7. Air Quality

Introduction

7.1 This Chapter, which was prepared by Waterman, presents an assessment of the likely significant impacts of the Development on local air quality. The potential impacts that are addressed within this assessment relate specifically to potential dust emissions and nuisance arising during the demolition and construction phase of the Development.

7.2 Based on the evidence provided by the 2007 air quality assessment, it is considered that any indirect impacts on air quality from vehicle exhaust emissions would be insignificant. Consequently, traffic-derived exhaust emissions were scoped out of the EIA.

7.3 This Chapter contains a description of relevant planning policy, the methods used to assess the impacts, together with the baseline conditions currently existing at, and close to the Site. The potential direct impacts of the Development are discussed, together with details of the mitigation measures required to prevent, reduce or offset the impacts. Finally, the residual impacts, accounting for the implementation of any necessary mitigation measures are described and their significance assessed.

Planning Policy Context

Legislation

7.4 There are currently no statutory UK standards in relation to deposited dust and its propensity to cause nuisance. Averaged over a month the deposition rate of 200mg/m^2/day is sometimes used as a threshold value for potentially significant nuisance impacts (Bate *et al*, 1991).

National Planning Policy

7.5 Planning Policy Statement 23 (PPS23): '*Planning and Pollution Control*' (HMSO, 2004) states that "*LPAs must be satisfied that planning permission can be granted on land use grounds taking full account of environmental effects [so as to] ensure that in the case of potentially polluting developments:*

- *the relevant pollution control authority is satisfied that potential releases can be adequately regulated under the pollution control framework; and*
- *the effects of existing sources of pollution in and around the site are not such that the cumulative effects of pollution when the proposed development is added would make that development unacceptable*."

Local Planning Policy

7.6 There are no specific policies pertaining to air quality within the adopted '*Cherwell Local Plan*' (CDC, 1996) or the emerging '*Core Strategy*' (CDC, 2010). However, the '*Non-Statutory Cherwell Local Plan 2011*' (CDC, 2004) contains one policy specifically relating to air quality. Policy EN5 '*Air Quality*' stipulates that "...*Development which would have a significant adverse impact on air quality will not be permitted. Wherever possible the council will seek to improve air quality through the control of development*".

Assessment Methodology and Significance Criteria

Assessment Methodology

7.7 Construction-derived dust impacts cannot be easily quantified since emissions rates vary according to the nature and duration of construction activities, together with the prevailing meteorological conditions. Therefore, potential impacts relating to dust emissions arising from the demolition and construction works on nearby sensitive receptors were assessed qualitatively.

7.8 Dust soiling and nuisance generally does not arise at distances beyond approximately 200m from the works (in the absence of mitigation), and the majority of any deposition that might give rise to significant soiling tends to occur within 50m to 100m. Therefore, existing potentially dust-sensitive receptors that could be impacted by changes in dust emission levels within 200m were identified. The sensitivity of these receptors was determined using information set out in **Table 7.1**, which is taken from Annex 1 of '*Minerals Policy Statement 2*' (ODPM, 2005).

Table 7.1: Dust Sensitive Receptors

High Sensitivity	Medium Sensitivity	Low Sensitivity
Hospitals and Clinics	Schools	Farms
Retirement Homes	Residential Areas	Light and Heavy Industry
Hi-Tech Industries	Food Retailers	Outdoor Storage
Food Processing	Offices	

7.9 To qualitatively assess the likely impact of dust emissions on local air quality and nuisance to receptors, consideration was given to the sensitivity and location of the receptors, together with the anticipated activities and duration of such activities likely to be operating during the demolition and construction phase.

Significance Criteria

7.10 The significance of the potential impact arising from changes in dust emission levels and nuisance risk was established through professional judgement, taking into account the following factors:

- sensitivity of receptors;
- proximity of sensitive receptors to dust generating construction activities; and
- their orientation to the Site in relation to the prevailing wind.

7.11 On the basis of the above and professional judgement, the impact significance criteria set out in **Table 7.2** were adopted for the qualitative assessment of dust impacts during the demolition and construction phase.

Table 7.2: Significance Criteria for Demolition and Construction Phase

	Distance of Receptor from Construction Activities				
	Less than 10m	**Between 10m to 50m**	**Between 50m to 100m**	**Between 100m to 200m**	**Over 200m**
High Sensitivity Receptor*	Adverse Impact of Substantial Significance	Adverse Impact of Substantial Significance	Adverse Impact of Moderate Significance	Adverse Impact of Minor Significance	Insignificant
Medium Sensitivity Receptor*	Adverse Impact of Moderate Significance	Adverse Impact of Moderate Significance	Adverse Impact of Minor Significance	Adverse Impact of Minor Significance	Insignificant
Low Sensitivity Receptor*	Adverse Impact of Minor Significance	Adverse Impact of Minor Significance	Insignificant	Insignificant	Insignificant

*based on dust sensitive receptors set out in Table 7.1.

Baseline Conditions

Existing Dust Sensitive Receptors

7.12 The Site is located in an area largely characterised by farmland and scattered villages. Farmland bounds much of the Site to the east and south. The Flying Field area of the former Airbase abuts the northern and western boundaries of the Site. Despite the rural location of the Site, existing dust sensitive receptors were identified close to the Site. Immediately adjoining the eastern tip of the Site, and to the south of Camp Road, is Heyford Leys Farm and Heyford Leys Caravan and Camping Park, which accepts visitors all year round. In addition, two residential properties adjoin the north-eastern corner of the Site and further afield a number of offices are located at Letchmere Farm, approximately 70m north-east of the Site boundary. Further commercial businesses operate within the Flying Field area approximately 120m north of the Site. A residential property, identified as Field Barn Farm, is located adjacent to the southern boundary of the Site. Upper Heyford, which is the nearest village to the Site, is located 700m west of the Site.

7.13 Since the majority of residential dwellings currently present on the Site would be retained as part of the Development and would be occupied throughout the demolition and construction phase, dust sensitive receptors also exist on the Site. These largely include residential dwellings in the south-western part of the Site between Earley Road to the west, and Carswell Circle and Carswell Crescent in the east. The residential dwellings located in the north-eastern part of the Site along Soden Road, Larsen Road and Trenchard Circle would also be retained and occupied throughout the construction phase. Various commercial buildings to the north of Camp Road would also remain occupied.

7.14 On the basis of the sensitivity of land uses set out in **Table 7.1**, no highly dust sensitive uses have been identified on, or immediately surrounding the Site. The majority of existing uses on the Site are considered of medium sensitivity to dust nuisance. The prevailing wind across the Site is from the south-west. Therefore, sensitive receptors to the north-east of the demolition and construction works would be most at risk from significant soiling and dust nuisance.

7.15 Natural England indicated that the nearby Sites of Special Scientific Interest (SSSI) should be considered as receptors. However, the nearest SSSI to the Site are Ardley Trackways and Ardley Cutting and Quarry, which are located 2km and 2.2km respectively from the Site. Owing to the their distances from the Site, together with the deposition of dust generally not arising beyond

200m of construction works, both the SSSI are not considered to be receptors of any dust, that may arise from construction works within the Site.

Existing Sources of Dust

7.16 According to the '*2009 Air Quality Updating and Screening Assessment for Cherwell District Council*' (AEA, 2009) there are currently no Air Quality Management Areas (AQMA) declared in Cherwell District. The assessment indicates that there are also no potential sources of fugitive particulate matter emissions in the immediate area, although Ardley Landfill Site, which is located approximately 2km east of the Site, is considered a potentially significant source of dust emissions during operation.

Impact Assessment

Demolition and Construction Phase

Dust Nuisance

7.17 During demolition and construction, the principal impact on local air quality and nearby sensitive receptors is likely to arise from dust emissions generated during ground preparation, demolition and construction works. Dust emissions relate to the amount of dust depositing onto and soiling surfaces and if not effectively controlled, dust emissions can result in nuisance.

7.18 Dust emissions from demolition and construction activities are likely to be variable through the demolition and construction period and would depend upon type and extent of the activity. However, activities considered most likely to generate significant dust emissions include:

- demolition of buildings and breaking up concrete, brick and compacted aggregates;
- earthmoving such as ground preparation works, excavations, storage and disposal of soil and aggregates; and
- movement of vehicles on dry, untreated and exposed surfaces.

7.19 The National Air Quality Objectives seek to address the health implications of fine particulate matter, which comes largely from combustion sources such as motor vehicle engines. In the case of particles released from construction activities such as ground excavation works, the majority of these would tend to be larger particles, which generally settle out close to the works and can cause nuisance due to their soiling capability. Dust emissions generated from ground preparation works and construction activities generally do not arise at distances beyond approximately 200m from the works (in the absence of mitigation), and the majority of any deposition that might give rise to significant soiling tends to occur within 50m to 100m.

7.20 Given the prevailing wind, sensitive receptors to the north-east of the demolition and construction works would be most at risk from significant soiling and dust nuisance. However, significant nuisance would likely to be largely limited to periods when dust generating demolition and/or construction activities coincide with dry and windy weather conditions. As a result, the potential dust nuisances identified below would be intermittent and highly localised in nature.

7.21 Construction activities to the north of Camp Road would comprise construction of new residential dwellings, commercial and community facilities across the Trident area, north-east and north-west of the Site. Although a number of buildings would be demolished to facilitate the redevelopment existing residential uses, together with some commercial uses, would be retained and occupied throughout the construction phase. During demolition and construction activities in the north-

eastern part of the Site, residential properties along Trenchard Circle would be most at risk from significant soiling and nuisance because the nearest properties would be 50m from these works and are in the direction of the prevailing wind. For these reasons, together with residential properties classified as a medium sensitivity land use (see **Table 7.1**), the potential dust impact is assessed, at worst, to be **temporary adverse** and of **moderate significance**. Although a care facility and/or hotel is proposed adjacent to existing residential properties on Soden Road, significant dust impacts would be unlikely because the existing building would be retained. In relation to the remaining demolition and construction works proposed to the north of Camp Road, existing uses largely relate to light industry, which is considered a low sensitivity use. Therefore, although dust soiling would arise, dust nuisance would result in a **temporary adverse impact** of **minor significance** for occupants within 10m of the demolition and construction works.

7.22 Demolition and construction works to the south of Camp Road would be carried out close to existing residential properties. During demolition and construction works in the western part of the Site, dust soiling and nuisance could arise, particularly in relation to residential properties along Eady Road and Gordon Road. Existing residential properties along Carswell Circle and Carswell Crescent may also experience dust nuisance during demolition and construction works in the south-eastern part of the Site. Owing to the proximity of the these residential properties to the proposed works, dust nuisance arising from works carried out immediately adjacent to Dacey Drive and Carswell Crescent are assessed as having the potential to result in a **temporary adverse impact** of **moderate significance** on residential properties between 10m and 50m from the works. However, since the properties along Carswell Circle would be to the east of the demolition and construction works and therefore not in the direction of the prevailing wind, the likelihood of significant dust soiling and nuisance is likely to be low.

7.23 Although the two residential properties adjoining the north-eastern corner of the Site and businesses at Letchmere Farm are located in the direction of the prevailing wind, given that these receptors are over 100m from the nearest proposed demolition and construction works, dust nuisance at these receptors is likely to result in a **temporary adverse impact** of **minor significance**. Dust nuisance may also arise at Heyford Leys Caravan and Camping Park when ground preparation and construction works commence to the south of Camp Road and near to the eastern boundary of the Site. To a lesser extent, dust generation and subsequent nuisance could also potentially arise as a result of vehicles remobilising any dust and mud previously deposited on Camp Road. Owing to the proximity of Heyford Leys Caravan and Camping Park to some of the proposed residential areas, dust emissions and nuisance could result in, at worst, a **temporary adverse impact** of **moderate significance**. Although Field Barn Farm is located approximately 45m from the nearest proposed demolition and construction works, the risk of significant dust nuisance arising is considered minimal because the receptor is not located in the direction of the prevailing wind. However, should demolition and construction works coincide with a strong northerly winds, at worst, the impact associated with dust nuisance is assessed as **temporary adverse** and of **moderate significance**.

7.24 Given that dust deposition would most likely occur within 200m of the demolition and construction works, dust-related impacts in relation to Ardley Trackways and Ardley Cutting and Quarry SSSI would be **insignificant**, owing to their distance from the Site.

Mitigation Measures and Residual Impacts

Demolition and Construction Phase

Dust Nuisance

7.25 A range of environmental management controls should be developed with reference to the BRE guidance '*Controlling Particles, Vapour and Noise Pollution from Construction Sites*' (BRE, 2003) to minimise the release of dust entering the atmosphere and/or being deposited on nearby receptors. Particular attention should be given to the demolition of buildings and any major ground preparation works immediately adjacent to existing and occupied residential dwellings along Eady Road, Gordon Road, Soden Road and Trenchard Circle. Dust control measures should be detailed and implemented through the adoption of the Considerate Constructors Scheme and Construction Environmental Management Plan. Dust controlling measures should reflect Best Available Techniques and should include:

- damping down exposed ground during dry and windy weather;
- minimising areas of exposed bare ground;
- providing appropriate hoarding and / or fencing to reduce dust dispersion and restrict public access;
- sheeting buildings, chutes, skips and vehicles removing wastes with the potential for dust generation;
- appropriate handling and storage of materials, especially stockpiled materials;
- restricting of drop heights onto lorries and other equipment;
- fitting all equipment with dust control measures such as water sprays wherever possible;
- dusty activities, such as stone cutting and grinding would be effectively screened;
- switching off all plant when not in use;
- no fires should be allowed on the Site; and
- ensuring that a road sweeper is available to clean mud and other debris from hard standing roads and footpaths.

7.26 As part of the implementation of a CEMP, a monitoring strategy for dust nuisance should be developed and agreed with the Local Authority. Dust monitoring should subsequently be carried out to help manage dust, particularly in relation to dust sensitive receptors closest to the works.

7.27 The above dust control measures should effectively minimise dust entering the atmosphere and/or being deposited on nearby receptors, thereby reducing the magnitude of the impact on the dust sensitive receptors. Providing the dust controlling measures set out above are implemented and adhered to, at worst (during dry and windy conditions), a **temporary adverse impact** of **minor significance** could occur in relation to residential properties and offices located within 10m of the demolition and/or construction activities.

Conclusions

7.28 During the demolition and construction phase of works, some nuisance associated with dust soiling would be likely to occur. It is expected that dust could be created during demolition and excavation works that could impact properties up to 100m of the construction works. However, dust nuisance would be most likely to arise in relation to dust sensitive receptors existing on the Site rather than offsite receptors.

7.29 Dust related impacts would be temporary in nature and likely to be intermittent during the demolition and construction works, and linked to specific activities at the Site. In addition, standard good construction management practice measures such as using wheel washing, covering materials, erecting Site hoarding, and damping down exposed ground could be employed to reduce the impacts caused during demolition and construction works. These measures are regularly and successfully applied to construction projects in order to minimise nuisance and it is considered that with good Site management practice these temporary impacts could be minimised to an acceptable level.