

EIA Scoping Report

Heyford Park

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Heyford Park

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Comments

Comments

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1. Introduction

1.1 Background

Error! Reference source not found. (hereafter referred to as the 'Applicant') are seeking to obtain outline planning permission for the redevelopment of an approximately 78 hectare (ha) site (the 'Site'), located within Cherwell District approximately 7 kilometres (km) north-west of Bicester, to provide a mixed use development (the 'Development'). **Figure 1 in Appendix A** shows the Site location.

The Applicant has committed to undertake an Environmental Impact Assessment (EIA) of the Development. The purpose of this Scoping Report is to provide Cherwell District Council (CDC) and other statutory bodies with the opportunity to comment on the content and methodology to be used for the EIA, and to obtain from CDC a formal Scoping Opinion. The findings of the EIA will then be presented in an Environmental Statement (ES) which will accompany the outline planning application. No formal Screening Opinion on the need for EIA has been sought from CDC.

1.2 EIA Development

The *Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999* (as amended) (the 'EIA Regulations') require that before consent is granted for certain types of development, an EIA must be undertaken. The EIA Regulations set out the types of development which must always be subject to an EIA (Schedule 1 development) and other types of developments which may require assessment if they have the potential to give rise to significant environmental impacts (Schedule 2).

The proposed Development falls within Schedule 2, Categories 10a and 10b of the EIA Regulations: 'industrial development projects' (Category 10a) and 'urban projects' (Category 10b) which, due to their scale, nature and location, have the potential to significantly alter or impact upon the environment. The EIA will therefore be carried out to determine the likely significance of these impacts and the nature of mitigation measures that may be required to off-set, reduce or eliminate potential adverse environmental impacts.

1.3 The Purpose of the Scoping Report

Regulation 10 of the EIA Regulations provides for potential applicants to ask the relevant local planning authority to state in writing the information that should be provided in an ES, i.e. to give a Scoping Opinion. This 'Scoping Opinion' is provided following consultation with relevant consultation organisations.

In accordance with Regulation 10 of the EIA Regulations and current EIA best practice, this document sets out the following information in order to assist CDC in adopting their Scoping Opinion:

- a plan showing the Site area extent;
- a brief description of the nature and purpose of the Development; and
- a brief description of the Development's possible impacts on the environment.

Waterman Energy Environment and Design Ltd ('Waterman') has been commissioned to prepare an EIA Scoping Report to identify the key environmental issues associated with the proposed Development and the need for, and scope of, various technical studies to be undertaken as part of the EIA, as a basis for seeking an EIA Scoping Opinion from CDC. Defining the scope of the EIA is regarded as an important component of the overall EIA process; the primary aim being to identify the key issues to be addressed and to focus the ES on the most likely significant impacts.

This EIA Scoping Report is structured as follows:

Section 2 provides a description of the Site and outlines the background to the proposals, and the nature and key elements of the Development;

Section 3 describes the consultations that will be undertaken as part of the EIA;

Section 4 provides a review of those issues identified as potentially significant by the scoping process, which will need to be assessed in detail as part of the EIA. The approach and methodology for the assessment study of each topic is also described;

Section 5 describes those impacts which are considered to be non-significant and which will therefore not receive further consideration within the EIA; and

Section 6 provides a draft outline of the structure of the ES.

This EIA Scoping Report considers all those environmental topics identified in Schedule 4 of the EIA Regulations including population, fauna, flora, soils, water, air, climatic factors, material assets, including the architectural and archaeological heritage, and landscape.

This report will be issued to CDC, who will then forward the report to the statutory consultees (e.g. Natural England and the Environment Agency) and other organisations for comment in developing their formal 'Scoping Opinion'.

1.4 The Applicant and Project Team

The ES will present the results of an EIA coordinated by Waterman with some technical EIA components contributed by other consultants. The Applicant and project team are presented in **Table 1** along with their respective disciplines.

Table 1: The Project Team

Nature of Work	Company
Applicant	Dorchester Group
Planning Consultant	Pegasus Planning Group
Architect	Scott Brownrigg
Landscape Architect	Macgregor Smith Ltd
Environmental Consultant and EIA Co-ordinators	Waterman Energy Environment & Design Ltd
Flood Risk and Drainage Engineer	Waterman Transport & Development Ltd
Traffic / Transport Consultant	Peter Brett Associates

2. The Development Site and Proposals

2.1 Site Description

The Site is approximately 78ha in area and located adjacent to the village of Upper Heyford approximately 7km north-west of Bicester in Oxfordshire. A plan showing the layout of the Site and its boundaries is presented as **Figure 2** in **Appendix A**.

The Site is bounded by the 'flying field' area of the former RAF Airbase to the north and west, and agricultural land to the south and east. The Site is surrounded by a network of villages and hamlets, with the settlement of Upper Heyford being located close to the western part of the Site.

The main vehicular route into the Site is along Camp Road. This public road runs east/west and separates the primarily technical area to the north containing occupied commercial units and buildings associated with the former flying function (the runway, Hardened Aircraft Shelters, bomb stores etc.) from the primarily residential site to the south which contains most of the residential buildings and support facilities. Camp Road links Upper Heyford village in the west with the B430 Ardley to Middleton Stoney road in the east which then connects with junction 10 of the M40 motorway at Ardley.

The Site's sewage treatment works and a balancing pond, which cover 2ha of land, are located outside the base's perimeter fence to the east of the main residential area.

The houses that served the Airbase in this area have been brought back into use and consist of bungalows on the western side, south of Camp Road, with two-storey semi-detached or short terraces of 1950s houses to the north and east. To the west there are sports fields around a gymnasium and, beyond this, a disused store and hospital. East of the bungalows are 1920s houses around Carswell Circle with more recent houses around a similar close to the south. A small supermarket has been brought back into use and there is a disused petrol station adjacent. Further east is a complex of former single airmen's accommodation, offices and car parks, all now disused.

North-east of Camp Road former officer housing is located off Soden Road and Larsen Road. To the west is a substantial disused 1920s RAF officers' mess largely in its original setting. The principal entrance to the Airbase is to the west of this, via a roundabout on Camp Road. Heyford Park House and the guardhouse, which are also 1920s buildings, lie to either side and three partially tree-lined avenues (known as the 'Trident') radiate into the Site. Most buildings are currently in office or commercial use. Two important Cold War buildings lie in the western part of this area: the Battle Command Centre (Building 126) and the Hardened Telephone Exchange (Building 129).

Many parts of the technical and residential areas appear run-down, dilapidated and in need of renewal. A water tower in the north-east corner and one 150m further east along Camp Road are prominent landmarks.

At present there are just over 300 dwellings available for residential occupation, the majority of which are currently let. As a result the Site is now home for around 800 residents. Facilities such as the former Airbase's convenience store (the 'shopette') and the chapel serve the community living on the base. A number of clubs currently use the chapel for their meetings and other community interests.

The entire Airbase site was designated as a Conservation Area in April 2006. A number of the structures have also been recognised as being of international and national importance as Scheduled Monuments.

2.2 Nature of the Development

The planning application will comprise a single hybrid application for residential and employment uses, incorporating both an outline application in respect of the erection of new buildings and also the change of use of specified buildings across the application Site. It will also be accompanied by a series of separate Conservation Area Consents involving removal of buildings and structures within the Conservation Area.

The development would comprise the creation of a new settlement, which would include up to 1,075 dwellings. To provide this much of the existing military housing will be retained and refurbished as well as new build residential development. Some of the residential development would be assisted living accommodation for the elderly and student accommodation involving change of use of existing buildings.

The proposals also include the provision of new employment uses (Class B1- B8), again comprising a mix of change of use of existing buildings and the erection of new buildings.

New social and community infrastructure will also be created; including a new primary school towards the centre of the settlement area. A range of retail provision, again comprising new build and some change of use would be included, together with a range of Class D1 (non residential institutions) uses.

All new buildings would be a maximum of 3 storeys in height.

The development would also involve a number of buildings and structures to be removed across the Site. The boundary fence to the south of Camp Road will also be removed.

Requisite infrastructure to serve the settlement will be provided, including sustainable urban drainage systems and new roads. In terms of open space and landscaping, a range of formal pitches and open space, together with incidental open space will be incorporated in the scheme.

A more detailed description of the design evolution will be provided in the Design and Access Statement that will be submitted with the planning application and will be summarised in the ES in accordance with Schedule 4 Part 1 of the EIA Regulations.

2.3 Site Planning History

Since the Airbase closed in 1994, temporary planning permissions have been granted for the re-use of a number of the buildings on the Site. A planning application for the entire former Airbase (i.e. the Site and the Flying Field to the north) which was submitted in 2007 was granted permission in January 2010. The planning application was accompanied by an ES (Roger Evans Associates Ltd, Environmental Statement, September 2007), parts of which were subsequently updated in June 2008.

The proposals described above would therefore replace those already consented for the relevant area, but the consented development for the remainder of the former Airbase will proceed. However, should it be established that cumulative impacts would be likely to arise from the proposed Development in combination with the consented Flying Field development, these cumulative impacts would be assessed as part of the EIA (refer to **Section 4.11** for further details).

3. Consultation

Consultation with relevant bodies assists in ensuring that all relevant environmental issues are identified, together with the likely significant environmental effects of the Development. This enables the EIA to operate as part of an iterative process, whereby environmental issues are identified and considered as part of the design process. In this way, the Development design can be refined through the incorporation of mitigation measures to limit its adverse impacts and enhancing its beneficial impacts. Various stakeholders will be consulted as part of the design finessing and EIA process, and will include (but not necessarily limited to) the following organisations:

- CDC;
- Oxfordshire County Council;
- Highways Agency
- Environment Agency;
- Natural England;
- Oxfordshire Wildlife Trust;
- English Heritage;
- Thames Water.

4. Key Issues to be Addressed by the EIA

4.1 Introduction

The EIA will be undertaken in accordance with the requirements of the EIA Regulations and good practice guidance.

The legal minimum requirements for the content of an ES are set out in Schedule 4 of the EIA Regulations. It is recognised that for the ES to fulfil its primary objective of enabling environmental considerations to be incorporated into the decision-making process, it must be focused on the most potentially significant environmental issues. These key issues have been identified through consultation with statutory consultees, consideration of available baseline information and professional judgement. Information from the EIA process for the planning application granted consent in January 2010 has also been used to inform the scope of the ES. The key issues which have been 'scoped in' the EIA are described below. The following sections define the focus of the EIA.

The ES will also include a review and summary of relevant environmental planning policy. The review will focus on national, regional, and local planning policies that are considered pertinent to the key addressed as part of the EIA.

4.2 Transportation

4.2.1 Overview of Baseline Conditions and Key Issues

The existing traffic levels generated by the Site are currently in the order of 600 vehicles in the AM and PM peak hours. Traffic is currently generated from the existing commercial and residential uses on-Site.

The area is rural in nature, so any additional traffic resulting from the development could have an impact on the surrounding area, if not adequately managed. In addition, some existing residents will remain on-Site and could experience disturbance from construction traffic.

4.2.2 Potential Impacts

The existing Transport Assessment for the Site (Arup, Heyford Park Transport Assessment, August 2007) indicated that all junctions tested would continue to operate within capacity with the addition of the development traffic. One junction would need signal optimisation and slight geometry alterations including lane marking to accommodate the additional traffic.

Potential transport impacts as a result of the development include the following:

- disruption and disturbance caused by construction traffic including Heavy Goods Vehicles (HGVs) during the construction phase;
- increase in traffic levels including HGVs causing congestion on local roads;
- increase in traffic levels causing traffic to rat-run through local villages;
- increase in traffic levels including HGVs causing detrimental impact on the strategic road network;
- improved access to public transport as a result of the introduction of a bus route; and
- improved movement through the site and surrounding area for pedestrians and cyclists.

4.2.3 Proposed Approach and Methodology

As the level of the development is within the parameters of the previous proposal for the Site, the level of traffic generation and distribution will be the same. As such it can be assumed that the roads would accommodate the traffic generated without exceeding capacity, as was indicated in the original modelling.

The approach to the Transport Assessment will therefore be to take the agreed existing Transport Assessment produced by Arup (Heyford Park Transport Assessment, August 2007) and supplement it with additional information only in the areas where the proposal differs from the extant planning permission.

The supplementary transport report will therefore include the following:

- details on the proposed changes to Camp Road, including HGV access, the impact of the introduction of the 20mph zone and the impact of the traffic calming strategy;
- details of the bus route;
- details of the one-way section to be introduced to accommodate the bus route; and
- details of internal movement in the new Masterplan including cycle and walk desire lines and penetration.

This will be summarised within the ES and an assessment of the above potential impacts will be presented along with mitigation measures, where necessary.

4.3 Noise

4.3.1 Overview of Baseline Conditions and Key Issues

The noise levels at the Site are typical for a rural location being relatively low with road traffic noise being the dominant source. Noise sensitive receptors which may be affected by changes in noise levels as a result of the proposed Development include existing residential dwellings on-Site within the New Settlement Area as well as dwellings along roads to nearby villages of Middleton Stoney, Upper Heyford, Lower Heyford, Somerton and Ardley.

4.3.2 Potential Impacts

Potential noise impacts during the construction and operational phases of the proposed Development, to be addressed by the ES would include:

- noise impacts arising from any demolition and construction works which may impact upon sensitive receptors;
- traffic noise impacts on existing and proposed noise sensitive receptors including residential dwellings and the proposed primary school;
- noise impacts from new plant (such as air conditioning plant) and service yards associated with the proposed commercial uses on existing and proposed noise sensitive receptors; and
- suitability of the noise environment at the Site for the proposed residential dwellings.

It is considered unlikely that there would be significant vibration impacts as a result of the proposals due to the limited amount of demolition required and the fact that deep piling would not be required for construction purposes. Vibration impacts are therefore scoped out of the EIA.

4.3.3 Proposed Approach and Methodology

The noise assessment will include the following:

- baseline noise surveys to define ambient noise levels at locations representative of both existing and proposed residential dwellings;
- assessment of construction noise impacts in accordance with BS 5228: 2009 '*Code of Practice for Noise and Vibration Control on Construction and Open Sites*';

- an assessment in accordance with Planning Policy Guidance (PPG) Note 24 (1994) '*Planning and Noise*' for the residential element of the proposal. Monitored baseline noise levels would be assessed against criteria as provided in PPG 24 to determine the suitability of the Site for residential Development;
- an assessment would be undertaken to determine the potential noise impacts from any commercial and industrial noise sources including the operation of service plant and service yards upon both existing and proposed residential dwellings and other noise sensitive areas following the guidance provided in BS 4142:1997;
- existing, predicted and differential traffic noise levels would be calculated during the construction and operational phases of the proposed Development in accordance with the Department for Transport's technical memorandum '*Calculation of Road Traffic Noise*' (1988). This will take account of traffic changes on existing roads using 18 hour Annual Average Weekday Traffic flows, as provided by the schemes traffic engineers. Predicted traffic noise levels will be discussed in terms of guidance provided within PPG 24 and the NIR;
- should it be required, the formulation and design of any mitigation measures would be in line with the internal the guidance provided in BS 8233: 1999 '*Sound Insulation and Noise Reduction for Buildings Code of practice*' and other relevant guidance documents; and
- should changes in noise levels as a result of any new or altered highways or road infrastructure meet the requirements of the Noise Insulation as amended by the Noise Insulation (Amendment) Regulations 1998 (NIR), it may be necessary to introduce mitigation measures in the wider scheme area.

4.4 Air Quality

4.4.1 Overview of Baseline Conditions and Key Issues

There are no industrial sources of air pollution in the vicinity of the Site. Emissions from traffic, particularly NO₂ and PM₁₀, are therefore the main pollutants of concern for the District. However, there are currently no Air Quality Management Areas (AQMA) designated by CDC demonstrating that local air quality within the district is currently meeting UK and European Union (EU) air quality standards.

Existing sensitive receptors located within the vicinity of the Site are residential properties including those within the Site itself and within the rural villages surrounding the Site.

4.4.2 Potential Impacts

Sensitive receptors located within the vicinity of the Site may be affected by dust generated during construction works and an assessment of this will therefore be undertaken as part of the EIA.

The Development is likely to result in traffic flow increases on the local road network and therefore there is the potential for levels of air pollutants to be increased at some locations during the operational phase. However, it is unlikely that any increases would be significant. This conclusion is based on evidence from the air quality assessment presented in the 2007 ES. This used traffic flow data based on a quantum of development which is within the parameters of the proposed Development and it is therefore considered that traffic flow data is also likely to be within the range previously used. The 2007 air quality assessment demonstrated that a negligible deterioration in local air quality was predicted at all receptor locations and for some pollutants there was no predicted change in the concentration at all. Furthermore the predicted pollutant concentrations at all receptors were all substantially within the objectives set by the Air Quality Standards Regulations. The ES stated that:

- "*Modelling shows that the proposed development does not lead to a breach of the national objectives or EU limit values for either pollutant or cause a new AQMA to be declared;*

- *The proposed development will not interfere with or prevent the implementation of the actions within any Air Quality Action Plan;*
- *It is not anticipated that the proposed development would interfere with the implementation of a local air quality strategy; and,*
- *The scheme will not lead to a significant increase in emissions. "*

An extract of the 2007 ES relating to the air quality assessment can be found at **Appendix B** of this report for ease of reference.

Based on the evidence provided by the 2007 air quality assessment it is considered that any impact on air quality as a result of changes in traffic flows would be insignificant and this issue is therefore scoped out of the EIA.

4.4.3 Proposed Approach and Methodology

The assessment will comprise the following:

- identification of potentially sensitive receptor locations, such as existing residential properties that could be affected by dust resulting from the demolition and construction phase of Development;
- evaluation of the magnitude, likelihood and extent of the impact of dust nuisance;
- assessment of the significance of the impact; and
- formulation of proposals for controlling dust and other emissions during construction activities, with reference to the Building Research Establishment (BRE) guidance 'Controlling Particles, Vapour and Noise Pollution from Construction Sites'.

4.5 Ground Conditions and Contamination

4.5.1 Overview of Baseline Conditions and Key Issues

The solid geology of the Site comprises the Middle Jurassic Great Oolite Limestone underlain by the Inferior Oolite Group which includes sand, sandstones and thin mudstone. Made ground is found at the surface comprising silt or clay, often sandy, and comprising a significant proportion of gravel to cobble sized pieces of limestone. The limestone geology beneath and surrounding the Site is considered to be a principal aquifer.

A number of potentially contaminative historic and current uses have been noted on-Site including:

- former petrol station and separate former kerbside refuelling station with associated below ground tanks;
- multiple locations used for above ground storage tanks;
- below ground petrol and diesel storage tanks;
- former hospital;
- former boilers and incinerator with associated below ground fuel storage tanks;
- former laundrette;
- electrical substations;
- sewage works; and
- asbestos containing materials within some buildings.

4.5.2 Potential Impacts

Potential ground condition and contamination impacts to be addressed as part of the EIA include:

- health and safety risks to workers during demolition and construction works arising from
 - contaminated soils and groundwater;
 - ground gas and vapours; and
 - asbestos containing materials;
- human health risks to future residents, Site users, maintenance workers and others arising from
 - contaminated soils and groundwater;
 - ground gas and vapours; and
 - asbestos containing materials;
- potential contamination risks to soils, surface water and groundwater (controlled waters) from the mobilisation of any existing contamination during demolition and construction phase; and
- potential for new sources of accidental contamination during construction and operational phases.

Prior to its closure the Airbase was subject to a survey for unexploded ordnance and was declared clear. It is therefore proposed that the impact of health and safety risks posed by unexploded ordnance can be scoped out of the EIA.

4.5.3 Proposed Approach and Methodology

In order to assess the potential impacts, a desk-based review of all available documentary sources of information will be carried out to ascertain the existing ground conditions at the Site. A qualitative desk-based risk assessment will then be undertaken using this information. To facilitate the risk assessment for ground contamination, a conceptual Site model will be formulated and presented in the ES to determine the potential contamination risks associated with the Site using a source, pathway, receptor approach. CDC and the Environment Agency will also be consulted.

4.6 Water Resources

4.6.1 Overview of Baseline Conditions and Key issues

The nearest main River to the Site is the River Cherwell, which lies approximately 1km to the west. The Site lies within Flood Zone 1, an area which is considered to be at a low risk of tidal or fluvial flooding.

Surface water is currently collected from hard surfaces by building downpipes, footway and road gullies that discharge directly to private surface water sewers. These sewers discharge into a number of drainage ditches/watercourses along the southern and eastern boundaries of the Site.

During very intense storm events, it is likely that the surface water system would surcharge, resulting in localised flooding and overland flows, which would discharge at an uncontrolled rate into the local watercourses.

A waste water treatment facility is located on-Site which currently serves the Site.

4.6.2 Potential Impacts

Any increase in hard standing areas resultant from the Development could increase the rate of surface water runoff into the local sewers and watercourses downstream, which could increase the risk of flooding. As the Site lies within Flood Zone 1, an area low risk of fluvial flooding, the ES will focus on the impacts on the proposed surface water drainage of the Development.

The proposals would generate greater flows of wastewater and so there is the potential for impacts on foul water drainage capacity. The scale of Development would also result in an increased demand for potable water in this location. Therefore, the potential for impacts on the capacity and infrastructure for potable water supply will also be addressed as part of the EIA.

4.6.3 Proposed Approach and Methodology

A Flood Risk Assessment (FRA) will be carried out in accordance with Planning Policy Statement (PPS) 25: *'Development and Flood Risk'*. A preliminary Surface Water and Foul Water Drainage Strategy will also be developed for the Site in conjunction with the FRA. This will include consultation with the Environment Agency, CDC, Thames Water and Oxfordshire County Council concerning historical incidents of flooding at the Site and the use of Sustainable Drainage Systems. The strategy will identify appropriate mitigation measures where necessary, and will be summarised in the ES.

Thames Water will also be consulted in relation to potable water supply and sewage treatment capacity in order to assess the impact of the demand increase.

4.7 Landscape and Visual Character

4.7.1 Overview of Baseline Conditions and Key Issues

The Site is situated on high ground to the east of the River Cherwell, approximately 7km to the north-west of Bicester. The Site lies within the Cotswolds Character Area (107), which is characterised by rolling open high wold plateaux with arable and large blocks of woodland divided up by small narrow valleys.

The Site currently comprises buildings associated with the former Airbase which provided the living, welfare and social facilities. Although some of the buildings are in civilian use as living accommodation and for commercial uses, there are also many vacant and dilapidated buildings. There are a number of buildings with some historic character but generally the Site is underused and lacks a neighbourhood feel.

4.7.2 Potential Impacts

The potential landscape and visual impacts that will be addressed within the ES include:

- temporary visual intrusion during construction works for existing on-Site sensitive receptors;
- impacts on landscape character following completion of the proposed Development; and
- impacts on key views within the Site and in the surrounding area following completion of the proposed Development.

4.7.3 Proposed Approach and Methodology

The methodology for the landscape and visual assessment will follow current best practice and draw on published guidance as detailed in the Guidelines for Landscape and Visual Impact Assessment (2002, 2nd Ed.) produced by The Landscape Institute and the Institute for Environmental Management and Assessment. The assessment will include the following:

- a desk study to obtain existing information regarding the Site and its surrounding landscape and visual context;
- creation of digital terrain model using GIS to identify potential key receptors within the surrounding environs of the Site;
- a Site survey visit to ascertain landscape character and the visual context on-Site and in the surrounding area;

- identification of landscape features including review of a tree survey completed by Nicholson Nurseries in November 2006;
- identification of key representative viewpoints on-Site and in the surrounding area which will be agreed with CDC and of which a photographic record will be made;
- where considered necessary, and in consultation with CDC, photomontages of key views would be produced; and
- qualitative assessment of the Development proposals on landscape character and key views using professional judgement.

4.8 Archaeology and Cultural Heritage

4.8.1 Overview of Baseline Conditions and Key Issues

The Site is situated within the RAF Upper Heyford Airbase Conservation Area. The Conservation Area extends off-Site to the north, to encompass the Flying Field area which is referred to as the Cold War Landscape. The Site itself is referred to as the Landscape to the South of the Cold War Zone and the buildings date from the 1920's. The Site contains two Scheduled Monuments: the Hardened Telephone Exchange and the Battle Command Centre. Overall, the cultural heritage value of the Site is less significant than that of the Cold War landscape to the north.

4.8.2 Potential Impacts

Potential archaeological and cultural heritage impacts during the construction and operational phases of the proposed Development, to be addressed by the ES would include:

- disturbance, removal or destruction of unknown buried archaeological deposits during demolition and construction works;
- direct impacts on buildings and structures of heritage value from demolition or removal; and
- indirect impacts on the setting of buildings and structures of heritage value and the Conservation Area itself following the completion of the proposed Development.

4.8.3 Proposed Approach and Methodology

A desk-based archaeological and built heritage assessment will be undertaken using available archaeological and historical information from documentary and cartographic sources including the Oxfordshire Sites and Monuments Record and results of previous archaeological investigations. The assessment will be guided by the *'Standard and Guidance for Archaeological Desk-based Assessments'* issued by the Institute of Field Archaeologists (2008). A Site visit will be used to assess the architectural merit, condition and setting of the standing buildings of heritage interest and the Conservation Area as a whole. English Heritage, the County Archaeologist and CDC will also be consulted.

4.9 Ecology

4.9.1 Overview of Baseline Conditions and Key Issues

The Site is not covered by any statutory or non-statutory nature conservation designations although Ardley Quarry and Cutting Site of Special Scientific Interest lies around 1.6km to the north-west of the Site. Several non-statutory designations lie within 2km of the Site, these are:

- RAF Upper Heyford County Wildlife Site (CWS), which lies around 600m to the north-east of the Site;
- Rush Spinney CWS located around 800m to the west of the Site; and

- RAF Upper Heyford Ecologically Important Landscape situated around 300m to the north of the Site.

The Site is generally of low ecological habitat predominantly comprised of hardstanding and amenity grassland, with several linear plantation woodland features.

Surveys by EPR undertaken during 2002 and 2006/2007 identified a number of bat roosts including one medium sized maternity roost of common pipistrelle bats.

A 2007 survey also undertaken by EPR found 3 water bodies on the Site containing great crested newts which together with several off-Site water bodies are considered to provide habitat for a medium sized population of great crested newts.

4.9.2 Potential Impacts

Potential impacts on ecology relate to the possibility of the disturbance or harm of protected or notable species, or damage to, or removal of, habitats of value.

The proposed Development is unlikely to increase recreational use and disturbance of the RAF Upper Heyford CWS due to the fact that public access would not be permitted to this area. In addition, impacts from an increase in the numbers of domestic pets on species in this area would not be expected due to the provision of cat-proof fencing between the Settlement Area and Flying Field Area which is enforced through the 2010 planning consent for the entire former Airbase. For these reasons these issues have been scoped out of the EIA.

4.9.3 Proposed Approach and Methodology

The ecological assessment will be informed by an updated Phase I Habitat survey which has recently been undertaken and a desk study to obtain up to date baseline data including any protected species records. Ecological resources will be evaluated in accordance with '*Guidelines for Ecological Impact Assessment in the United Kingdom*' (IEEM, 2006). This guidance will be used for all aspects of the ecological assessment.

Legislation and planning policy relating to biodiversity will also be taken into account through the assessment process including PPS 9: '*Biodiversity and Geological Conservation*' (2005), local planning policy and the Oxfordshire Biodiversity Action Plan.

The update Phase I Habitat Survey has identified the potential for the following protected and notable species to be present on-Site:

- great crested newt;
- bats; and
- reptiles.

Further surveys for these protected species will therefore be undertaken all of which will follow current guidelines and will be discussed and agreed with Natural England in advance. Other relevant organisations such as the Oxfordshire Wildlife Trust will also be consulted.

4.10 Socio-Economics

4.10.1 Overview of Baseline Conditions and Key Issues

The Development includes the provision of residential units, commercial use, a neighbourhood centre and primary school. Key issues therefore include the potential increase in the demand for public service infrastructure resulting from the additional residential units, the contribution of the Development to the

housing and economic objectives of CDC and the ability of the Development to generate new employment.

4.10.2 Potential Impacts

Potential impacts are likely to include:

- short-term increase in employment during construction works;
- long-term economic benefit including increased employment once the Development is complete;
- increased demand on education provision;
- increased demand on healthcare facilities; and
- changes to mix and balance of housing in the area.

In order to meet additional demand on-Site, a primary school and other local neighbourhood centre services, such as local shops form part of the proposed Development. Therefore, it is considered that there would be no significant impact in relation to community facilities and services, other than secondary education provision and healthcare facilities. Consequently, apart from secondary education and healthcare provision, the impact on the capacity of other community facilities and services is scoped out of the EIA. In addition, it is not anticipated that there would be any other significant social impacts, such as increased crime, as a result of the proposed Development and this is also therefore scoped out of the EIA.

4.10.3 Proposed Approach and Methodology

The socio-economic assessment will comprise a desk-based assessment utilising secondary data sources, data available in the public domain and any other relevant documents. The existing socio-economic structure within the area would be considered along with economic development policy, housing policy and any other relevant policy or community strategies. Information on forecast capacity for education and health services will be obtained from published sources or where unavailable, the education and health authorities would be consulted directly.

The assessment will be quantified, wherever possible; otherwise, a qualitative assessment would be undertaken based on professional experience and judgement.

4.11 Cumulative Impacts

4.11.1 Definition and Potential Impacts

Cumulative impacts are those that result from incremental changes caused by other past, present or reasonably foreseeable activities or projects in the local area, in combination with the proposed Development. Cumulative impacts can be split into two categories:

- impact interactions, which are the combination of individual impacts on a particular receptor, for example noise, dust and visual impacts, from the proposed Development; and
- cumulative impacts, which are the combination of impacts from several developments, that individually may be insignificant, but when considered together could result in a significant cumulative impact.

4.11.2 Proposed Approach and Methodology

Impact interactions will be qualitatively assessed using the findings of the individual EIA technical studies and professional judgement.



The consented Flying Field proposals are considered to be committed development that will be considered in combination with the proposed Development, to identify whether any cumulative impacts are likely to arise. CDC will be consulted to establish whether there are any other committed developments within the area which have the potential to give rise to significant cumulative impacts.

Where possible, any cumulative impacts identified would be assessed quantitatively through detailed modelling (for example, cumulative traffic flow impacts and traffic noise impacts). Where quantified assessment is not possible, cumulative impacts would be assessed qualitatively using the findings of the individual EIA technical studies for the proposed Development, any available information from the identified committed developments to be considered and professional judgement.

5. Issues Scoped Out of the EIA

The aim of this Scoping Report is to focus the EIA on those environmental issues that may be significantly affected by the Development proposals. In doing so, issues may be 'scoped out', in that the potential for significant impacts has been deemed unlikely. In addition to vibration and unexploded ordnance, which are scoped out for reasons set out above, the following section provides details of the other issues that have been 'scoped out' of the EIA.

5.1 Waste

5.1.1 Potential Impacts

Potential waste impacts could relate to the following:

- creation of waste during the demolition and construction phase of Development; and
- creation of domestic waste during operational phase of Development.

5.1.2 Justification for Scoping Out of the EIA

It is likely that waste from demolition and refurbishment works as well as a limited amount from construction of new buildings would occur during the demolition and construction phase. This would be the case for any redevelopment project and the critical aspect is how this waste is managed. For this reason, large construction projects are required to be undertaken in accordance with a Site Waste Management Plan which can be prepared following consent. A Site Waste Management Plan would therefore be prepared for the proposed Development prior to construction. Implementation of the Site Waste Management Plan would ensure that good Site management practice would lead to a minimisation of waste creation and enable the re-use or recycling of waste materials that arise from the demolition and construction process where practicable.

Once operational, an increased quantity of domestic and commercial waste would result from the Development, although this increase is likely to be relatively small. Furthermore, CDC has an excellent record of recycling both within the County and the South East region and as a result quantities of waste for disposal would be reduced. The operational waste impacts are therefore considered to be insignificant.

In conclusion, it is considered that waste impacts should be scoped out of the EIA because the potential waste impacts are considered to be insignificant. Note that the appropriate management, potential treatment and disposal of any contaminated soils or hazardous materials to be removed from the Site will be addressed as part of the Ground Conditions and Contamination assessment (**Section 4.5.2** refers).

5.2 Light Pollution

5.2.1 Potential Impacts

Potential light pollution impacts could relate to the following:

- change in horizontal light spill and glare to adjacent areas around the Site which currently experience only low levels of lighting; and
- change in upwards light spill contributing to sky glow.

5.2.2 Justification for Scoping Out of the EIA

Lighting levels in the surrounding area of the Site are typical of rural locations and are relatively low. Current lighting levels at the Site itself are more typical of a suburban location that is relatively well lit and which can create light spill and glare where light installations are dated and do not accord with modern design standards. This is the case on-Site, where older light installations are present and a degree of light spill, glare and sky glow is already caused from lighting at the Site.

The impact of artificial light pollution depends on the design of proposed lighting installations which will not be considered as part of an outline planning application. However, at least some existing light installations would be replaced as a result of the Development. The lighting design for all new light installations must accord with modern lighting standards. Modern lighting design includes for the use of white light which reduces glare and also includes for directional lighting with cut-off to reduce horizontal and vertical light spill. It is therefore considered that although the Site's use would intensify following Development, there is unlikely to be a significant change in light pollution impacts. It is therefore considered that light pollution impacts can be scoped out of the EIA.

6. Proposed Structure of the Environmental Statement

The proposed structure of the ES as set out below is based upon the EIA Regulations and current best practice:

Environmental Statement: Volume 1: Main Text

This will contain the full text of the EIA. The proposed chapter headings are set out below:

- Introduction;
- EIA Methodology;
- Description of the Development;
- Transportation;
- Noise;
- Air Quality;
- Ground Conditions and Contamination;
- Water Resources;
- Landscape and Visual Character;
- Archaeology and Cultural Heritage;
- Ecology;
- Socio-Economics; and
- Cumulative Impacts.

Environmental Statement: Volume 2 – Technical Appendices

This will provide detailed supporting data and the full text of a number of technical assessments and will be supplied in a separate volume or series of volumes. Such technical appendices are likely to include noise survey data.

Environmental Statement: Volume 3 – Non-Technical Summary

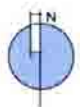
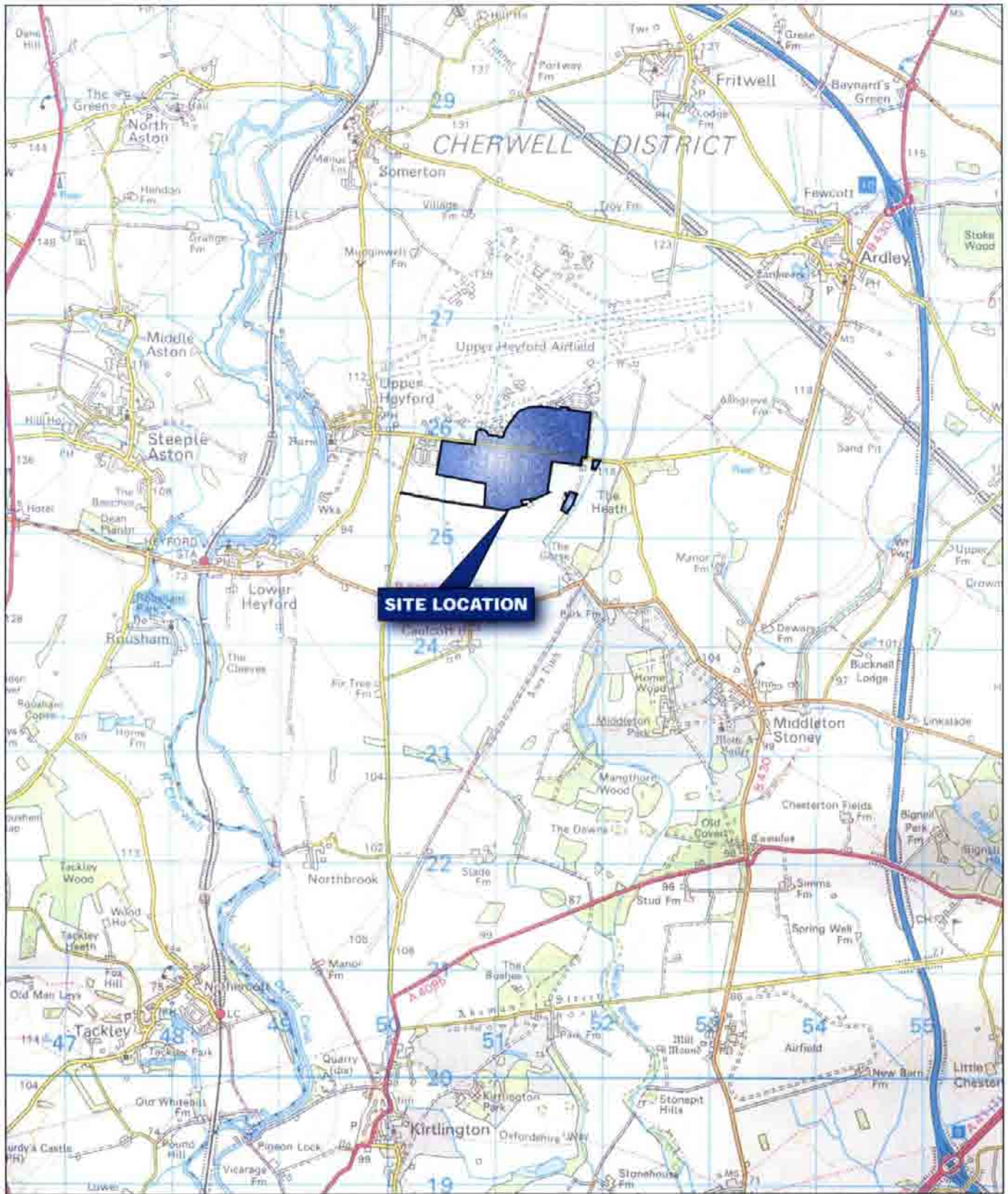
This will provide a concise summary, in non-technical language i.e. 'plain English', of the key information in the EIA. The Non-Technical Summary will be produced as an illustrated stand-alone document in a format suitable for public dissemination.



APPENDICES



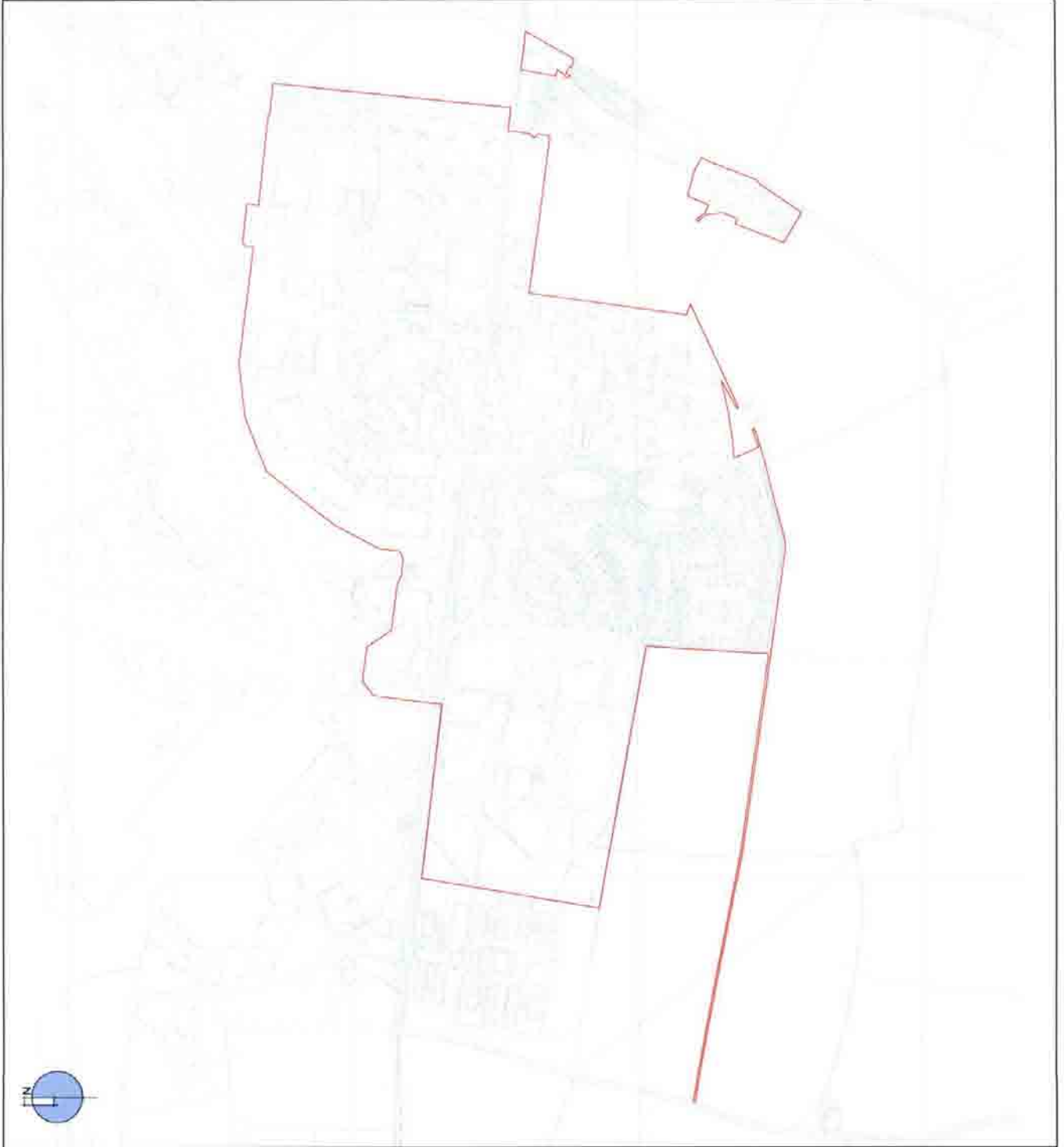
Appendix A. Figures



Project Details	E10658-103: Upper Heyford
Figure Title	Figure 1: Site Location Plan
Figure Ref	E10658-103_GR_SR_1A
Date	May 2010
File Location	\\nt-lng2\weed\projects\10658\103\graphics\issued figures



Site Boundary



Project Details
E10658-103: Upper Heyford
Figure Title
Figure 2: Site Boundary Plan
Figure Ref
E10658-103_GR_SR_2A
Date
May 2010
File Location

<http://www.watermanenergy.com/projects/e10658/103/gr/sr/2a/figures>



Appendix B. Extract from Environmental Statement, Roger Evans Associates Ltd, September 2007

10 AIR QUALITY

10.1 INTRODUCTION

10.1.1 This chapter of the Environmental Statement has been produced by Arup and considers and assesses the impact of the proposed Heyford Park development on the local air quality through identification of potential direct and indirect emission sources. It outlines the current regulatory system relevant to air quality management, the baseline air quality conditions in the area and the methodology used to assess air quality impacts. Potential changes to air quality, as a result of the development proposals, have been considered in relation to the UK Government's Air Quality Strategy objectives to determine their significance. Where appropriate, mitigation measures are outlined to ensure any adverse effects on air quality are minimised or avoided.

10.2 REGULATORY FRAMEWORK

The Land use Planning Process

10.2.1 The land use planning process is a key means of improving air quality, particularly in the long term, through the strategic location and design of new developments. Any air quality consideration that relates to land use and its development can be a material planning consideration in the determination of planning applications, dependent upon the details of the proposed development.

National Planning Policy

10.2.2 Planning policies particularly relevant to air quality are set out in PPG13¹ - Transport and PPS23 - Planning and Pollution Control², and in the Local Air Quality Management guidance note on Air Quality and Land Use Planning³.

PPS23: Planning and Pollution Control (2004)

10.2.3 PPS23: Planning and Pollution Control PPS23 (2004) is intended to complement the new pollution control framework under the Pollution Prevention and Control Act 1999 and The Pollution Prevention and Control (England and Wales) Regulations 2000. PPS23 sets out the Government's core policies and principles on pollution and land use planning. It contains an Annex on 'Pollution Control, Air and Water Quality' which considers the links between the land use planning and pollution control systems and how the interaction should be dealt with in planning. Policies and advice contained within PPS23 (including Annexes) should be taken into account in preparing policies relevant to potentially polluting sites by Regional Planning Bodies, Regional Spatial Strategies and Local Planning Authorities and in determining applications for planning permission. PPS23 also makes reference to proposed development within designated Air Quality Management Areas (AQMA). It states that whilst it is important that the possible impact on air quality to or in an AQMA are considered, it is not the case that all planning applications for development inside or adjacent to AQMA

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should be refused if the developments would result in a deterioration of local air quality as this could sterilise development.

PPG13: Transport (2001)

- 10.2.4** A revised version of PPG13 (Transport) was published in March 2001, updating the Government's transport planning policies, with the objectives of delivering an integrated transport policy, extending transport choices and securing mobility in a way that supports sustainable development. The aim is to integrate planning and transport at a number of levels to promote more sustainable transport choices (for people and freight), to promote accessibility to services and to reduce the need to travel, especially by car. PPG13 states that local air quality is a key consideration in the integration between planning and transport. This is particularly relevant in areas where the Government's national air quality objectives are not expected to be met and air quality action plans are formulated. The PPG advises that well designed traffic management measures are able to contribute to reducing local air pollution and improving the quality of local neighbourhoods.

Local Air Quality Management Policy Guidance LAQM.PG(03)

- 10.2.5** Policy guidance note LAQM.PG(03) provides additional guidance on the links between transport and air quality. PG(03) describes how road transport contributes to local air pollution and how transport measures may bring improvements in air quality. Key transport related Government initiatives are set out, including regulatory measures and standards to reduce vehicle emissions and improve fuels, tax-based measures and the development of an integrated transport strategy.
- 10.2.6** LAQM.PG(03) also provides guidance on the links between air quality and the land use planning system. The guidance advises that air quality considerations would be integrated within the planning process at the earliest stage, and is intended to aid local authorities in developing action plans to deal with specific air quality problems and create strategies to improve air quality generally. It summarises the main ways in which the land use planning system can help deliver air quality objectives.

National Society for Clean Air (NSCA) Guidance – Development Control: Planning for Air Quality

- 10.2.7** The revised 2006 NSCA guidance note 'Development Control: Planning for Air Quality'⁴ responds to the need for closer integration between air quality and development control. It provides a framework for air quality considerations within local development control processes, promoting a consistent approach to the treatment of air quality issues within development control decisions.
- 10.2.8** The guidance shown in Figure AQ.01 includes an approach for assessing the significance of the impacts of development proposals in terms of air quality and how to make recommendations relevant to the development control process in light of this assessment. The need for early and effective dialogue between the developer and Local Authority is identified to allow air quality concerns to be addressed as early in the development control process as possible. The guidance also provides some clarification as to when air quality

constitutes a material consideration. The approach for assessing the significance of air quality impacts associated with a given development has been used in this assessment, and is outlined in section 10.3

Regional Planning Policy

10.2.9 Relevant regional planning policy for the South East is contained in Regional Planning Guidance (RPG9).

Regional Planning Guidance for the South East

10.2.10 The Regional Planning Guidance for the South East⁵ was published by the Secretary of State for Environment, Transport and the Regions in March 2001. The document sets out a broad development strategy for the South East up to 2016. One of the underlying aims of the strategy is to protect and enhance the environmental quality of the region, including air quality, as set out in Policy E7 of Chapter 6: Environmental Strategy and the Countryside. This policy states:

"Local authorities should work with the Environment Agency and others to play a positive part in pollution control and encourage measures to improve air quality.

a) *Development plans should:*

- i *include policies on the location of potentially polluting developments and the location of sensitive developments in the vicinity of existing polluting developments in line with guidance PPG23 (Planning and Pollution Control);*
- ii *take account of the findings of air quality reviews and assessments; and*
- iii *take into account any Air Quality Management Areas (AQMAs) designated under Part IV of the Environmental Act 1995 and any AQMA action plans.*

b) *In addition, local authorities should:*

- i *ensure at the planning application stage, that air quality is taken into account where appropriate along with other material considerations;*
- ii *seek to reduce environmental impacts of transport activities by supporting the increased provision of cleaner transport fuels such as liquefied petroleum gas (LPG) and compressed natural gas (CNG), for example, by enabling the development of refuelling infrastructure; and*
- iii *work in partnership taking steps to achieve an integrated approach to air quality management."*

10.2.11 The South East Plan is a new type of planning document, which was submitted to Government on 31 March 2006. The examination period ran from 28 November 2006 to 30 March 2007 and the panel's report was due at the end of August 2007. Consultation on the proposed changes are then expected in early 2008, with the revised document publication planned for the autumn.

Local Planning Policy

Cherwell Local Plan

10.2.12 The Cherwell Local Plan (adopted November 1996) remains part of the statutory Development Plan for the area. It contains broad strategic planning functions for the collective area. The draft Cherwell Local Plan 2011, now re-titled as the "Non-Statutory Cherwell Local Plan 2011" was due to be introduced as a replacement for the Local Plan, however work on this was discontinued in December 2004 to begin work on the Local

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Development Framework (LDF) under the Planning and Compulsory Purchase Act 2004. As work on the LDF is still on-going, many of the most up-to-date policies are present in the Non-Statutory document.

10.2.13 The most pertinent policy in terms of air quality is contained in Chapter 9. Conserving and Enhancing the Environment; Policy EN5: Air Pollution, which states:

"In determining planning applications, the council will have regard to the likely impact of the development on air quality as a result of its operational characteristics and the traffic generated by it. 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."

Air Quality Objectives and Limit Values

10.2.14 Air quality limit values and objectives are quality standards for clean air. They can be used as assessment criteria for determining the significance of any potential changes in local air quality resulting from the proposed development.

10.2.15 European Union (EU) air quality policy sets the scene for national policy. The EU air quality 'framework' Directive on Ambient Air Quality Assessment and Management came into force in September 1996 and is intended as a strategic framework for tackling air quality consistently, through setting European-wide air quality limit values in a series of daughter directives, superseding and extending existing European legislation. The first four daughter directives have already been placed into national legislation.

10.2.16 In a parallel national process, the Environment Act was published in 1995. The Act required the preparation of a national air quality strategy setting air quality standards and objectives for specified pollutants and outlining measures to be taken by local authorities (through the system of Local Air Quality Management ('LAQM')) and by others 'to work in pursuit of the achievement' of these objectives. A National Air Quality Strategy (NAQS) was published in 1997 and subsequently reviewed and revised in 2000, as the *Air Quality Strategy for England, Scotland, Wales and Northern Ireland*⁶ and an addendum to the Strategy was published in 2003⁷. The current *Air Quality Strategy for England, Scotland, Wales and Northern Ireland* has just recently been published in July 2007⁸. The objectives which were relevant to local air quality management were set in regulations (Air Quality Regulations 2000 and 2002), and have since been updated into the *Air Quality Standards Regulations 2007*⁹.

10.2.17 Some pollutants have standards expressed as annual average concentrations due to the chronic way in which they affect health or the natural environment (i.e. effects occur after a prolonged period of exposure to elevated concentrations) and others have standards expressed as 24 hour, one hour or 15 minute average concentrations due to the acute way in which they affect health or the natural environment (i.e. after a relatively short period of exposure). Some pollutants have standards expressed in terms of both long-term and short-term concentrations (e.g. nitrogen dioxide and fine particulate matter).

10.2.18 Table AQ.01 sets out the EU air quality limit values and national air quality objectives for the main pollutants relevant to this study.

Pollutant	Averaging Period	Objective/ Limit Value	Compliance Date	Basis
Nitrogen dioxide (NO ₂)	1 hour mean	200 µg/m ³ (105ppb), not to be exceeded more than 18 times a year (99.8th percentile)	31st Dec 2005	National
			1st Jan 2010*	EU
	Annual mean	40 µg/m ³	31st Dec 2005	National
			1st Jan 2010*	EU
Fine particulate matter (PM ₁₀)	24 hour mean	50 µg/m ³ , not to be exceeded more than 35 times a year (90th percentile)	31st Dec 2004	National
			1st Jan 2005* (Stage I)	EU
Measurement technique: Gravimetric	Annual mean	40 µg/m ³	31st Dec 2004	National
			1st Jan 2005*(Stage I)	EU

*Changes have been proposed but are not yet included in the regulations

10.2.19 Performance against these objectives is monitored where people are regularly present and might be exposed to air pollution, and it is the responsibility of each Local Authority to undertake such duties. Each Local Authority is required to undertake a review and assessment of local air quality. The process considers the current air quality situation and the likely future air quality situation, assessing whether the prescribed objectives are likely to be achieved by their target dates.

10.3 ASSESSMENT APPROACH

Terms of Reference

10.3.1 The main elements of the proposed development relevant to local air quality are emissions from the following sources:

- Demolition and construction activities, including construction-related traffic; and,
- Traffic related to the operation of the proposed development (operational traffic), i.e. traffic travelling to and from the proposed new development.

The air quality assessment of the proposed development comprises:

- A review of existing air quality in the area;
- Assessment of the potential changes in air quality arising from the construction and operation of the proposed development;

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- Formulation of mitigation measures, where appropriate, to ensure that any adverse effects on air quality are minimised; and,
- Identification of likely residual effects, following application of the outlined mitigation measures.

Methodology

Review of Air Quality Situation

10.3.2 The existing air quality situation has been reviewed through data available from Cherwell District Council's air quality assessment documents.

Construction Assessment Approach

10.3.3 Construction effects have been assessed through a qualitative assessment of potential sources of air pollutant emissions from construction activities and through the formulation of appropriate mitigation and control measures to be placed within a formal Code of Construction Practice (CoCP).

10.3.4 The GLA London Best Practice Guide¹⁰ has also been used, which consolidates existing guidance on emissions from construction and demolition activities and takes into account the latest best practice and new techniques. It also requires the site manager or contractors to undertake a qualitative Air Quality Impact Evaluation, whereby the site is evaluated and mitigation measures are proposed based on the outcome. This is further discussed in section 10.5

Operational Assessment Approach

10.3.5 Operational air quality impacts from road traffic related to the new development proposals have been assessed using a detailed air dispersion model, CALINE4. This model updates the CALINE3 model, which is recommended for use by the US Environmental Protection Agency to predict air pollutant concentrations near roadways at discrete receptors. Predicted pollutant concentrations from the modelling have then been compared with the relevant air quality standards and objectives. The pollutants assessed were nitrogen dioxide (NO₂) and fine particulate matter (PM₁₀); as these were identified through consultation with the Environmental Health Officer (E.H.O.) at Cherwell District Council as being the principal pollutants of concern.

10.3.6 Pollutant concentrations have been forecast using CALINE4, as described above, which calculates one-hour mean pollutant concentrations, based on a variety of inputs (as detailed below).

10.3.7 Pollutant concentrations have been forecast for the following scenarios:

- The baseline (existing) development traffic scenario of 2006;
- The 2013 'Do Minimum' opening year scenario without the proposed development in place; and,
- The 2013 'Do Something' opening year scenario with the proposed development in place.

The results of the dispersion modelling have been compared to the appropriate standards and guidelines.

CALINE4 Model Input data

10.3.8 The CALINE4 air dispersion model requires the following input data:

- Traffic data (vehicle flows, average speeds and percentage of heavy goods vehicles);

- Vehicle exhaust emission rates;
- Background pollutant concentrations; and,
- Meteorological data.

Further details on each of these inputs are described below.

Traffic Data and Assumptions

10.3.9 Information on local traffic flows has been obtained from Arup Transport Planning through automatic traffic count (ATC) data and traffic modelling. The ATC data was available for the road network in the vicinity of the development.

10.3.10 The traffic data consisted of 24 hour annual average daily flows (AADT), average speeds and percentages of heavy goods vehicles (HGVs) on the local network, and included generated flows in relation to the new development for each of the future assessment scenarios.

10.3.11 The CALINE4 dispersion model requires roads to be split into a series of links, which represent sections where traffic conditions are reasonably homogenous in regard to flow and average speed.

Pollutant Emission Rates

10.3.12 For the detailed modelling, a network of links was developed which represented vehicle movements on the local road system. Pollutant emission rates from vehicles were calculated using emission data provided in the Design Manual for Roads and Bridges (DMRB)¹¹, using vehicle speeds and percentage of heavy goods vehicles on each link, along with the relevant assessment years (2006 and 2013).

10.3.13 It is important to ensure the correct assessment year is selected when calculating emission rates, as they are forecast to reduce with time due to improvements in vehicle emission control technologies and legislative requirements.

Receptor Locations

10.3.14 Pollutant concentrations have been forecast at selected properties (from hereon, referred to as receptors), where exposure of residents to atmospheric emissions from road traffic is potentially the greatest. Pollutant concentrations decrease significantly with distance from a road source and, provided that there are no other major sources in the vicinity, concentrations are lower than at properties located further away from the receptors chosen.

10.3.15 Seven receptors were selected for this assessment positioned over a large study area at the request of the E.H.O. at Cherwell D.C., with each of these receptors being a property in closest proximity to primary access routes affected by the development. Front facades of the properties were taken as the receptor points. Table AQ.02 details the receptor locations in this assessment, which are further shown in section 10.5 and illustrated in Figure AQ.02

Receptor Number	Receptor Location / Grid Reference	Description
1)	GP Surgery / (446970, 228656)	Surgery
2)	Hopcroft Holt Hotel / (446541, 225112)	Hotel
3)	Dovecote Farm / (449801, 228691)	Residential Property
4)	134 Freehold Road / (449227, 224753)	Residential Property
5)	4 Dow Street / (451186, 225745)	Residential Property
6)	1 Ardley Fields Farm Cottages / (453996, 226377)	Residential Property
7)	Corner Cottage / (453439, 223487)	Residential Property

Background Pollutant Concentrations

10.3.16 The modelling procedure requires that emissions from sources other than road vehicles are taken into account. Consequently, values for the background pollutant concentrations are required. Long-term (annual) mean background concentrations are available on the National Air Quality Archive¹². For this assessment, the relevant values were added to the predicted model results to determine whether the air quality objectives and limit values are likely to be met.

10.3.17 The background concentrations for the receptors surrounding the development site are presented in section 10.4

Met Data

10.3.18 Meteorological files comprising sequential hourly meteorological data for 2003 to 2005 from RAF Brize Norton meteorological station were used in the model at the request of the E.H.O. at Cherwell D.C. Meteorological files from RAF Upper Heyford were initially requested; however the data from Brize Norton was more up-to-date. These sets of data are required to assess the pollutant concentrations over the various time periods defined by the air quality objectives (i.e. 1 hour, 24 hour and annual means).

10.3.19 The model was run using all three years of meteorological data, in order to provide the worst-case prediction of pollutant concentrations for all of the scenario models. In this assessment, the results showed that 2003 was the worst-case meteorological year.

Model Data Processing and Road Network

10.3.20 The detailed dispersion modelling results have been processed to calculate the percentile values and averaging periods required.

- 10.3.21** NO_x emissions from combustion sources (including vehicle exhausts) comprise principally nitric oxide (NO) and a small percentage of nitrogen dioxide (NO₂). The emitted nitric oxide reacts with oxidants in the air (mainly ozone) to form more nitrogen dioxide. Since only nitrogen dioxide is associated with effects on human health, the air quality standards for the protection of human health are based on NO₂ and not total NO_x or NO. A suitable NO_x: NO₂ conversion needs to be applied to the modelled NO_x concentrations.
- 10.3.22** There are a variety of different approaches to dealing with NO_x: NO₂ relationships and Government guidance indicates that the use of any of these is acceptable¹³. The method applied to the annual mean NO_x in this study is the new approach by Air Quality Consultants Ltd, based on monitoring data from 2003 - 2006, to allow for the increase in the primary NO₂ from traffic¹⁴. The update supersedes the original conversion, issued as part of the current Technical Guidance, LAQM.TG(03). Since then, evidence has emerged that the proportion of primary NO₂ in vehicle exhaust has increased and the relationship between NO_x and NO₂ at the roadside has changed.
- 10.3.23** To obtain the hourly mean NO₂ concentrations the Derwent-Middleton correlation¹⁵ was applied to the hourly mean NO_x concentrations.

Significance Criteria

- 10.3.24** The updated NSCA guidance provides further clarification on how to describe the significance of the impacts predicted from the air quality modelling, specifically for the pollutants NO₂ and PM₁₀.
- 10.3.25** Two tables are presented that set out examples of descriptors for magnitude of change and significance (as shown below in Tables AQ.03 and AQ.04). The first step is to identify the descriptor of change in ambient concentrations for NO₂ and PM₁₀ (Table AQ.03) according to the percentage change in annual mean concentrations (for both NO₂ and PM₁₀) and change in the forecast number of days greater than 50µg/m³ for PM10. The descriptor can then be used to assess the impact significance for the two pollutants in relation to changes in the absolute concentration forecast from the modelling with the proposed development in place (Table AQ.04).

Table AQ.03: Descriptors for Changes in Ambient Concentrations of Nitrogen Dioxide and PM₁₀

Magnitude of Change	Annual Mean NO ₂ / PM ₁₀	Days PM ₁₀ >50 µg/m ³
Very large	Increase/decrease > 25%	Increase/decrease > 25 days
Large	Increase/decrease 15-25%	Increase/decrease 15 -25 days
Medium	Increase/decrease 10-15%	Increase/decrease 10-15 days
Small	Increase/decrease 5-10%	Increase/decrease 5-10 days
Very small	Increase/decrease 1-5%	Increase/decrease 1-5 days
Extremely small	Increase/decrease < 1%	Increase/decrease < 1 day

Source: Taken from the NSCA 2006 guidance update

Table AQ.04: Descriptors for Impact Significance for Nitrogen Dioxide and PM₁₀						
Air Quality Impact Significance Criteria						
Absolute Concentration in Relation to Standard	Extremely Small	Very Small	Small	Medium	Large	Very Large
Decrease with scheme						
Above Standard with scheme	Slight beneficial	Slight beneficial	Substantial beneficial	Substantial beneficial	Very substantial beneficial	Very substantial beneficial
Above Standard without scheme Below with scheme	Slight beneficial	Moderate beneficial	Substantial beneficial	Substantial beneficial	Very substantial beneficial	Very substantial beneficial
Below Standard without scheme, but not Well Below	Negligible	Slight beneficial	Slight beneficial	Moderate beneficial	Moderate beneficial	Substantial beneficial
Well Below Standard without scheme	Negligible	Negligible	Slight beneficial	Slight beneficial	Slight beneficial	Moderate beneficial
Increase with scheme						
Above Standard without scheme	Slight adverse	Slight adverse	Substantial adverse	Substantial adverse	Very substantial adverse	Very substantial adverse
Below Standard without scheme Above with scheme	Slight adverse	Moderate adverse	Substantial adverse	Substantial adverse	Very substantial adverse	Very substantial adverse
Below Standard with scheme, but not Well Below	Negligible	Slight adverse	Slight adverse	Moderate adverse	Moderate adverse	Substantial adverse
Well Below Standard with scheme	Negligible	Negligible	Slight adverse	Slight adverse	Slight adverse	Moderate adverse
Well Below standard = <75% of the standard level. 'Standard' in the context of this table relates to specific air quality objective or Limit Value in question						

Source: Taken from the NSCA 2006 guidance update

10.4 BASELINE CONDITIONS

10.4.1 Existing or baseline ambient air quality refers to the concentration of relevant substances that are already present in the environment – these are present from various sources, such as industrial processes, commercial and domestic activities, agriculture, traffic and natural sources. This section describes the existing ambient air quality situation in the area of the proposed development.

The following data sources have been employed in this assessment:

- Air Quality Updating and Screening Assessment for Cherwell, Cherwell District Council, January 2007;
- National Air Quality Archive; and,
- Environment Agency website.

Air Pollution Sources

Industrial Processes

- 10.4.2** Industrial air pollution sources are regulated through a system of operating permits and authorisations, which require stringent emission limits to be met in order to ensure that any releases to the atmosphere are minimised or rendered harmless.
- 10.4.3** Regulated (or prescribed) industrial processes are classified as Part A or Part B processes. Part A processes regulated through the Integrated Pollution Prevention and Control (IPPC) system¹⁶ fall into two categories – Part A1 processes which are regulated by the Environment Agency and Part A2 processes which are regulated by the Local Authorities. Part A processes have the potential for release of prescribed substances to air, land and water, and as such require an IPPC permit to operate.
- 10.4.4** Part B processes are those regulated by the Local Authority through the Pollution Prevention and Control (PPC) system under the Pollution Prevention and Control (England and Wales) Regulations 2000. Part B processes are smaller in scale than Part A processes and have the potential for release of prescribed substances to air only, requiring a PPC authorisation or permit to operate.
- 10.4.5** There are currently 6 Part A processes and 59 Part B processes in operation within Cherwell District¹⁷, of which there are no Part A and 2 Part B processes in the vicinity of the proposed development, both of the latter situated in Heyford Park itself and carry out coating activities.
- 10.4.6** Given that the atmospheric releases of Part A and B processes are strictly regulated, they are not expected to significantly impact the ambient air quality at the proposed development site.

Road Traffic

- 10.4.7** Emissions from road traffic are recognised to be a major contributor to poor air quality. In recent decades, transport atmospheric emissions, on a national basis, have grown to match or exceed other sources in respect of many pollutants, particularly in urban areas. In the area surrounding the site of the proposed development, vehicle emissions are therefore likely to be the dominant source of air pollutants. The principal pollutants (produced as a result of traffic emissions) that have been identified as being of most concern by the UK Government's Air Quality Strategy (AQS) and in Highways Agency guidance are:
- Nitrogen dioxide (NO₂);
 - Fine particulate matter (PM₁₀);
 - Carbon monoxide (CO); and,
 - Volatile Organic Compounds (VOCs), especially benzene and 1,3-butadiene.

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10.4.8 Consultation with the Environmental Health Officer (E.H.O.) at Cherwell District Council however, concluded that the main pollutants of concern in the district are NO₂ and PM₁₀. This study therefore, only focuses on these two air pollutants, which are emitted by vehicular traffic.

Local Authority Review and Assessment

10.4.9 Cherwell District Council has been appraising its air quality through a review and assessment process involving assessment of current, and likely future air quality, against the seven key pollutants for Local Air Quality Management as required by the Environment Act 1995.

10.4.10 Where air quality objectives are predicted to be exceeded, local authorities are legally required to declare Air Quality Management Areas (AQMAs) covering at the very least predicted areas of exceedance.

10.4.11 The findings of the first stage of Cherwell District Council's review and assessment report in 1999, the Stage 2 report (2000), the Updating and Screening Assessment (2004) and the Progress Report (2005), all concluded that the air quality limits and objectives across the District were likely to be met at all monitoring locations and that no AQMAs needed to be declared.

10.4.12 An Updating and Screening Assessment has just been conducted as part of the third round of the review and assessment process. This concluded that a Detailed Review and Assessment is not required for any of the seven key pollutants and as such, no AQMAs need to be declared.

Ambient Air Quality Monitoring

10.4.13 The Updating and Screening Assessment (2007) details monitoring of nitrogen dioxide (NO₂) concentrations at 15 sites across the District through the use of diffusion tubes, however none of these sites are within the vicinity of the proposed development. The monitoring of fine particulate matter (PM₁₀) is not conducted by Cherwell District Council.

Background Pollutant Concentrations

10.4.14 The National Air Quality Archive provides estimates of background air quality parameters for 2004 for nitrogen oxides (NO_x), nitrogen dioxide (NO₂) and fine particulates (PM10) with projections for future years. Estimated concentrations of the three pollutants for national grid squares surrounding the proposed development site are presented below in Table AQ.05.

Reference Area	Pollutant	Year	
		2006	2013
Receptor 1. Grid Reference: - 446500, 228500	Nitrogen oxides, NO _x (µg/m ³)	11.54	8.90
	Nitrogen dioxide, NO ₂ (µg/m ³)	9.18	7.22
	Fine particulate matter, PM ₁₀ (µg/m ³)	18.82	17.39

Reference Area	Pollutant	Year	
		2006	2013
Receptor 2. Grid Reference: - 446500, 225500	Nitrogen oxides, NO _x (µg/m ³)	11.54	8.94
	Nitrogen dioxide, NO ₂ (µg/m ³)	9.21	7.26
	Fine particulate matter, PM ₁₀ (µg/m ³)	18.82	17.10
Receptor 3. Grid Reference: - 449500, 228500	Nitrogen oxides, NO _x (µg/m ³)	12.03	9.32
	Nitrogen dioxide, NO ₂ (µg/m ³)	9.55	7.53
	Fine particulate matter, PM ₁₀ (µg/m ³)	18.82	16.81
Receptor 4. Grid Reference: - 449500, 224500	Nitrogen oxides, NO _x (µg/m ³)	11.26	8.74
	Nitrogen dioxide, NO ₂ (µg/m ³)	8.96	7.09
	Fine particulate matter, PM ₁₀ (µg/m ³)	18.82	16.71
Receptor 5. Grid Reference: - 451500, 225500	Nitrogen oxides, NO _x (µg/m ³)	12.51	9.59
	Nitrogen dioxide, NO ₂ (µg/m ³)	9.96	7.80
	Fine particulate matter, PM ₁₀ (µg/m ³)	18.72	17.01
Receptor 6. Grid Reference: - 453500, 226500	Nitrogen oxides, NO _x (µg/m ³)	23.86	17.16
	Nitrogen dioxide, NO ₂ (µg/m ³)	18.26	15.28
	Fine particulate matter, PM ₁₀ (µg/m ³)	20.42	18.36
Receptor 7. Grid Reference: - 453500, 223500	Nitrogen oxides, NO _x (µg/m ³)	24.34	17.44
	Nitrogen dioxide, NO ₂ (µg/m ³)	18.55	15.47
	Fine particulate matter, PM ₁₀ (µg/m ³)	21.82	19.62

10.5 IMPACT ASSESSMENT

Construction Impacts

10.5.1 Atmospheric emissions from construction activities would depend on a combination of the potential for emission (the type of activities) and the effectiveness of control measures. In general terms, there are two sources of emissions that would need to be controlled to minimise the potential for adverse environmental effects:

- Exhaust emissions from site plant, equipment and vehicles; and,
- Fugitive dust emissions from site activities – including demolition and construction dust.

Exhaust Emission Impacts

- 10.5.2** The operation of vehicles and equipment powered by internal combustion engines, results in the emission of exhaust gases containing the pollutants NO_x, PM₁₀, VOCs, and CO. The quantities emitted depend on factors such as engine type, service history, pattern of usage and composition of fuel. The operation of site equipment, vehicles and machinery would result in emission to the atmosphere of un-quantified levels of waste exhaust gases but such emissions are unlikely to be significant, particularly in comparison to levels of similar emissions from road traffic.
- 10.5.3** The traffic effects of the construction of the proposed development would be along the traffic routes employed by haulage vehicles, construction vehicles and employees. The principal construction activities with transportation implications are:
- Removal of surplus materials from any demolition or excavation work;
 - Delivery of materials for new development and construction; and
 - Movement of heavy plant.
- 10.5.4** Entry to the construction site for labour and vehicles would be by dedicated access points only. Construction traffic could have an impact on adjoining occupiers if not properly controlled but mitigation measures would be able to reduce these impacts.

Fugitive Dust Impacts

- 10.5.5** Fugitive dust emissions from demolition and construction activities are likely to be variable and would depend upon type and extent of the activity, soil conditions (soil type and moisture) road surface condition and weather conditions. Soils are inevitably drier during the summer period and periods of dry weather combined with higher than average winds have the potential to generate the most dust. The construction activities that are the most significant potential sources of fugitive emissions are:
- Demolition activities, due to the breaking up and size reduction of concrete, stone and compacted aggregates;
 - Earth moving, due to the excavation, handling, storage and disposal of soil and subsoil materials;
 - Construction aggregate usage, due to the transport, unloading, storage and use of dry and dusty materials (such as cement powder and sand);
 - Movement of heavy site vehicles on dry, untreated or hard surfaced surfaces; and,
 - Movement of vehicles over surfaces contaminated by muddy materials brought off the site - for example, over public roads.
- 10.5.6** Fugitive dust arising from construction activities is generally of particle size greater than the human health-based PM10 fraction. In assessing the impact of fugitive dust there are two different effects that need to be considered: the effects on human health and dust nuisance. The former relates to the concentration of dust in suspension in the atmosphere and the latter relates to the amount of dust falling onto and soiling surfaces (or rate of dust deposition). If not effectively controlled, fugitive dust emissions can lead to dust nuisance. Most of the dust emitting activities outlined above respond well to appropriate dust control/mitigation measures and adverse effects can be greatly reduced or eliminated.
- 10.5.7** The sensitivity of different land uses and facilities to dust can be categorised from low to high. The dust sensitive properties within the vicinity of the proposed development are primarily medium sensitivity facilities,

as although the surrounding area is sparsely populated rural land, the immediate surrounding is primarily a residential area.

- 10.5.8** The dust sensitive properties within the vicinity of proposed development are existing residential properties on the site, parallel to Camp Road and also properties along the dedicated haulage routes.
- 10.5.9** Dust dispersion and deposition patterns can vary widely depending on prevailing weather conditions. Wind speed is an important factor in the dispersal distance of dust emissions, while wind direction is crucial for determining where the dust concentrations may impact. Given that the prevailing wind direction is from the south west, it is the area to the north east of the site that is more likely to suffer dust nuisance.
- 10.5.10** Airborne dust has a limited ability to remain airborne and readily drops from suspension as a deposit. Research undertaken for the United States Environmental Protection Agency (US EPA)¹⁸ concluded that large particulate matter (particles over 30 µm in diameter), return to the surface quite rapidly. Under average wind conditions (mean wind speed of 2-6 m/sec), these particles, which comprise around 95% of total dust emissions were found to return to the surface within 60-90 m of the emission source¹⁹.
- 10.5.11** The GLA London Best Practice Guide partnership document provides guidance for the control of dust and emissions from construction and demolition activities. This is a London focussed document to provide consistent best practice for demolition and construction sites across London, although the principles of best practice are equally applicable to other areas outside London. The guide has a dual role in providing guidance to developers as well as providing Local Authorities with standards against which to evaluate best practicable means. One particular aspect of the guidance is that it requires site managers or contractors to undertake an Air Quality Impact Evaluation. Depending on the outcome of the assessment (high, medium or low risk), mitigation measures are then proposed to control the air quality effects of construction or demolition, as detailed below in Table AQ.06.

Table AQ.06: Site Evaluation Guidelines (Adapted from the Best Practice Guidance, The control of Dust and Emissions from Construction and Demolition).	
Low risk sites	
	<ul style="list-style-type: none"> ▪ Development of up to 1,000 square metres of land and; ▪ Development of up to one property and up to a maximum of ten and; ▪ Potential for emissions and dust to have an infrequent impact on sensitive receptors.
Medium risk sites	
	<ul style="list-style-type: none"> ▪ Development of between 1,000 and 15,000 square metres of land and; ▪ Development of between 10 to 150 properties and; ▪ Potential for emissions and dust to have an intermittent or likely impact on sensitive receptors.

Table AQ.06: Site Evaluation Guidelines (Adapted from the Best Practice Guidance, The control of Dust and Emissions from Construction and Demolition).

High risk sites

- Development of over 15,000 square metres of land, or;
- Development of over 150 properties or;
- Major Development referred to the Mayor/ and or the London Development Agency, or;
- Major development defined by a London borough (or local planning authority) or;
- Potential for emissions and dust to have significant impact on sensitive receptors.

Operational Impacts

10.5.12 The effects of traffic movements on local air quality, in the vicinity of the proposed development have been assessed using the modelling approach in section 10.3

Predicted Pollutant Concentrations

10.5.13 The forecast concentrations of pollutants from CALINE detailed modelling for the years 2006 and 2013, with all modelled scenarios are presented in Table AQ.07 below for comparison to relevant air quality standards and objectives.

Nitrogen dioxide

10.5.14 The forecast annual mean nitrogen dioxide (NO₂) concentrations at all 7 receptor locations surrounding the proposed development are all within the national and EU annual mean objectives for all scenarios modelled. Forecast concentrations decrease between 2006 and 2013 due to expected improvements in vehicle emission control technologies and a reduction in background concentrations.

10.5.15 The largest increases in concentration are forecast at No.1 Ardley Fields Farm Cottages (Receptor 6) and Dovecote Farm (Receptor 3), with predicted concentrations to be 22.2µg/m³ – 23.2µg/m³ and 14.2µg/m³ – 15.2µg/m³ respectively, for the 'Do-Minimum' and 'Do-Something' scenarios in the opening year of 2013.

10.5.16 The largest increase in the hourly concentration is forecast at Dovecote Farm (Receptor 3), with predicted concentrations to be 55.6µg/m³ – 59.9µg/m³ for the 'Do-Minimum' and 'Do-Something' scenarios in the opening year of 2013. These concentrations are well within the national and EU hourly mean objectives.

10.5.17 5 receptors experience a small increase in hourly pollutant concentrations between the scenarios however; the remaining 2 receptors experience an improvement in hourly concentrations. The same 5 receptor locations are predicted to experience a small increase in the annual mean concentrations also, however the remaining 2 locations experiencing no change. All of these concentrations are still a reduction from those predicted concentrations in the baseline year of 2006.

Fine particulate matter

- 10.5.18** The annual mean fine particulate matter (PM₁₀) concentrations are predicted to be well within the national and EU objectives across all receptors for all modelled scenarios. Only 3 of the receptors are predicted to experience an increase in PM₁₀ concentrations, all of 0.1 µg/m³; with the remaining receptors predicted to experience no change.
- 10.5.19** Predictions of the absolute daily average PM₁₀ concentrations are very complex since a wide variety of sources must be taken into account and these sources behave in different ways. Therefore, it is difficult to compare the forecast 35th highest daily mean to the objectives due to a lack of suitable background values. However, the results in Table AQ.07 enable the contribution of the proposed development to daily average PM₁₀ concentrations to be considered.

Table AQ.07 Summary of Predicted Concentrations for Modelled Receptors				
Objective / Value	Nitrogen dioxide		Fine particulate matter	
	Annual Mean	Hourly Mean	Annual Mean	Days>50 µg/m³
	µg/m³	µg/m³	µg/m³	
National	40	200	40	35
EU	40 by 2010	200 by 2010	20 by 2010	35 by 2010
Receptor 1: GP Surgery				
2006 Baseline	14.3	60.2	19.3	1.01
2013 Do-Minimum	11.0	52.0	17.7	0.63
2013 Do-Something	11.4	53.7	17.7	0.63
Receptor 2: Hopcroft Holt Hotel				
2006 Baseline	20.2	78.2	20.1	2.00
2013 Do-Minimum	15.6	71.9	17.9	1.24
2013 Do-Something	15.6	71.4	17.9	1.24
Receptor 3: Dovecote Farm				
2006 Baseline	18.0	63.7	19.7	1.42
2013 Do-Minimum	14.2	55.6	17.4	0.89
2013 Do-Something	15.2	59.9	17.5	0.89
Receptor 4: 134 Freehold Street				
2006 Baseline	15.2	64.4	19.5	1.23

Table AQ.07 Summary of Predicted Concentrations for Modelled Receptors				
	Nitrogen dioxide		Fine particulate matter	
Objective / Value	Annual Mean	Hourly Mean	Annual Mean	Days>50 µg/m³
	µg/m³	µg/m³	µg/m³	
2013 Do-Minimum	11.6	54.7	17.1	0.74
2013 Do-Something	11.6	54.2	17.1	0.74
Receptor 5: 4 Dow Street				
2006 Baseline	14.0	48.1	19.2	0.69
2013 Do-Minimum	10.8	39.4	17.3	0.42
2013 Do-Something	11.1	41.7	17.3	0.42
Receptor 6: 1 Ardley Fields Farm Cottage				
2006 Baseline	27.5	68.2	21.4	1.51
2013 Do-Minimum	22.2	59.3	19.0	1.00
2013 Do-Something	23.2	62.0	19.1	1.00
Receptor 7: Corner Cottage				
2006 Baseline	27.8	72.4	23.0	2.02
2013 Do-Minimum	22.8	64.2	20.3	1.23
2013 Do-Something	23.4	66.8	20.4	1.23

10.6 SIGNIFICANCE OF PREDICTED IMPACTS

Construction Impacts

- 10.6.1** According to the site evaluation guidelines described in section 10.5, the proposed development has been classified as a high risk site. This is due to the large number of properties involved and the potential for emissions and dust to have a significant impact on sensitive receptors, particularly those residential properties adjacent to Camp Road who are closest to the main site access. However, the Best Practice Guidance notes that the implementation of the suggested mitigation measures will help reduce the impact of the construction activities to medium or even low risk. Proposed mitigation measures are further discussed in section 10.7

Operational Impacts

- 10.6.2** As is evident from the results in section 10.5, and Tables AQ.03, AQ04 and AQ.07; negligible impacts are predicted as a result of the proposed development. Therefore, according to NSCA guidance 4 and the flow chart in Figure AQ.01, the following can be noted:

- Modelling shows that the proposed development does not lead to a breach of the national objectives or EU limit values for either pollutant or cause a new AQMA to be declared;
- The proposed development will not interfere with or prevent the implementation of the actions within any Air Quality Action Plan;
- It is not anticipated that the proposed development would interfere with the implementation of a local air quality strategy; and,
- The scheme will not lead to a significant increase in emissions.

10.6.3 Based on this, it is therefore considered that in the case of the proposed Heyford Park development, air quality would be a low priority consideration.

10.7 IMPACT MITIGATION

Construction Phase Mitigation Measures

10.7.1 Most of the dust emitting activities outlined above respond well to appropriate dust control/mitigation measures and adverse effects can be greatly reduced or eliminated. Effective dust mitigation measures prevent dust becoming airborne or contain dust within enclosures to prevent dispersion beyond the emission source.

10.7.2 Prior to commencement of construction activities, a Code of Construction Practice (CoCP), will be agreed with the Cherwell District Council to ensure the potential for adverse environmental effects on local receptors is avoided. This will include traffic routing, site access points and hours of operation. The following air quality mitigation measures, for controlling dust and general pollution nuisance from the site construction operations, reflect what is expected to be included in the CoCP, taking into account the Best Practice Guidance for a high risk site as identified in section 10.5:

- Erect solid barriers to site boundary, where appropriate;
- No bonfires on site;
- Plan site layout by locating dust activity away from sensitive receptors;
- All site personnel to be fully trained;
- Trained and responsible manager on site during working times to carry out inspections;
- Hard surface site haul routes with regular cleaning of site entrance roads;
- Damping down of site haul roads during prolonged dry periods;
- Wheel washing facilities to prevent mud from construction operations being transported on to adjacent public roads;
- Confinement of vehicles to designated haul routes within the site;
- Restricting vehicle speeds on haul roads and other un-surfaced areas of the site;
- Ensuring that dusty materials are transported appropriately (e.g. sheeting of vehicles carrying spoil and other dusty materials);
- Ensuring that dusty materials are stored and handled appropriately (e.g. wind shielding or complete enclosure, storage is away from site boundaries, water sprays are used where practicable to reduce dust emissions);
- Site planning to carry out main dust causing activity in spring/autumn;
- Provide hard standing areas for vehicles and regularly inspect and clean these areas;
- Re-vegetate earthworks and exposed areas;
- Minimise dust generating activities on windy and dry days;
- Appropriate dust site monitoring is included within the site management practices to inform site management of the success of dust control measures used; and,
- Ensuring that local residents are informed in advance of any particularly dusty activities, to promote communication and the principle of advanced notice.

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- 10.7.3** Thus the construction activities would be controlled to reduce, as far as practicable, the potential environmental impacts, thus limiting residual impacts.
- 10.7.4** Implementation of the suggested mitigation measures above will help reduce the impact of the construction activities to medium to low risk.
- 10.7.5** Overall, construction effects on air quality would be minimised through the implementation of mitigation measures through the CoCP. This would significantly reduce the amount of dust that escapes from the site boundary and where construction activities are in very close proximity to sensitive receptors, additional dust control measures may be employed. Any construction effects on air quality would be temporary and reversible.

Operational Phase Mitigation Measures

- 10.7.6** No mitigation measures in relation to the operation of the development are proposed.

10.8 RESIDUAL EFFECTS

- 10.8.1** With suitable mitigation measures in place, any adverse effects on local air quality from construction are expected to be relatively short-term and temporary. No long-term residual effects are expected as a result of the construction of the proposed development.
- 10.8.2** In accordance with the NSCA criteria set out in Figure AQ.01, it has been determined that the operation of the proposed development should be given a low priority consideration as the increase in forecast concentrations, are well within the UK objectives and EU limit values.

10.9 DISCUSSION & CONCLUSION

- 10.9.1** An assessment has been carried out to determine the potential impacts on air quality as a result of the construction and operational phases of the proposed Heyford Park development.
- 10.9.2** The assessment examines the existing air quality in the area and then predicts the magnitude and significance of the likely effect on air quality as a result of increases in local traffic composition, from the operation of the proposed development.
- 10.9.3** The main potential air quality impact during the works phase of the development would be from the emission of dust. If released in sufficient quantities, this could result in significant nuisance from soiling at the large number of nearby properties. Dust emissions from site would, however, be controlled using mitigation measures detailed in an approved Code of Construction Practice (CoCP) with Cherwell District Council that would ensure that the potential adverse impacts are minimised or avoided.
- 10.9.4** A detailed assessment has been used to predict the changes in air quality as a result of the traffic flow changes on the road network surrounding the development. These have been produced for the baseline 2006 situation and forecast for the opening year of 2013, both with and without the proposed development in place. This

modelling has shown that a negligible deterioration in local air quality is predicted at all receptors locations, however for some pollutants there is no predicted change in the concentration.

- 10.9.5** Overall, no significant effects on local air quality are predicted to result from the proposed development. The assessment has demonstrated that the environmental risk in terms of air quality associated with the construction will be high, however with appropriate mitigation this will be reduced to a medium/low risk. The impacts during operation, following the NSCA guidance, will be negligible. Additionally, air quality should have a low priority consideration in the planning process.

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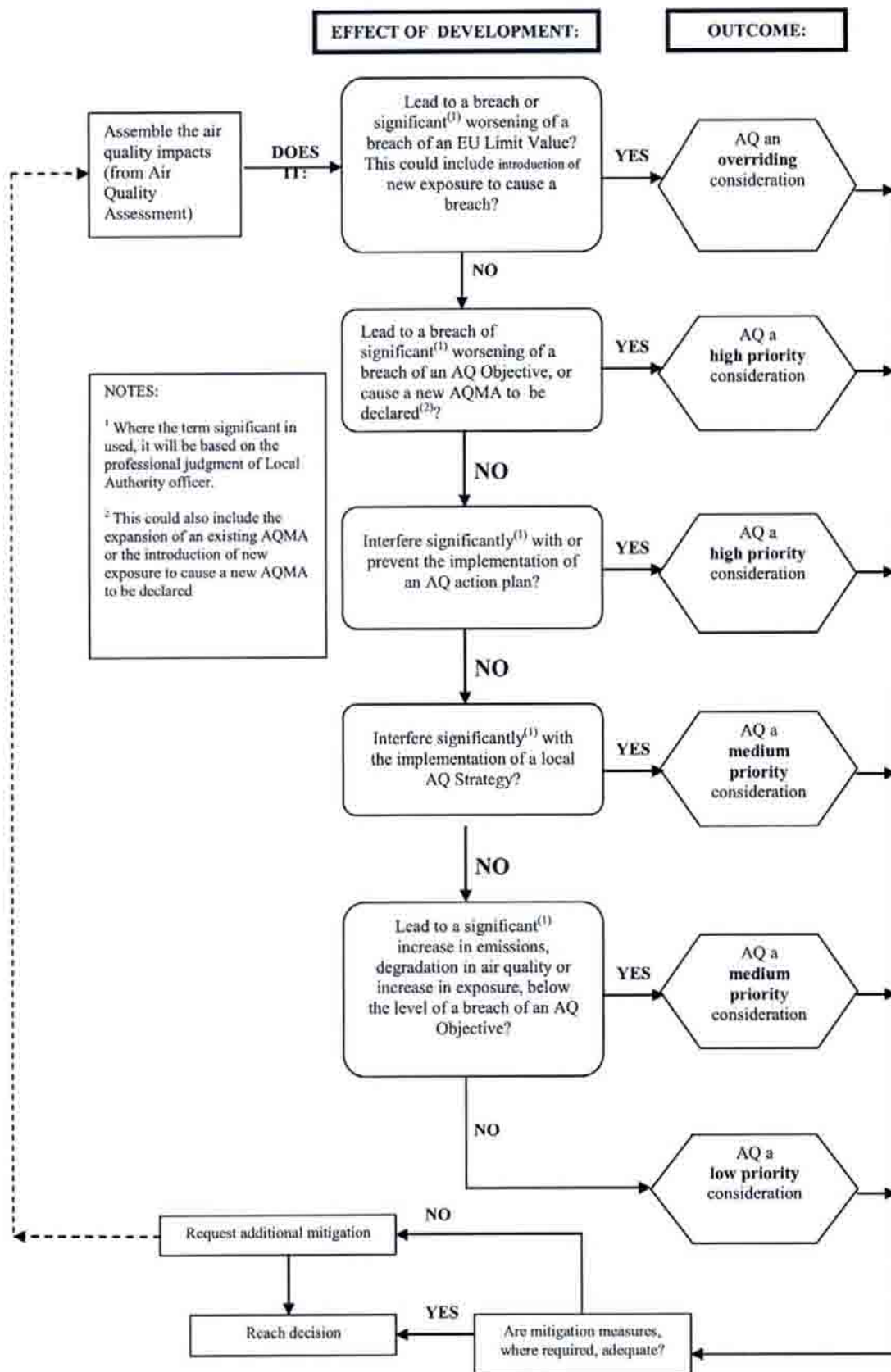


Figure AQ.01: Assessment Of Significance Of Air Quality Impacts

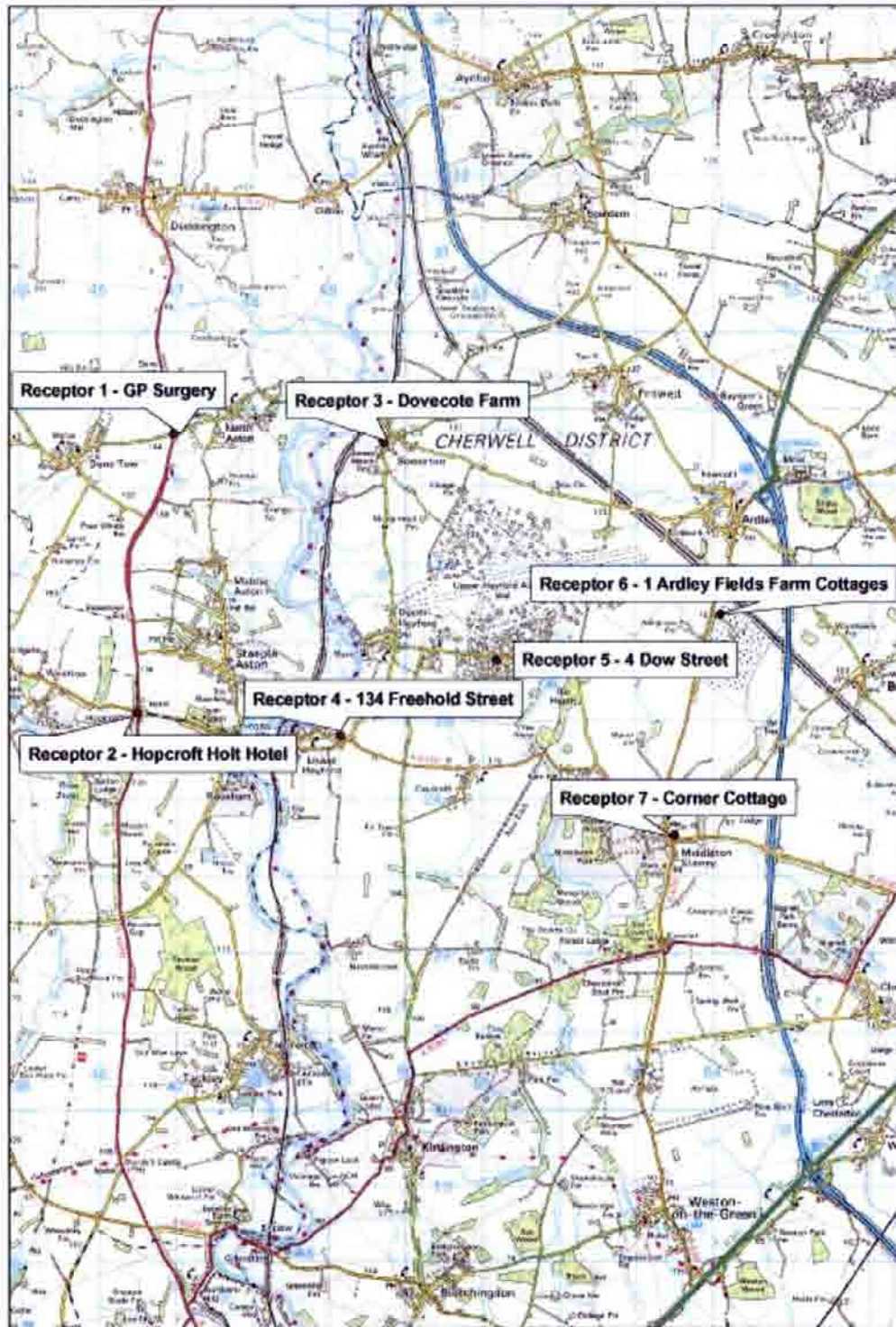


Figure AQ.02: Receptor Locations

NOTES

¹ Planning Policy Guidance 13: Transport, Her Majesty's Stationery Office, 2001

² Planning Policy Statement 23: Planning and Pollution Control, Her Majesty's Stationery Office, 2004

³ DEFRA (2003) Part IV of the Environmental Act 1995: Local Air Quality management: Policy Guidance, LAQM.PG(03), Department for Environment, Food and Rural Affairs, February 2003

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⁵ DETR, 2001. Regional Planning Guidance for the South East, RPG9, Secretary of State for the Environment, Transport and the Regions, March 2001

⁶ The Air Quality Strategy for England, Scotland, Wales and Northern Ireland, Department of Environment, Transport and the Regions, The Stationery Office, January 2000

⁷ The Air Quality Strategy for England, Scotland, Wales and Northern Ireland: Addendum, Department for Environment, Food and Rural Affairs (DEFRA), The Stationery Office, February 2003.

⁸ The Air Quality Strategy for England, Scotland, Wales and Northern Ireland, Department for Environment, Food and Rural Affairs (DEFRA), The Stationery Office, July 2007

⁹ The Air Quality Standards Regulations 2007

¹⁰ GLA, 2006. London Best Practice Guide: The Control of Dust and Emissions from Construction and Demolition, Greater London Authority

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¹³ Local Air Quality Management: Technical Guidance. LAQM.TG(03), Department for Environment, Food and Rural Affairs, February 2003.

¹⁴ AQC, 2007. Deriving NO₂ from NO_x for Air Quality Assessments of Roads – Updated to 2006. Air Quality Consultants, March 2007.

¹⁵ An Empirical Function for the Ratio NO₂:NO_x. RG Derwent and DR Middleton. Clean Air (1996) 26,3/4:57.

¹⁶ EC Directive 96/91/EC on Integrated Pollution Prevention and Control

¹⁷ Cherwell District Council, 2007. Air Quality Updating and Screening Assessment for Cherwell, January 2007.

¹⁸ Study Arup Environmental for Department for Environment, Environmental Effects of Dust from Surface Mineral Workings, HMSO 1995

¹⁹ Cowhead et al (1990) Control of Fugitive and Hazardous Dusts, pollution technology Review, Noyes data Corporation

services

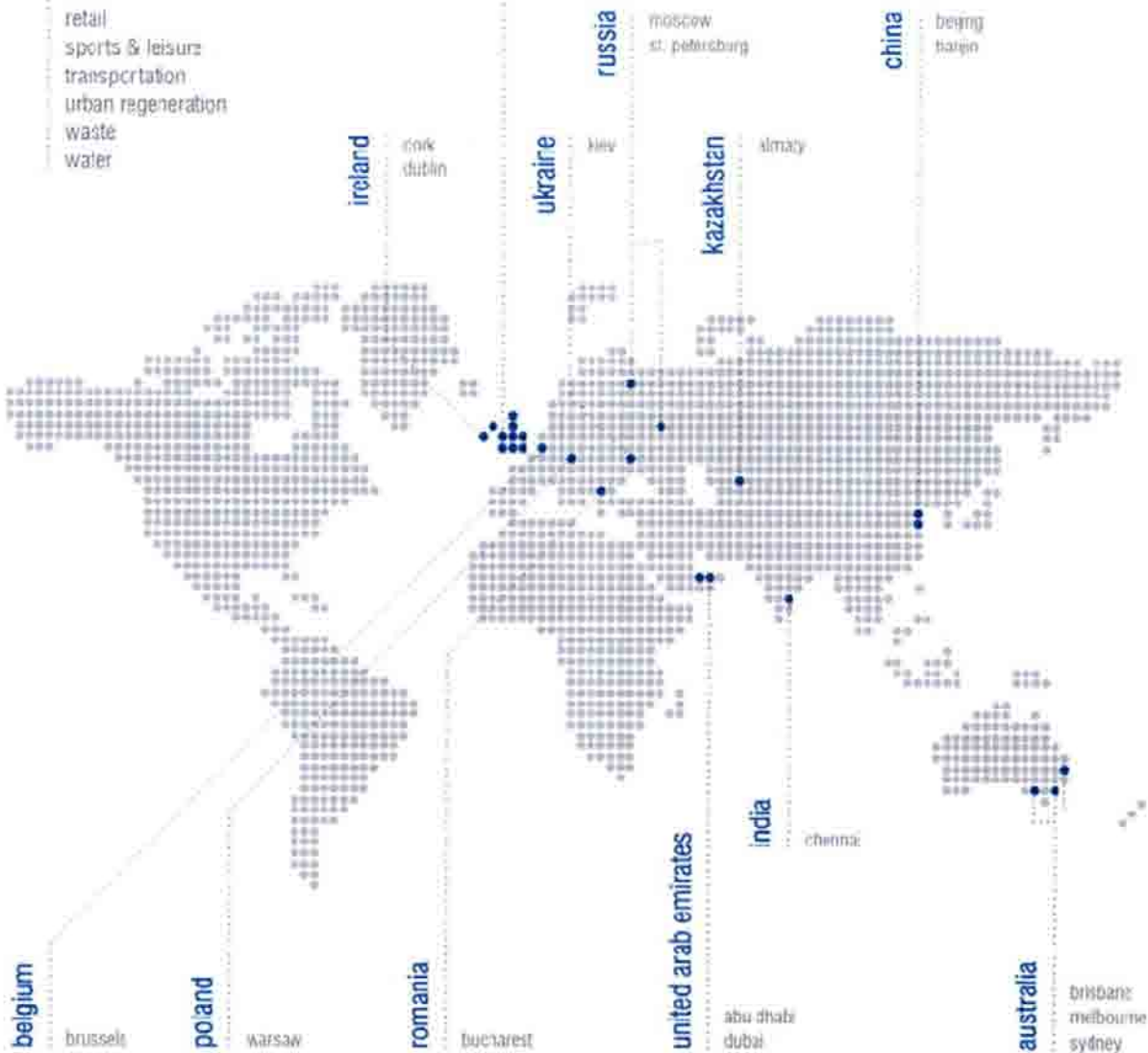
buildings services
civil engineering
energy & environmental
secondment & outsourcing
structural engineering
transport planning

sectors

aviation
commercial
communication & technology
conservation / historic
education
energy
government & defence
healthcare
highways
hotels
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retail
sports & leisure
transportation
urban regeneration
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united arab emirates

abu dhabi
dubai

india

chennai

australia

brisbane
melbourne
sydney