MagicMap.aspx

POTENTIAL DUST EMISSION MAGNITUDE

DEMOLITION

5.5. A review of the site and the proposals indicates no demolition is likely to be undertaken, and has therefore been scoped out of the assessment.

EARTHWORKS

5.6. The level of earthworks is mainly going to be limited to the extending of the new site access, and the redevelopment of external areas, which is over 10,000m^2, which under normal circumstances would be considered to be 'Large', based upon the IAQM criterion. However, due to nature of the proposals the amount of earthworks that will be required would be considered to be 'Small,' based upon professional judgement.

CONSTRUCTION

5.7. The overall scale of the construction activities has been classified as 'Small' (based upon Table A1 (in Appendix A)) for the Site, as it is not anticipated the proposals will involve intense construction activity.

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 HGV's per day, and therefore it is considered the dust emission is 'Small'.

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	Small
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 PM_{10} 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 50m of the south-west boundary of the site, indicates that the area around the construction site has a 'Medium' sensitivity, (Based upon Table A3 in Appendix A), to dust soiling effect for both earthworks and construction related activities.

SENSITIVITY OF THE AREA TO ANY HUMAN HEALTH EFFECTS

5.12. The presence of 10-100 'High' sensitive human (residential receptors) within approximately 50m of the south-west boundary of the site, and background PM_{10} concentration (detailed in Table 3), would indicate that the area around the construction site, has a 'Low' sensitivity, (Based upon Table A4 in Appendix A), to human health for earthworks and construction related activities.

SENSITIVITY OF THE AREA TO ANY ECOLOGICAL EFFECTS

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

RISK AND SIGNIFICANCE

5.14. 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 A6 of Appendix A). 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	Low Risk	Low Risk	Negligible
Human Health	None	Negligible	Negligible	Negligible
Ecological	None	None	None	None

5.15. 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 (as set out in Section 7), the IAQM guidance is clear that the residual effect will normally be 'not significant'

6. OPERATIONAL PHASE IMPACT ASSESSMENT

ROAD TRAFFIC EMISSIONS

6.1. A vehicular trip generation comparison exercise has been undertaken by the associated transport consultants. This is a comparison of the existing land use against the proposed land use and is set out in Table 6.

Table 6 Net Change in Trip Generation

	Morning Peak (08:00-09:00)			Evening Peak (17:00-18:00)			12 Hours (07:00-19:00)		
	In	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**
Vehicles	+16	+1	+17	+1	+14	+15	+130	+77	+207
HGV's	-3	-2	-5	-3	-6	-9	-55	-62	-117

6.2. A review of the traffic impacts in Table 6 indicates that the proposed development is anticipated to generate 207 more vehicles a day, but 117 less HGV movements. Based upon this, the IAQM&EPUK criteria in Section 3, and the site being outside an AQMA, the traffic impacts are not of a magnitude that would require a full impact assessment.

6.3. For further information upon how the vehicular trip generation exercise has been derived please see the associated Transport Assessment[15].

15 David Tucker Associates (2018) Transport Assessment for Banbury 200, Southam Road, Banbury

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 B.

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;
- Avoid dry sweeping of large areas;
- Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport;
- Record all inspections of haul routes and any subsequent action in a site log book; and
- Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable);

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 IAQM&EPUK guidance, and the impact would be negligible.

8. CONCLUSIONS

8.1. Vanguardia were appointed by Graftongate Properties Ltd to undertake an assessment of the likely construction and operational dust / air quality impacts associated with the redevelopment of an existing commercial unit on land, accessed off Ruscote Avenue, Banbury. The assessment has been undertaken to accompany the planning application.

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 (2014) guidance. This assessment identified that due to the close proximity of residential receptors, the construction phase is considered to be a 'Small' risk for dust soiling and 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, with a negligible impact 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 HGV number and a net increase in daily vehicle numbers. Based upon IAQM & EPUK an impact assessment has be scoped out of the assessment and the impact would be negligible.

8.4. The proposed development is therefore expected to comply with all relevant air quality policy.

APPENDIX A - 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 A1 Dust Magnitude Classification

Magnitude Class	
	Demolition
Large	Total building volume >50,000m³, potentially dusty material, on-site crushing and screening, activities >20m above ground level.
Medium	Total building volume 20,000-50,000m³, potentially dusty construction material, demolition activities 10-20m above ground level.
Small	Total building volume <20,000m³, 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 m², 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 m², 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 m². 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 m³, 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 m³, 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 25,000m³, 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 PM_{10} concentrations.

Table A2 Defining Receptor Sensitivity

Receptor Sensitivity	Human	Ecological
High	Very densely populated area, 10-100 dwellings within 20m of site. Annual mean concentrations of PM10 close to/in exceedence 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 PM10 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 within 20m of site. Annual mean concentrations well below the national objectives (< 28 µg m^3). Low sensitivity receptors (e.g. public footpaths, playing fields, shopping streets).	Locally designated site where the features may be affected by dust deposition.

Table A3 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 A4 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/m³	>100	High	High	High	Medium	Low
		10 – 100	High	High	Medium	Low	Low
		1 – 10	High	Medium	Low	Low	Low
	28 – 32 µg/m³	>100	High	High	Medium	Low	Low
		10 – 100	High	Medium	Low	Low	Low
		1 – 10	High	Medium	Low	Low	Low
	24 – 28 µg/m³	>100	High	Medium	Low	Low	Low
		10 – 100	High	Medium	Low	Low	Low
		1 – 10	Medium	Low	Low	Low	Low
	<24 µg/m³	>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 A5 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 A6 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 – INDENTIFY 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 could be utilised .Specific measures of which are included in Section 8 (and general mitigation measures are set out in Appendix E) 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 B – 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. The DMP may include monitoring of dust deposition, dust flux, realtime PM_{10} continuous monitoring and/or visual inspections.

SITE MANAGEMENT

- Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken;
- Make the complaints log available to the local authority when asked; 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; and

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 100 m 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; and

PREPARING AND MAINTAING 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 actives 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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