12 Air Quality

12.1 Introduction

12.1.1 This Chapter of the ES assesses the potential air quality impacts associated with the proposed development at Keresley. A qualitative assessment has been undertaken to assess the potential air quality impacts of dust arising from the construction phase of works. Air dispersion modelling, using ADMS-Roads, has been carried out to assess the potential air quality impact of development generated traffic.

12.1.2 This Chapter should be read in conjunction with Chapter 2 of the ES, which gives details of the site location and development works to be undertaken at the site.

12.2 Assessment Approach

Methodology

Construction Phase – Dust Emissions

12.2.1 To assess the impacts associated with dust and PM_{10} releases, during the construction phase of the development, an assessment has been undertaken in accordance with the Institute of Air Quality Management (IAQM) guidance document '*Guidance on the Assessment of Dust from Demolition and Construction*', (February 2014).

Step 1

12.2.2 Step 1 of the assessment is to screen the requirement for a more detailed assessment. The guidance states that an assessment will normally be required where there are existing human sensitive receptors within 350m of the site boundary and/or within 50m of the route(s) used by construction vehicles on the public highway, up to 500m from the site entrance(s).

12.2.3 With regards to ecological receptors, the guidance states that an assessment will normally be required where there are existing ecological receptors within 50m of the site boundary and/ or within 50m of the route(s) used by construction vehicles on the public highway, up to 500m from the site entrance(s).

12.2.4 As there are existing sensitive receptors locations within 350m of the site boundary, it is necessary to proceed to Step 2 of the assessment.

Step 2

12.2.5 Step 2 of the assessment determines the potential risk of dust arising in sufficient quantities to cause annoyance, health and/or ecological effects. The risk is related to:

- The activities being undertaken (demolition, number of vehicles and plant etc);
- The duration of these activities;
- The size of the site;
- The meteorological conditions (wind speed, direction and rainfall);
- The proximity of receptors to the activity;
- The adequacy of the mitigation measures applied to reduce or eliminate dust; and;
- The sensitivity of receptors to dust.

12.2.6 The risk of dust effects is determined using four risk categories: negligible, low, medium and high risk. A site is allocated to a risk category based upon two factors:

- Step 2A – the scale and nature of the works which determines the potential dust emission magnitude as small, medium or large; and
- Step 2B – the sensitivity of the area to dust impacts which is defines as low, medium or high sensitivity.

12.2.7 These two factors are combined in Step 2C to determine the risk of dust impacts with no mitigation applied.

12.2.8 The risk of dust effects is determined for four types of construction phase activities, with each activity being considered separately. If a construction phase activity is not taking place on the site, then it does not need to be assessed. The four types of activities to be considered are:

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

Step 3

12.2.9 Step 3 of the assessment determines the site-specific mitigation required for each of the activities, based on the risk determined in Step 2. Mitigation measures are detailed in guidance published by the Greater London Authority[1], which is recommended for use outside the capital by LAQM guidance, and the IAQM guidance document itself. If the risk is classed as negligible, no mitigation measures beyond those required by legislation will be necessary.

Step 4

12.2.10 Step 4 assesses the residual effect, with mitigation measures in place, to determine whether or not these are significant.

Existing Dust Sensitive Receptors – Human Receptors

12.2.11 The closest existing sensitive receptors to the proposed development are residential in nature and are detailed in Table 12.1.

Table 12.1 – Existing Dust Sensitive Receptors – Human Receptors

Receptor	**Direction from the Site**	**Approximate Distance from the Site Boundary**
Manor Farm, Bennetts Road, South	North East	50m
97A Bennetts Road, South	East	18m
The Beechwood Inn	South East	36m
Britannia Royal Court Hotel	South	10m
11 Tamworth Road	South West	28m
Keresley Manor	West	95m
62 Fivefield Road	North West	185m

Existing Dust Sensitive Receptors – Ecological Receptors

12.2.12 There are no statutory designations for ecological receptors within 50m of the site boundary, or within 50m of the route(s) used by construction vehicles on the public highway, up to 500m from the site entrance(s). It is not therefore considered that there will be any dust impacts on ecological receptors arising from the construction phase of the proposed development.

Significance Criteria

12.2.13 The Institute of Air Quality Management (IAQM) guidance document '*Guidance on the Assessment of Dust from Demolition and Construction'* (February 2014) details criteria for assessing the sensitivity of an

[1] Greater London Authority (2006) The Control of Dust and Emissions from Construction and Demolition: Best Practice Guidance

area to dust soiling effects and health effects of PM_{10} effects, as summarised in Tables 12.2 to 12.4 below.

12.2.14 The guidance then goes on to provide significance criteria for the classification of dust effects from demolition, earthworks, construction activities and trackout, as summarised in Tables 12.5 to 12.7 below.

Sensitivity of the Area – Human Receptors

12.2.15 The sensitivity categories for different types of receptors, to both dust soiling effects and the health effects of PM_{10}, are described in Table 12.2.

Table 12.2 – Sensitivity Categories for Human Receptors

Sensitivity Category	**Dust Soiling Effects**	**Health Effects of PM_{10}**
High	Users can reasonably expect to enjoy a high level of amenity; Appearance, aesthetics or value of a property would be diminished; Examples include dwellings, museums and other culturally important collections, medium and long term car parks and car show rooms.	Locations where members of the public are exposed over a period of time relevant to the air quality objective for PM_{10}; Examples include residential properties, hospitals, schools, and residential care homes.
Medium	Users would expect to enjoy a reasonable level of amenity, but would not reasonably expect to enjoy the same level of amenity as in their home; The appearance, aesthetics or value of their property could be diminished; People or property wouldn't reasonably be expected to be continuously present or regularly for extended periods of time; Examples include parks and places of work.	Locations where people are exposed as workers and exposure is over a period of time relevant to the air quality objective for PM_{10}; Examples include office and shop workers but will generally not include workers occupationally exposed to PM_{10}.
Low	Enjoyment of amenity would not reasonably be expected; Property would not be diminished in appearance, aesthetics or value; People or property would expected to be present only for limited periods of time; Examples include playing fields, farmland (unless commercially-sensitive horticultural), footpaths, short term car parks and roads.	Locations where human exposure is transient; Examples include public footpaths, playing fields, parks and shopping streets.

12.2.16 Based upon the category of receptor sensitivity, the sensitivity of the area to dust soiling effects is determined using the criteria detailed in Table 12.3.

Table 12.3 – Sensitivity of the Area to Dust Soiling Effects on People and Property

Receptor Sensitivity	**Number of Receptors**	**Distance from Source (m)**			
		<20m	**<50m**	**<100m**	**<350m**
High	>100	High	High	Medium	Low
	10-100	High	Medium	Low	Low

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

12.2.17 Based upon the category of receptor sensitivity, the sensitivity of the area to the health effects of PM_{10} is determined using the criteria detailed in Table 12.4.

Table 12.4 – Sensitivity of the Area to Dust Soiling Effects on People and Property

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

Risk of Dust Impacts

12.2.18 The risk of dust being generated by demolition at the site is determined using the criteria in Table 12.5.

Table 12.5 – Risk of Dust Impacts – Demolition

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Medium Risk
Medium	High Risk	Medium Risk	Low Risk
Low	Medium Risk	Low Risk	Negligible

Earthworks and Construction

12.2.19 The risk of dust being generated by earthworks and construction at the site is determined using the criteria in Table 12.6.

Table 12.6 – Risk of Dust Impacts – Earthworks and Construction

Sensitivity of Area	**Dust Emission Magnitude**		
	Large	**Medium**	**Small**
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

Trackout

12.2.20 The risk of dust being generated by trackout from the site is determined using the criteria in Table 12.7.

Table 12.7 – Risk of Dust Impacts – Trackout

Sensitivity of Area	**Dust Emission Magnitude**		
	Large	**Medium**	**Small**
High	High Risk	Medium Risk	LowRisk
Medium	Medium Risk	Low Risk	Negligible
Low	Medium Risk	Low Risk	Negligible

Operational Phase Assessment – Road Traffic Emissions

Modelling of Road Traffic Emissions

12.2.21 The air dispersion model ADMS-Roads (CERC, Version 3.2) has been used to assess the potential impact of development generated traffic on local air quality at existing receptor locations. In addition, pollutant concentrations have also been predicted at the proposed sensitive areas of the development i.e. at locations representative of the proposed residential dwellings.

12.2.22 The air dispersion model has been used to predict nitrogen dioxide (NO_2) and particulate matter (PM_{10}) concentrations, as these are the pollutants most likely to exceed the air quality objectives.

12.2.23 Air quality modelling has been carried out for two different years, as follows:

- The verification and base year (2013): This is the most recent year for which traffic data, local authority air quality monitoring data and meteorological data are all available; and
- A future year (2022): This is considered both without the development and with the development in place.

Road Traffic Data

12.2.24 The ADMS-Roads model requires the input of detailed road traffic flow information for those routes which will be affected by the proposed development. The traffic flow information used in the assessment is included in Appendix 12.1.

12.2.25 Detailed traffic flow information, for use in the ADMS-Roads model, has been obtained from Phil Jones Associates, the appointed transport consultant for the project. The traffic flow information has been provided as 24 hour AADT flows, with HGV percentages.

12.2.26 Traffic flow information has been provided for the verification and base year (2013); and for a future year (2022) for both the 'without development' and 'with development' scenarios, for the following roads:

- B4098 Tamworth Road/Keresley Road/Radford Road;
- Bennett Road South/Keresley Green Road;
- Sandpits Lane;
- Long Lane;
- Wall Hill Road;
- Coundon Wedge Drive;
- Brownshill Green Road;
- Waste Lane;
- Penny Park Lane;
- The Scotchill;
- Wallace Road;
- Norman Place Road;
- Sadler Road;
- Beake Avenue;
- Engleton Road; and
- The proposed site access road, between Tamworth Road and Bennett Road South.

12.2.27 In addition, traffic data has been provided for a number of links for the purposes of model verification, as follows:

- B4118 Holbrook Lane/Holbrook Way;
- Links Road;
- Catesby Road;
- Grangemouth Road;
- Cheveral Avenue;
- Burnaby Road; and
- Lockhurst Way.

12.2.28 Air quality modelling has been carried out to estimate pollutant concentrations, due to road traffic emissions, for a total of three scenarios:

- Scenario 1: 2013 Verification and Base Year;
- Scenario 2: 2022 Future Assessment Year, Without Development i.e. Future Baseline + Committed Development Traffic; and
- Scenario 3: 2022 Future Assessment Year, With Development i.e. Future Baseline + Committed Development Traffic + Application Development Traffic.

Meteorological Data

12.2.29 The meteorological data used in the air quality modelling has been provided by ADM Limited. Meteorological data has been obtained for 2013 from the Coventry Airport recording station.

12.2.30 The Coventry Airport station is located approximately 9km from the proposed development. This recording station is considered to be the most representative of the conditions at the proposed development due to its relative location to the proposed development and similar altitude. The meteorological data provides hourly wind speed and direction information. The 2013 wind rose for Coventry Airport is included in Appendix 12.2.

Existing Sensitive Receptor Locations

12.2.31 Representative existing sensitive receptor locations (identified as ESR 1 to ESR 11) have been selected along those routes most likely to be affected by the proposed development. The existing sensitive receptors, considered in this assessment, are detailed in Table 12.8 and shown on Figure 12.1.

Table 12.8 – Existing Sensitive Receptor Locations

Receptor	Address	Grid Reference		Type of Receptor
		Easting	Northing	
ESR 1	Maplewood Independent Hospital	431047	283204	Hospital
ESR 2	Counden Hill Farm	431259	282936	Residential

Receptor	Address	Grid Reference		Type of Receptor
		Easting	Northing	
ESR 3	11 Tamworth Road	431768	282365	Residential
ESR 4	11 Long Lane	430855	282539	Residential
ESR 5	123 Bennetts Road South	431930	283281	Residential
ESR 6	81 Bennetts Road South	431901	282806	Residential
ESR 7	16 Keresley Green Road	431968	282146	Residential
ESR 8	132 Keresley Road	431992	281693	Residential
ESR 9	11 Keresley Road	432102	281324	Residential
ESR 10	11 Mossley Close	432490	280817	Residential
ESR 11	Manor Farm	431790	283479	Residential

Proposed Sensitive Receptor Locations

12.2.32 Four proposed sensitive receptor locations (identified as PR 1 to PR 4) have been selected within the site at locations considered to be representative of the proposed residential areas closest to the site accesses and existing road network.

12.2.33 Pollutant concentrations have been predicted for Scenario 3 only (as detailed in paragraph 12.2.29). It is only necessary to consider the 'with development' scenarios for proposed receptor locations as they will not experience any 'without development' conditions. It is not therefore necessary to consider the changes in pollutant concentrations at the proposed receptor locations.

12.2.34 The proposed sensitive receptor locations, considered in this assessment, are detailed in Table 12.9 and shown on Figure 12.1.

Table 12.9 – Proposed Sensitive Receptor Locations

Receptor Location	Location	Grid Reference	
		Easting	Northing
PR 1	Southern Part of Proposed Development Nearest to Sandpits Lane	431533	282946
PR 2	Eastern Part of Proposed Development Nearest to Bennetts Road South	431895	283366
PR 3	Western Part of Proposed Development Nearest to Tamworth Road and Longs Lane	431092	283204
PR 4	Western Part of Proposed Development Nearest to Tamworth Road	430968	283404

Model Validation, Verification and Adjustment

12.2.35 Defra Local Air Quality Management Technical Guidance, 2009, (LAQM.TG(09)) recognises that model validation generally refers to detailed studies that have been carried out by the model supplier or a regulatory agency. The ADMS-Roads model has been validated by the supplier CERC.

12.2.36 Model verification is used to check the performance of the model at a local level. The verification of the ADMS-Roads model is achieved by modelling concentrations at existing monitoring locations and comparing the modelled concentrations with the measured concentrations.

12.2.37 As there is no roadside continuous analyser located along the routes for which traffic flow information is available, bias-adjusted monitoring data from two diffusion tube locations has been used.

12.2.38 The diffusion tube monitoring data used in the model verification is summarised in Table 1210. Further details of the model verification procedure are included within Appendix 12.3

Table 1210 – 2012 Diffusion Tube Monitoring Data

Site Name	Grid Reference		NO2 Annual Average With Bias Correction Applied (2012)
	Easting	Northing	
HL1 Holbrook Lane	433690	281987	43.84
BR2 Burnaby Road	433605	281965	38.97

Significance Criteria

12.2.39 In order to assess the significance of the impact of the operational phase of the proposed development on local air quality, significance criteria have been used for NO_2 and PM_{10}, as detailed in Tables 12.11 and 12.12. The criteria relate to NO_2 and PM_{10} only, as these are the pollutants most likely to exceed the air quality objectives. The criteria are taken from Environmental Protection UK (EPUK) document 'Development Control: Planning for Air Quality (2010 Update)'.

12.2.40 The impact magnitude and impact descriptors in relation to specific objectives for annual mean NO_2 and PM_{10} concentrations are detailed in Table 12.11.

Table 12.11 – Definition of Impact Magnitude for Changes in Annual Mean NO_2 and PM_{10} Concentration

Magnitude of change	Annual Mean
Large	Increase/decrease >4µg/m^3
Medium	Increase/decrease 2-4µg/m^3
Small	Increase/decrease 0.4-2µg/m^3
Imperceptible	Increase/decrease <0.4µg/m^3

12.2.41 The EPUK document indicates that when describing an air quality impact at a specific receptor, the actual concentration at the receptor should be taken into account, in combination with the magnitude of change, using the approach detailed in Table 12.12. This approach is appropriate for the assessment of annual mean concentrations of NO_2 and PM_{10} in England i.e. where the objective concentration is 40µg/m^3.

Table 12.12 – Air Quality Impact Descriptors for Changes to Annual Mean NO_2 and PM_{10} Concentrations at a Receptor

Absolute concentration in relation to objective / limit value	Change in concentration*		
	Small	Medium	Large
Increase with scheme			
Above objective/limit value with scheme (>40µg/m^3)	Slight Adverse	Moderate Adverse	Substantial Adverse
Just below objective/limit value with scheme (36-40µg/m^3)	Slight Adverse	Moderate Adverse	Moderate Adverse
Below objective/limit value with scheme (30-36µg/m^3)	Negligible	Slight Adverse	Slight Adverse

Absolute concentration in relation to objective / limit value	Change in concentration*		
	Small	**Medium**	**Large**
Well below objective/limit value with scheme (<30µg/m^3)	Negligible	Negligible	Slight Adverse
Decrease with scheme			
Above objective/limit value without scheme (>40µg/m^3)	Slight Beneficial	Moderate Beneficial	Substantial Beneficial
Just below objective/limit value without scheme (36-40µg/m^3)	Slight Beneficial	Moderate Beneficial	Moderate Beneficial
Below objective/limit value without scheme (30-36µg/m^3)	Negligible	Slight Beneficial	Slight Beneficial
Well below objective/limit value without scheme (<30µg/m^3)	Negligible	Negligible	Slight Beneficial
**An imperceptible change (see Table 12.11) would be described as negligible*			

Impact Magnitude and Receptor Sensitivity

12.2.42 The significance of an environmental impact for vehicular emissions is determined by the interaction of magnitude and sensitivity. The methodology for determining the sensitivity of the receptor is shown in Table 12.13.

Table 12.13 – Methodology for Determining Sensitivity

Sensitivity	**Methodology**
High	The location has little ability to absorb change without fundamentally altering its present character, or is of international or national importance. e.g. a hospital
Moderate	The location has moderate capacity to absorb change without significantly altering its present character, or is of high importance. e.g. a residential dwelling
Low	The location is tolerant of change without detriment to its character, is of low or local importance. e.g. an industrial development

12.2.43 Ten of the eleven existing sensitive receptors considered within the assessment are residential in nature and are therefore considered to be moderately sensitive in accordance with Table 12.1.3. ESR 1 is representative of the Maplewood Independent Hospital and is therefore considered to be highly sensitive. All four of the proposed sensitive receptors considered are considered to be moderately sensitive as they are representative of proposed residential areas.

12.2.44 The Impact Significance Matrix used in this assessment is shown in Table 12.14.

Table 12.14: Impact Significance Matrix

Magnitude of Impact	**Sensitivity**		
	High	**Moderate**	**Low**
Substantial	Substantial	Substantial – Moderate	Substantial – Minor

Magnitude of Impact	Sensitivity		
	High	Moderate	Low
	Adverse/Beneficial	Adverse/Beneficial	Adverse/Beneficial
Moderate	Substantial – Moderate Adverse/Beneficial	Moderate – Slight Adverse/Beneficial	Slight Adverse/Beneficial
Slight	Moderate – Slight Adverse/Beneficial	Slight Adverse/Beneficial	Slight – Negligible
Negligible	Negligible/Not Significant	Negligible/Not Significant	Negligible/Not Significant

Policy Framework

12.2.45 The UK National Air Quality Strategy (NAQS) was published in March 1997 fulfilling the requirement under the Environment Act 1995 for a national air quality strategy setting out policies for the management of ambient air quality. The Strategy sets objectives for eight pollutants, which may potentially occur in the UK at levels that give cause for concern. These pollutants are: nitrogen dioxide, sulphur dioxide, carbon monoxide, lead, fine particulates (PM_{10}), benzene, 1,3–butadiene and ozone.

12.2.46 The Strategy was reviewed and a Review Report[2] and Consultation Document[3] were published by the Department of the Environment, Transport and the Regions in 1999. A revised version (The Air Quality Strategy (AQS) 2000), which supersedes the 1997 Strategy, was published in January 2000. The AQS 2000 strengthens the objectives for a number of pollutants with the exception of that for particulates, which was replaced with the less stringent EU limit value.

12.2.47 The objectives for the eight pollutants in the Strategy provide the basis of the implementation of Part IV of the Environment Act 1995. The Air Quality Strategy objectives for each pollutant, except ozone, were given statutory status in the Air Quality (England) Regulations, 2000[4] and Air Quality (England) (Amendment) Regulations 2002[5] ('the Regulations').

12.2.48 In 2007 the Air Quality Strategy was revised. This latest strategy[6] does not remove any of the objectives set out in the previous strategy or its addendum, apart from replacing the provisional 2010 objective for PM_{10} in England, Wales and Northern Ireland with the exposure reduction approach for PM2.5. The UK Government and the Devolved Administrations have now therefore set new national air quality objectives for particulate matter smaller than 2.5µm diameter ($PM_{2.5}$).

12.2.49 EU Directive 2008/50/EC[7] came into force in June 2008 and was transposed into legislation in England on 11th June 2010 as 'The Air Quality Standards Regulations 2010'[8]. This EU Directive consolidates existing air quality legislation and provides a new regulatory framework for PM2.5.

12.2.50 The current Air Quality Standards and Objectives, as set out in the Air Quality Standards Regulations 2010, are detailed in Table 12.15.

Table 12.15 – Air Quality (England) Regulations 2010: Summary of Current Air Quality Standards and Objectives

Pollutant	Averaging Period	Limit Value
Sulphur Dioxide	1 hour	350µg/m^3 not to be exceeded more than 24 times a calendar year

[2] Department of the Environment, Transport and the Regions, January 1999. Report on the Review of the National Air Quality Strategy, Proposals to amend the Strategy.
[3] Department of the Environment, Transport and the Regions 1999, The Air Quality Strategy for England, Scotland, Wales and Northern Ireland. A consultation document.
[4] The Air Quality (England) Regulations 2000. SI No 928.
[5] The Air Quality (Amendment) Regulations 2002.
[6] Department of Environment, Food and Rural Affairs, The Air Quality Strategy for England, Scotland, Wales and Northern Ireland. July 2007.
[7] Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on Ambient Air Quality and Cleaner Air for Europe.
[8] Statutory Instruments 2010 No. 1001 The Air Quality Standards Regulations 2010.

Pollutant	Averaging Period	Limit Value
	1 day	125µg/m^3 not to be exceeded more than 3 times a calendar year
Nitrogen Dioxide	1 hour	200µg/m^3 not to be exceeded more than 18 times a calendar year
	Calendar year	40µg/m^3
Benzene	Calendar year	5µg/m^3
Lead	Calendar year	0.5µg/m^3
PM_{10}	1 day	50µg/m^3 not to be exceeded more than 35 times a calendar year
	Calendar year	40µg/m^3
$PM_{2.5}$	Calendar year	25µg/m^3 to be met by 1st January 2015
Carbon Monoxide	Maximum 8 hour daily mean	10mg/m^3
Pollutant	**Target Value for the total content in the PM_{10} fraction averaged over a calendar year**	**Date by which target value should be met**
Arsenic	6ng/m^3	31st December 2012
Cadmium	5ng/m^3	31st December 2012
Nickel	20ng/m^3	31st December 2012
Benzo(a)pyrene	1ng/m^3	31st December 2012

12.2.51 Examples of where the Air Quality Objectives should/should not apply are included in Table 12.16. This table is taken from Local Air Quality Management Technical Guidance document LAQM.TG (09)[9].

Table 12.16 – Examples of where the Air Quality Objectives Should/Should Not Apply

Averaging Period	Objectives Should Apply At	Objectives Should Generally Not Apply At
Annual Mean	All background locations where members of the public might be regularly exposed. Building facades of residential properties, schools, hospitals, libraries, etc.	Building facades of offices or other places of work where members of the public do not have regular access. Hotels, unless people live there as their permanent residence. Gardens of residential properties. Kerbside sites or any other location where public exposure is expected to be short term.
24 hour (daily) mean 8 hour mean	All locations where the annual mean objectives would apply together with Hotels. Gardens of residential properties[1]	Kerbside sites, or any other location where public exposure is expected to be short term.

[9] Part IV of the Environment Act 1995: Local Air Quality Management Technical Guidance 2009.

Averaging Period	Objectives Should Apply At	Objectives Should Generally Not Apply At
1 hour mean	All locations where the annual mean and 24 and 8-hour objectives apply. Kerbside sites (e.g. pavements of busy shopping streets). Those parts of car parks and railway stations etc. which are not fully enclosed where members of the public might reasonably be expected to spend one hour or more. Any outdoor locations to which the public might reasonably be expected to spend one hour or longer.	Kerbside sites where public would not be expected to have regular access.
15 min mean	All locations where members of the public might reasonably be exposed for a period of 15 minutes or longer.	
[1]: Such locations should represent parts of the garden where relevant public exposure is likely, for example where there is seating or play areas. It is unlikely that relevant public exposure would occur at the extremities of the garden boundary, or in front gardens although local judgement should always be applied.		

Local Air Quality Management and Review

12.2.52 The Air Quality Strategy for England, Scotland, Wales and Northern Ireland, July 2007, establishes the framework for air quality improvements based on measures agreed at a national and international level. However, despite these measures, it is recognised that areas of poor air quality will remain and these should be dealt with through the Local Air Quality Management (LAQM) process using locally implemented measures.

12.2.53 LAQM legislation in the Environment Act 1995 requires local authorities to conduct periodic review and assessments of air quality. These aim to identify all those areas where the air quality objectives are being, or are likely to be, exceeded.

12.2.54 All Authorities were required to undertake the first stage of review and assessment which concluded in September 2001. In those areas identified as having the potential to experience elevated levels of pollutants the authority was required to undertake a more detailed second stage review comprising two steps; Updating and Screening Assessments and Detailed Assessments. Where it was predicted that one or more of the air quality objectives would be unlikely to be met by the end of 2005, local authorities were required to proceed to a third stage, and if necessary, declare Air Quality Management Areas and make action plans for improvements in air quality, in pursuit of the national air quality objectives.

12.2.55 In 2007 an Evaluation Report was commissioned by the UK Government and Devolved Administrations. Following this review revised LAQM Technical Guidance was published in February 2009 comprising LAQM.TG(09). This revised guidance draws together previous guidance and the recommendations of the 2007 Evaluation Report. LAQM.TG(09) maintains the phased approach to review and assessment established in previous technical guidance. The intention is that local authorities should only undertake a level of assessment that is commensurate with the risk of an air quality objective being exceeded.

12.2.56 Where a Detailed Assessment indicates that any of the air quality objectives are likely to be exceeded, an Air Quality Management Area (AQMA) must be designated, or the geographical boundaries of an existing AQMA must be confirmed. An AQMA should only be declared if a Detailed Assessment has been undertaken.

12.2.57 Once an AQMA has been declared the local authority is required to undertake a Further Assessment within 12 months of the declaration.

12.2.58 A rolling programme of Updating and Screening Assessment and Detailed Assessment based on a three-year cycle has been laid down by Defra in its LAQM.TG(09) policy guidance. This is supplemented by Progress Reports which are intended to maintain continuity in the LAQM process between the three-yearly cycle of Review and Assessment. Progress Reports are required in the years when the authority is not completing an Updating and Screening Assessment.

12.2.59 The National Planning Policy[10] framework, introduced in March 2012, requires that planning policies should sustain compliance with and contribute towards EU limit values or national objectives for pollutants, taking into account the presence of AQMAs and the cumulative impacts on air quality from individual sites in local areas. Planning decisions should ensure that any new development in AQMAs is consistent the local air quality action plan

12.2.60 The Planning Practice Guidance[11] states that whether or not air quality is relevant to a planning decision will depend on the proposed development and its location. Concerns could arise if the development is likely to generate air quality impacts in an area where air quality is known to be poor. They could also arise where the development is likely to adversely impact upon the implementation of air quality strategies and action plans and/or, in particular, lead to a breach of EU legislation (including that applicable to wildlife).

Coventry City Council Local Air Quality Management Review and Assessment

12.2.61 Coventry City Council (CCC) declared a city wide Air Quality Management Area (AQMA), for nitrogen dioxide in 2009.

12.2.62 The 2012 Air Quality Updating and Screening Assessment, the most recent air quality report available from CCC, considered monitoring data since the previous air quality report. The progress report concluded that air quality objectives continue to be exceeded in parts of the existing AQMA and no changes were proposed to the boundary of the existing AQMA.

12.2.63 CCC undertakes air quality monitoring within the Coventry area and currently operates five continuous analysers, all at roadside monitoring locations, and a network of ninety seven diffusion tubes.

Scoping Criteria

12.2.64 Consultation regarding the scope of the assessment was undertaken in a series of communications, between 26th June and 6th July 2013, with Ms Rachel Field, Environmental Protection Officer at Coventry City Council (CCC). The following points were discussed and agreed, by return (email):

- A construction phase dust assessment will be undertaken, to consider the potential impacts of dust generated during the construction phase of the proposed development, at existing sensitive receptor locations This is to be undertaken in accordance with the Institute of Air Quality Management (IAQM) guidance; ;
- A detailed air quality assessment will be undertaken, using the air dispersion model ADMS-Roads. This will consider the potential air quality impact of additional traffic, generated by the proposed development, at existing sensitive receptor locations. In addition, NO_2 and PM_{10} concentrations will be predicted at sensitive areas of the proposed development;
- Meteorological data from the Coventry recording station, located approximately 9km from the proposed development, is considered the most representative of conditions at the site, and therefore is most suitable for use in the ADMS-Roads model. Parts of the 2012 and 2013 monitoring data are missing for the Coventry recording station and therefore this data will be supplemented with data from the Birmingham/Elmdon recording station which is located approximately 13km from the proposed development. This data is considered appropriate for use in the air quality assessment due to its proximity to the proposed development;
- Monitoring data from Local Authority diffusion tubes will be used to undertake verification of the air dispersion model. It is not possible to verify PM_{10} concentrations as there are no monitoring locations in the vicinity of the proposed development; and
- There are no representative background PM_{10} monitoring locations in the vicinity of the proposed development. Background concentrations will therefore be obtained from the Defra default concentration maps. It was proposed to obtain background NO_x and NO_2 concentrations from the AURN site at Coventry memorial park. However, the data capture for 2012 and 2013 was insufficient and therefore background NO_2 concentrations were also obtained from the Defra maps. As concentrations have not been decreasing as previously predicted, the 2012 background concentrations will be used for the future year assessment to provide a worst-case scenario.

[10] Department for Communities and Local Government, National Planning Policy Framework, March 2012
[11] Department for Communities and Local Government, Planning Practice Guidance – Air Quality, March 2014

12.3 Baseline Conditions

Site Description and Context

12.3.1 Coventry City Council (CCC) declared a city wide Air Quality Management Area (AQMA), for nitrogen dioxide in 2009 and therefore the proposed development is located within the existing AQMA. The site is however located in the north western part of the Coventry Authority Area, at the edge of the main urban area.

12.3.2 Roadside diffusion tubes are located approximately 2km to the southeast of the proposed development at Beake Avenue/Radford Road, Jubilee Crescent, Holbrook Lane and Burnaby Road. In 2012, the diffusion tubes located at Beake Avenue/Radford Road and Jubilee Crescent had a data capture of between 25% and 33%, which is not considered appropriate for use in model verification. Monitoring of background NO_x and NO_2 concentrations is also undertaken at the Coventry Memorial Park AURN site; however this ceased operation in June 2014 and has been replaced by a new station at Allesley

Baseline Survey Information

Operational Phase Assessment – Road Traffic Emissions

12.3.3 The ADMS assessment needs to take into account background concentrations upon which the local, traffic derived pollution is superimposed. The data may be derived through long term ambient measurements at background sites, remote from immediate sources of air pollution or alternatively from the default concentration maps, which have been provided for use with the revised LAQM.TG(09) guidance.

12.3.4 Background pollutant concentrations for NO_2 and PM_{10} have been obtained from the 2011 based default concentration maps provided by Defra on their Local Air Quality Management web pages (http://laqm.defra.gov.uk/review-and-assessment/tools/background-maps.html). As the receptors are located within a number of grid squares, the highest concentration has been used in the assessment.

12.3.5 Current evidence suggests that nitrogen dioxide (NO_2) background concentrations are not decreasing in accordance with expected reductions. At present, there is uncertainty about how background NO_2 concentrations will change in future years. To provide a robust assessment, base year (i.e. 2013) background concentrations and emission factors have been used in the opening and future year model scenarios. This is considered to be a conservative approach, as it is likely that there will be some improvement in background air quality and emission factors by 2022.

12.3.6 The background pollutant concentrations used in the assessment are detailed in Table 12.17.

Table 12.17 – Background NO_x and NO_2 Concentrations (432500, 280500)

Pollutant	**2013 Concentrations (µg/m³)**
Oxides of Nitrogen (NO_x)	33.26
Nitrogen Dioxide (NO_2)	22.81
Particulates (PM_{10})	17.95

Modelled Baseline Concentrations

12.3.7 The baseline assessment (i.e. Scenarios 1 and 2) has been carried out for the eleven existing sensitive receptors considered (ESR 1 to ESR 11). The corrected NO_2 and uncorrected PM_{10} concentrations are detailed in Table 12.18 and included in Appendix 12.4.

Table 12.18 – Predicted NO_2 and PM_{10} concentrations at Existing Sensitive Receptor Locations for 2013, and 2022 'Without Development' Scenarios

Receptor	Calculated Annual Mean Concentrations (µg/m³)			
	NO_2 (Corrected)		PM_{10} (Uncorrected)	
	Scenario 1: 2013	Scenario 2: 2022	Scenario 1: 2013	Scenario 2: 2022
ESR 1	27.04	27.79	18.26	18.32
ESR 2	28.83	30.19	18.36	18.45
ESR 3	31.86	33.66	18.55	18.66
ESR 4	29.04	29.70	18.39	18.44
ESR 5	25.85	26.66	18.14	18.19
ESR 6	29.71	29.78	18.39	18.40
ESR 7	31.03	31.17	18.48	18.47
ESR 8	33.31	33.02	18.68	18.65
ESR 9	28.10	29.11	18.30	18.37
ESR 10	31.47	31.70	18.55	18.57
ESR 11	24.10	24.35	18.03	18.04

Scenario 1: 2013 Verification and Base Year

12.3.8 The 2013 'baseline' annual mean NO_2 concentrations (corrected) are predicted to range from 24.01 to 33.31µg/m³ for the eleven existing sensitive receptor locations considered. Exceedance of the annual mean objective concentration for NO_2 (40µg/m³) is not predicted to occur.

12.3.9 The 2013 'baseline' annual mean PM_{10} concentrations (uncorrected) are predicted to range from 18.03 to 18.68µg/m³ for the eleven existing sensitive receptor locations considered. Exceedance of the annual mean objective concentration for PM_{10} (40µg/m³) is not predicted to occur.

Scenario 2: 2022 Future Year, Without Development

12.3.10 The 2022 'without development' annual mean NO_2 concentrations (corrected) are predicted to range from 24.35 to 33.66µg/m³ for the eleven existing sensitive receptor locations considered. Exceedance of the annual mean objective concentration for NO_2 (40µg/m³) is not predicted to occur.

12.3.11 The 2022 'without development' annual mean PM_{10} concentrations (uncorrected) are predicted to range from 18.04 to 18.66µg/m³ for the eleven existing sensitive receptor locations considered. Exceedance of the annual mean objective concentration for PM_{10} (40µg/m³) is not predicted to occur.

12.4 Key Impacts & Likely Significant Effects

Construction Phase Assessment – Dust Emissions

12.4.1 The main potential dust impacts associated with the construction phase of works are as follows:

- Earthworks which may be required prior to the construction phase of works and potential sources of dust can include:
  - Cleaning the site;
  - Stripping and stockpiling of topsoil and subsoil;
  - Ground excavation;
  - Bringing in, tipping and spreading materials on site;
  - Stockpiling materials;
  - Levelling ground;

- Trenching;
- Road construction;
- Vehicle movements on site roads; and
- Windblown materials from the site.

- **Construction** which will involve the construction of individual building access roads, the car parking areas and the buildings themselves; and
- **Trackout** which is the transport of dust and dirt by vehicles travelling from a construction site on to the public road network. This may occur through the spillage of dusty materials onto road surfaces or through the transportation of dirt by vehicles that have travelled over muddy ground on the site. This dust and dirt can then be deposited and re-suspended by other vehicles.

12.4.2 It is understood that there will not be any demolition activities associated with the proposed development. Demolition activities are not therefore considered within this assessment.

Step 2A

12.4.3 Step 2A of the construction phase dust assessment has defined the potential dust emission magnitude from earthworks, construction and trackout in the absence of site specific mitigation. Examples of the criteria for the dust emission classes are detailed in the IAQM guidance.

Step 2B

12.4.4 Step 2B of the construction phase dust assessment has defined the sensitivity of the area, taking into account the significance criteria detailed in Tables 12.2 to 12.4, to earthworks, construction and trackout. The sensitivity of the area to each activity is assessed for potential dust soiling and human health effects.

12.4.5 For earthworks and construction, there are between 10 and 100 residential receptor locations within 50 m of where these activities may take place.

12.4.6 For trackout, there are between 10 and 100 residential receptor locations within 20m of where trackout may occur, for a distance of up to 500m from the site accesses.

Step 2C

12.4.7 Step 2C of the construction phase dust assessment has defined the risk of impacts from each activity. The dust emission magnitude is combined with the sensitivity of the surrounding area. The risk of dust impacts from each activity, with no mitigation in place, has been assessed in accordance with the criteria detailed in Tables 12.5 to 12.7.

Summary

12.4.8 Table 12.19 details the results of Step 2 of the construction phase assessment for human receptors.

Table 12.19 – Construction Phase Dust Assessment (Step 2) – Human Receptors

	Activity			
	Demolition	**Earthworks**	**Construction**	**Trackout**
Step 2A				
Dust Emission Magnitude	N/A	Large[a]	Large[b]	Medium[c]
Step 2B				
Sensitivity of Closest Receptors	N/A	High	High	High
Sensitivity of Area to Dust Soiling Effects	N/A	Medium	Medium	High
Sensitivity of Area to Human Health Effects	N/A	Low[d]	Low[d]	Low[d]
Step 2C				
Dust Risk: Dust Soiling	N/A	Medium	Medium	High

	Activity			
	Demolition	**Earthworks**	**Construction**	**Trackout**
Dust Risk: Human Health	N/A	Low	Low	Low
a. Total site area of more than 10,000m² *b. Total building volume estimated to be more than 100,000m³* *c. Estimation of HGV movements per day (10-50 HGVs per day and unpaved road length of <100m)* *d. Background annual mean PM_{10} concentration is considered to be less than 24µg/m³ (based on data obtained from the LAQM defra default concentration maps, for the appropriate grid squares)*				

Operational Phase Assessment – Road Traffic Emissions

Existing Sensitive Receptor Locations

12.4.9 The impact assessment has been carried out for eleven representative existing sensitive receptor locations (ESR 1 to ESR 11). Table 12.20 shows the changes in pollutant concentrations between 2022 future year 'without development' and 'with development' scenarios. The corrected NO_2 and uncorrected PM_{10} concentrations are included in Appendix 12.4.

12.4.10 Table 12.20 – Predicted NO_2 and PM_{10} Concentrations at Existing Sensitive Receptor Locations for 2022 'Without Development' and 'With Development' Scenarios

Receptor	**Level of Development**	**Calculated Annual Mean Concentrations (µg/m³)**	
		NO_2 (Corrected)	**PM_{10} (Uncorrected)**
ESR 1	Without development	27.79	18.32
	With development	28.48	18.36
	With – without development	+0.69 µg/m³	+0.04 µg/m³
ESR 2	Without development	30.19	18.45
	With development	29.91	18.43
	With – without development	-0.28 µg/m³	-0.02 µg/m³
ESR 3	Without development	33.66	18.66
	With development	33.96	18.99
	With – without development	+0.30 µg/m³	+0.03 µg/m³
ESR 4	Without development	29.70	18.44
	With development	30.82	18.52
	With – without development	+1.12 µg/m³	+0.08 µg/m³
ESR 5	Without development	26.66	18.19
	With development	28.29	18.30
	With – without development	+1.63 µg/m³	+ 0.11 µg/m³

Receptor	Level of Development	Calculated Annual Mean Concentrations (µg/m³)	
		NO_2 (Corrected)	PM_{10} (Uncorrected)
ESR 6	Without development	29.78	18.40
	With development	30.38	18.44
	With – without development	+0.60 µg/m³	+ 0.04 µg/m³
ESR 7	Without development	31.17	18.47
	With development	31.62	18.50
	With – without development	+0.45 µg/m³	+0.03 µg/m³
ESR 8	Without development	33.02	18.65
	With development	33.44	18.69
	With – without development	+0.42 µg/m³	+0.04 µg/m³
ESR 9	Without development	29.11	18.37
	With development	29.50	18.40
	With – without development	+0.39 µg/m³	+0.03 µg/m³
ESR 10	Without development	31.70	18.57
	With development	32.13	18.60
	With – without development	+0.43 µg/m³	+0.03 µg/m³
ESR 11	Without development	24.35	18.04
	With development	24.69	18.07
	With – without development	+0.34 µg/m³	+0.03 µg/m³

Scenario 3: 2022 Future Year, With Development

12.4.11 The 2022 'with development' annual mean NO_2 concentrations (corrected) are predicted to range from 24.69 to 33.96µg/m³ for the eleven existing sensitive receptor locations considered. Exceedance of the annual mean objective concentration for NO_2 (40µg/m³) is not predicted to occur.

12.4.12 The 2022 'with development' annual mean PM_{10} concentrations (uncorrected) are predicted to range from 18.07 to 18.69µg/m³ for the eleven existing sensitive receptor locations considered. Exceedance of the annual mean objective concentration for PM_{10} (40µg/m³) is not predicted to occur.

Assessment of Significance

12.4.13 Using the air quality significance criteria, detailed in Section 12.2 of this report, the impacts to air quality due to changes in pollutant concentrations can be assessed at the eleven existing sensitive receptor locations considered.

12.4.14 For 2022 for NO_2, ESR 2 (Coundon Hill Farm) is predicted to experience an imperceptible decrease in NO_2 concentrations as a result of the proposed development (i.e. a decrease of less than 0.4µg/m³, in accordance with Table 12.11). Three of the existing sensitive receptors considered are predicted to

experience an imperceptible increase (i.e. an increase of less than 0.4µg/m^3) and the remaining seven are predicted to experience a small increase (i.e. an increase of between 0.4 and2µg/m^3).

12.4.15 All predicted NO_2 concentrations are below the objective/ limit values and no exceedences of the NO_2 annual mean air quality objective of 40µg/m^3 are predicted to occur in 2022 for both the 'without development' and 'with development' scenarios.

12.4.16 All eleven existing receptor locations are therefore predicted to experience a negligible impact as a result of the proposed development, when the magnitude of impact, pollutant concentration and sensitivity of the receptor are considered in accordance with Table 12.12.

12.4.17 For 2022 for PM_{10}, ESR 2(Coundon Hill Farm) is predicted to experience an imperceptible decrease in PM_{10} concentrations as a result of the proposed development (i.e. a decrease of less than 0.4µg/m^3, in accordance with Table 12.11).The remaining ten existing sensitive receptor locations are predicted to experience an imperceptible increase in PM_{10} concentrations (i.e. an increase of less than 0.4µg/m3).

12.4.18 All predicted PM_{10} concentrations are well below the objective/ limit values and no exceedances of the PM_{10} annual mean air quality objective of 40µg/m^3 are predicted to occur in 2022 for both the 'without development' and 'with development' scenarios.

12.4.19 All existing receptor locations are therefore predicted to experience a negligible impact as a result of the proposed development, in accordance with Table 12.12.

12.4.20 Ten of the eleven existing sensitive receptor locations are considered moderately sensitive, in accordance with the criteria detailed in Table 12.13. ESR 1 is representative of the Maplewood Independent Hospital and is therefore considered to be highly sensitive. When the magnitude of impact is considered along with the sensitivity of the receptors in accordance with Table 12.14, all eleven existing receptor locations are predicted to experience a 'negligible/not significant' impact as a result of the proposed development.

12.4.21 All changes in concentrations, between 'without development' and 'with development' scenarios, are explained by changes in traffic flows on those roads closest to the receptor locations, with the proposed development in place.

Proposed Sensitive Receptor Locations

12.4.22 Air pollutant concentrations have been modelled for four proposed receptor locations for the 2022 'with development' scenarios, as detailed in Table 12.21. All four proposed receptor locations are considered to be moderately sensitive. The corrected NO_2 and uncorrected PM_{10} concentrations are included in Appendix 12.4.

Table 12.21– Predicted Pollutant Concentrations at Proposed Receptor Points for 2022 'With Development' Scenarios

Receptor Location	2022 Calculated Annual Mean Concentrations (µg/m^3)	
	NO_2 (Corrected)	**PM_{10} (Uncorrected)**
PR 1	27.56	18.28
PR 2	30.23	18.41
PR 3	32.37	18.63
PR 4	29.61	18.46

Scenario 3: 2022 Future Year, With Development

12.4.23 The 2022 'with development' annual mean NO_2 concentrations (corrected) are predicted to range from 27.56 to 32.37µg/m^3 for the four proposed sensitive receptor locations considered. Exceedance of the annual mean objective concentration for NO_2 (40µg/m^3) is not predicted to occur.

12.4.24 The 2022 'with development' annual mean PM_{10} concentrations (uncorrected) are predicted to range from 18.28 to 18.63 µg/m^3 for the four proposed sensitive receptor locations considered. Exceedance of the annual mean objective concentration for PM_{10} (40µg/m^3) is not predicted to occur.

Cumulative Impacts

12.4.25 The road traffic emissions assessment includes consideration of traffic growth between 2013 and 2022, as well as the proposed development at Beake Avenue/Swallow Road at the former Dunlop site (135 residential dwellings).

12.5 Mitigation, Enhancement and Residual Effects

Construction Phase Assessment – Dust Emissions

Step 3

12.5.1 During the construction phase the implementation of effective mitigation measures will substantially reduce the potential for nuisance dust and particulate matter to be generated.

12.5.2 Step 2C of the construction phase assessment identified that:

- The risk of dust soiling effects is classed as medium for earthworks and construction, and high for trackout; and
- The risk of human health effects is classed as low for earthworks, construction and trackout..

12.5.3 This assumes that no mitigation measures are applied, except those required by legislation. Site specific mitigation measures do not need to be recommended if the risk category is negligible.

12.5.4 As the risk category for these activities is not negligible, site specific mitigation measures will need to be implemented to ensure that dust effects will not be significant.

12.5.5 A best practice dust management plan will be in place for the duration of the construction phase works, which will set out the practical measures to be implemented at the site. This will take into account the recommendations included within the Institute of Air Quality Management (IAQM), which may include:

- Minimisation of the duration of the material handling activity and the amount of handling. Material handling methods will also aim to minimise the generation of airborne dust;
- Protection of surfaces and exposed material from winds until disturbed areas are sealed and stable;
- Ensuring that all vehicles will be sheeted when loaded;
- Dampening down of exposed stored materials, which will be stored as far from sensitive receptors as possible;
- Avoidance of activities that generate large amounts of dust during windy conditions;
- The control of dust from general traffic at the site during earthworks and construction works by the provision of a wheel wash at the site exit and a road sweeper for use on site and public highways;
- The provision of easily cleaned hard standing areas for vehicles arriving at and leaving the site and for parking;
- Confining vehicles to areas of the site where appropriate dust control measures can be in operation; and
- Minimisation of vehicle movements and limitation of vehicle speeds – the slower the vehicle speeds, the lower the dust generation.

12.5.6 It is recognised that the final design solutions will be developed with the input of the Contractor to maximise construction efficiencies, to use modern construction techniques and sustainable materials, and to incorporate the particular skills and experience offered by the successful contractor.

Step 4

12.5.7 Step 4 of the construction phase dust assessment has been undertaken to determine the significance of the dust effects arising from earthworks, construction and trackout associated with the proposed development.

12.5.8 The implementation of effective mitigation measures during the construction phase, such as those detailed in Step 3, will substantially reduce the potential for nuisance dust and particulate matter to be generated and any residual impact should not be significant.

Operational Phase Assessment – Road Traffic Emissions

Existing Sensitive Receptor Locations

12.5.9 A detailed air quality assessment has been undertaken to consider the potential impact of the proposed development on air quality at eleven representative existing sensitive receptor locations.

12.5.10 The air quality assessment has predicted that there will be a negligible impact on concentrations of NO_2 and PM_{10}, at all eleven existing receptors considered, in 2022 with the development in place. All predicted NO_2 and PM_{10} concentrations are below the annual mean objective of 40µg/m^3.

12.5.11 Taking into account the predicted impact of the proposed development, it is not therefore considered necessary to recommend measures to mitigate road traffic emissions. The predicted increase in NO_2 and PM_{10} concentrations at the existing receptors may however be reduced with the implementation of various mitigation strategies such as:

- The implementation of a green travel plan; or
- Low NO_x boilers to be installed at the proposed dwellings.

Proposed Sensitive Receptor Locations

12.5.12 The air quality assessment has also predicted pollutant concentrations at four receptor locations within the proposed development site. These are considered to be representative of the proposed residential areas closest to the proposed site access and existing road network.

12.5.13 Predicted NO_2 and PM_{10} concentrations are below the annual mean air quality objectives of 40µg/m^3, for 2022, at the proposed sensitive receptor locations considered. It is not therefore considered necessary to recommend measures to mitigate road traffic emissions at proposed receptor locations.

12.6 Summary

Introduction

12.6.1 An air quality assessment has been undertaken to assess the potential air quality impacts associated with the proposed development at Keresley. A qualitative assessment has been undertaken to assess the potential air quality impacts of dust arising from the construction phase of works. Air dispersion modelling, using ADMS-Roads, has been carried out to assess the potential air quality impact of development generated traffic.

Baseline Conditions

12.6.2 Coventry City Council (CCC) declared a city wide Air Quality Management Area (AQMA), for nitrogen dioxide in 2009 and therefore the proposed development is located within the existing AQMA. The site is however located in the northwestern part of the Coventry Authority Area, at the edge of the main urban area.

Likely Significant Effects

Construction Phase Assessment – Dust Emissions

12.6.3 The construction phase assessment has been undertaken to determine the risk and significance of dust effects from earthworks, construction and trackout from the proposed development. The assessment has been undertaken in accordance with the guidance on assessing the impacts of construction phase dust published by the Institute of Air Quality Management.

12.6.4 The risk of dust soiling effects is considered to be medium for earthworks and construction, and high for trackout. The risk of human health effects is classed as low for earthworks, construction activities and trackout. Site specific mitigation measures will therefore need to be implemented at the site.

12.6.5 With site specific mitigation measures in place, as detailed in Section 7 of this report, the significance of dust effects for earthworks, construction activities and trackout are considered to be not signficant.

Operational Phase Assessment – Road Traffic Emissions

Existing Sensitive Receptor Locations

12.6.6 The air quality assessment has predicted that there will be a negligible impact on concentrations of NO_2 and PM_{10}, at all eleven existing receptors considered, in 2022 with the development in place. All predicted NO_2 and PM_{10} concentrations are below the annual mean objective of 40µg/m^3.

Proposed Sensitive Receptor Locations

12.6.7 The air quality assessment has also predicted pollutant concentrations at four receptor locations within the proposed development site. Predicted NO_2 and PM_{10} concentrations are below the annual mean air quality objectives of 40µg/m^3, for 2022, at the proposed sensitive receptor locations considered.

Mitigation and Enhancement

Construction Phase – Dust Emissions

12.6.8 Site specific mitigation measures have been recommended to minimise potential dust emissions associated with the construction of the proposed development, as outlined in Section 12.5.

Operational Phase – Road Traffic Emissions

12.6.9 Taking into account the predicted impact of the proposed development, it is not therefore considered necessary to recommend measures to mitigate road traffic emissions. The predicted increase in NO_2 and PM_{10} concentrations at the existing receptors may however be reduced with the implementation of various mitigation strategies such as:

- The implementation of a green travel plan; or
- Low NOx boilers to be installed at the proposed dwellings.

Conclusions

12.6.10 With site specific mitigation measures in place, the significance of dust effects for earthworks, construction and trackout is not considered to be significant.

12.6.11 . The proposed development is predicted to have a negligible impact upon existing sensitive receptor locations during the operational phase. Predicted pollutant concentration on the site are below the relevant air quality objectives.