Appendix 8A: Legislative Context

Legislation and Guidance

European CAFE Directive (2008/50/EC) and Air Quality Standards Regulations 2010

8.1.1 The Directive details air quality limit values, target values, and critical levels for a number of air pollutants established by the European Parliament and Council for the protection of human health, vegetation and ecosystems. These have been transposed into UK legislation by the 2010 Regulations.

8.1.2 Nitrogen dioxide (NO_2) and particulate matter in the form of Particulate Matter (PM_{10}) are two of the pollutants addressed by the Directive and Regulations for protection of human health with relevance to the current assessment.

8.1.3 The limit values for both NO_2 and PM_{10} represent concentrations which member states are required to maintain below specific levels in ambient air. Table 8A-1 presents the limit values for these two pollutants applicable where members of the public are likely to be regularly exposed for the averaging period indicated in the table.

8.1.4 Oxides of nitrogen (NO_x) are pollutants addressed by the Directive and 2010 Regulations for protection of vegetation with relevance to this assessment. Table 8A-2 presents the critical levels for this pollutant.

Air Quality Strategy for England, Scotland, Wales and Northern Ireland and Air Quality (England) Regulations 2000 and Air Quality (England) Amendment Regulations 2002

8.1.5 The UK Government and the Devolved Administrations (DAs) published the latest Air Quality Strategy for England, Scotland, Wales and Northern Ireland in July 2007 defining standards and objectives for each of a range of air pollutants.

8.1.6 These are as prescribed within The Air Quality (England) Regulations 2000 (Stationery Office, 2000) and The Air Quality (England) (Amendment) Regulations 2002 (Stationery Office, 2002) (termed the 'Regulations') and coincide with the limit values for protection of human health as presented in Table 8A-1.

Table 8A-1 Limit Values for NO_2 and PM^{10}

Averaging Period	Limit Value	Measured as	Date by which limit value is to be met
Nitrogen Dioxide (NO_2)			
One hour	200 µg/m^3, not to be exceeded more than 18 times a calendar year	1-Hour mean	1 January 2010

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Averaging Period	Limit Value	Measured as	Date by which limit value is to be met
Calendar year	40 µg/m^3	Annual Mean	1 January 2010
Particulate Matter (PM_{10}) (gravimetric)			
One day	50 µg/m^3, not to be exceeded more than 35 times a calendar year	Daily Mean	Already in force since 1 January 2005
Calendar year	40 µg/m^3	Annual Mean	Already in force since 1 January 2005

Table 8A-2 Critical Levels for NO_x

Averaging Period	Critical Level	Date to be achieved and maintained thereafter
Oxides of Nitrogen (NO_x)		
Calendar year	30 µg/m^3	19 July 2001

United Nations Economic Commission for Europe Critical Loads

8.1.7 The United Nations Economic Commission for Europe (UNECE) has set Critical Loads for N-Deposition for specific sensitive ecosystems (UNECE, 2003). Critical Loads are defined by the UNECE as 'a quantitative estimate of an exposure to one or more pollutants below which significant harmful effects on specified sensitive elements of the environment do not occur according to present knowledge .

8.1.8 The Critical Load threshold for each of the nitrogen (N) sensitive Designated Sites identified within the study area is shown in Table 8-A3.

Table 8A-3 Ecosystem Critical Loads of N-Deposition

Ecosystem	N-Deposition Critical Load	Relevant Nitrogen Critical Load Class	Measured as
Cotteril Clough (E) SSSI	5 – 15 kg N ha-^{1} y-^{1}	Coniferous woodland	Annual Critical Load
Cotteril Clough (W) SSSI	5 – 15 kg N ha-^{1} y-^{1}	Coniferous woodland	Annual Critical Load
Lindow Common SSSI	10 – 20 kg N ha-^{1} y-^{1}	Northern wet heath	Annual Critical Load

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The Environmental Protection Act 1990 (EPA)

8.1.9 The EPA (Section 79, Chapter 43, Part III - Statutory Nuisance and Inspections) contains a definition of what constitutes a 'statutory nuisance' with regard to dust and places a duty on Local Authorities to detect any such nuisances within their area. Dust arising from construction works could lead to statutory nuisance if it 'interferes materially with the well being of the residents, i.e. affects their well being, even though it may not be prejudicial to health'.

The National Planning Policy Framework (NPPF)

8.1.10 The National Planning Policy Framework is guidance which covers planning policy guidance in England. The NPPF advises on the policies and practices that should be taken into account by those involved in the planning of and planning approval of any development in order for the development to meet sustainability requirements including managing greenhouse gas emissions (NPPF: section 10), preventing the risk of adverse levels of air pollution (NPPF: paragraph 11.110) and minimising impacts on biodiversity (NPPF: paragraph 11.109).

Guidance on the Assessment of the Impacts of Construction on Air Quality and Determination of their Significance

8.1.11 This guidance was produced by the Institute of Air Quality Management (IAQM) and provides assistance on how to assess construction impacts of developments or schemes to be considered. It focuses on classifying sites according to the risk effects and on identifying the mitigation appropriate to the risk.

The Highways Agency Interim Advice Note 174/13

8.1.12 Under the Environmental Impact Assessment (EIA) Directive, an assessment of the likely significant environmental effects of a project must be conducted on the basis of appropriate information supplied by the developer. It is for the developer to set out whether or not a scheme is likely to have significant environmental effects.

8.1.13 A judgement of significance must take into account relevant selection criteria set out in Annex III of the EIA Directive, which impacts on Limit Values (Table 8A-1) set out in the EU Directive on ambient air quality as a minimum.

8.1.14 In accompany with the IAN 174/13, a new compliance risk assessment test (IAN 175/13) has been developed to enable decision makers to judge a scheme's likelihood of non-compliance with the EU Directive. The compliance risk assessment test also informs the air quality significance test.

8.1.15 A copy of IAN 174/13 and IAN 175/13 is presented in Appendix 8E.

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8.1.16 The Local Development Framework (LDF) and Local Development Documents (LDDs) which it contains are being developed in the context of the Regional Spatial Strategy (RSS) principles for the Manchester City Region are common to Stockport Metropolitan Borough Council (SMBC) and Cheshire East Council (CEC). These include strategies to reduce air pollution within their areas of jurisdiction.

Local Action Plans, Strategies and Guidance

8.1.17 The 10 Greater Manchester Authorities (including Stockport) have worked together to produce an Air Quality Action Plan, which covers the whole of Greater Manchester and details the measures that will be taken across the area to reduce air pollution. It is accompanied by related annexes for each of the 10 district authorities providing a more detailed, local focus to the wider actions and strategies. This includes guidance for developers submitting planning applications on air quality information to be provided on submission.

8.1.18 In proximity to the scheme within Cheshire East there are two Air Quality Management Areas (AQMA) at Disley and the A556 at Mere. The CEC has produced a detailed assessment relating to the Disley AQMA which covers an area along the A6 where the annual and hourly mean National Air Quality Objective for NO_2 was being breached (Cheshire East Council, 2011). The outcome of the assessment showed that in order to achieve the NO2 annual mean objective within the AQMA, a reduction of 16.8µg/m3 was required, which is likely to be achieved by 2016 if no action is taken. To reduce the pollution levels an Air Quality Action plan was issued in 2011. The Air Quality Action Plan showed that in order to achieve the NO2 annual mean objective within the AQMA at Mere a reduction of 17µg/m3 was required. An Update and Screening Assessment (USA) was undertaken by CEC and released on July 2012. The 2012 USA states that within the Mere AQMA there was an increase in measured NO2 at the Holly Tree Cottage monitoring site of from 39.9 in 2010 to 46.2µg/m^3 in 2011. The USA stated that there were no exeedencies of the national objectives for PM_{10}, SO_2 or benzene during the 2011 monitoring period in Cheshire East.

8.1.19 CEC, as part of its ongoing commitment to the improvement of Air Quality has developed a Local Air Quality Strategy. The Strategy will ensure that Local Air Quality is considered as a priority across a broad range of Council functions, and aid with the implementation of the Air Quality Action Plan. Key strategic challenges in the near future include tackling transport related emissions from new development. This is considered a high priority as it has the potential to limit future deterioration in air quality.

8.1.20 The CEC has produced a detailed assessment relating to the Disley AQMA which covers an area stretching along the A6 where the annual and hourly mean National Air Quality Objective for NO_2 was being breached (Cheshire East Council, 2011).

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The outcome of the assessment showed that in order to achieve the NO2 annual mean objective within the AQMA, a reduction of 16.8µg/m^3 was required, which is likely to be achieved by 2016 if no action is taken. To reduce the pollution levels an Air Quality Action plan was issued in 2011.

8.1.21 CEC, as part of its ongoing commitment to the improvement of Air Quality has developed a Local Air Quality Strategy. The Strategy will ensure that Local Air Quality is considered as a priority across a broad range of Council functions, and aid with the implementation of the Air Quality Action Plan. Key strategic challenges in the near future include tackling transport related emissions from new development. This is considered a high priority as it has the potential to limit future deterioration in air quality.

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Appendix 8B: Local Authorities Diffusion Tubes Monitoring Information

Table 0B-1 - Details of Local Authorities Continuous Monitoring

Site ID	Name	Classification	Specific Location (X,Y)	
Manchester City Council				
MCC_CM02	Manchester South	Suburban	383904	385818
MCC_CM03	Manchester Oxford Rd	Roadside	384233	397287
UKA00248 / GB0613A/ MCC_CM01	Piccadilly Gardens	Urban Background	384311	398337
Stockport Metropolitan Borough Council				
SMBC_CM01	Shaw Heath/Greek Street	Roadside	389387	389604
SMBC_CM02	Hazel Grove	Urban Background	391481	387636
Cheshire East Council				
RTA 2	A523 London Road South, Poynton	Roadside	391715	383065
RTA 3	Market Street, Disley	Roadside	397783	384804
RTA 1	A556 Chester Rd, Mere	Roadside	373004	382626
RTA 5	Crewe Nantwich Rd/Edward Street	Roadside	370565	354650
RTA 6	Knutsford Manchester Rd	Roadside	374981	378773

Table 0B-2 - Details of Local Authority Diffusion Tube Monitoring – Cheshire East Council

Name	Location	Co-ordinates		Type	In AQMA?	Bias Adjusted Annual Mean Concentration (µg/m^3)					
		X	Y			2007	2008	2009	2010	2011	2012
CE14	9 Market Street, Disley	397531	384705	Kerbside	Y	58.2	57.8	54.4	55.0	47.0	53.5
CE15	3 The Crescent, Disley	397638	384780	Roadside	Y	53.6	55.7	49.0	50.0	41.2	45.6
CE16	31 The Crescent, Market Street, Disley	397698	384826	Roadside	Y	60.8	62.6	57.4	56.8	52.5	59.5
CE19	56 Buxton Road, Disley	398009	384705	Roadside	Y	46.0	49.4	44.9	44.5	41.0	43.4
CE20	Dystelegh House, Buxton Road, Disley (co-location)	397786	384803	Roadside	Y	33.0	32.4	27.0	29.8	25.5	28.2
CE23	25 London Road South, Poynton	391610	382780	Roadside	N	38.2	36.9	34.5	35.8	29.5	33.5
CE24	48 London Road South, Poynton	391920	383440	Roadside	N	38.2	36.9	34.6	36.1	29.4	34.2
CE25	A523 London Road South, Poynton (co-location)	391720	383060	Roadside	N	25.7	25.7	25.4	27.8	24.6	24.9
CE28	183 London Road South, Poynton	391750	383100	Roadside	N	30.9	30.6	28.9	31.9	24.5	27.8
CE29	34 Altrincham Road, Wilmslow	384111	381135	Roadside	N	-	-	-	30.1	26.1	30.0
CE30	7 Altrincham Road, Wilmslow	384040	381130	Roadside	N	39.5	42.1	38.1	40.9	37.0	41.2
CE31	68 Altrincham Road, Wilmslow	383940	381159	Roadside	N	-	-	-	30.6	26.1	31.0
CE32	R/O 13 Ashford Road, Alderley Edge	384234	379631	N/A	N	-	-	33.3	21.8	17.7	-
CE33	Aldford Place, Alderley Edge	383870	378900	N/A	N	-	-	27.5	16.1	16.4	-
CE34	Post Office, 45 London Road, Alderley Edge	384363	378337	N/A	N	-	-	32.5	44.2	30.7	-
CE35	Posh, 38 London Road, Alderley Edge	384344	378258	N/A	N	-	-	31.6	37.1	27.2	-
CE36	Bus Shelter, London Road, Alderley Edge	384361	378184	Roadside	N	-	-	28.0	37.7	24.6	-
CE37	Gatley Green Farm, Welsh Row, Alderley Edge	383584	376445	N/A	N	-	-	17.1	20.5	15.9	-
CE38	Rear of the Lodge, Nether Alderley	384122	375386	N/A	N	-	-	13.9	17.3	12.4	-
CE39	Monks Heath Crossroads	384442	374142	Roadside	N	-	-	-	40.8	32.4	37.8
CE64	Mereside Farm, Rostherne, Mere	373760	384820	Roadside	Y	-	32.8	36.7	35.1	32.2	32.7
CE78	Yarwood Heath, Rostherne	374624	385486	Rural Background	N	-	-	-	25.0	25.0	22.0

Name	Location	Co-ordinates		Type	In AQMA?	Bias Adjusted Annual Mean Concentration (µg/m^3)					
		X	Y			2007	2008	2009	2010	2011	2012
CE82	78 Buxton Road, Disley	398153	384683	Roadside	N	-	-	-	-	23.8	26.9
CE83	Holly Cottages, Altrincham Road, Wilmslow	383165	381852	Roadside	N	-	-	-	-	32.9	45.5

Table 0B-3 - Details of Local Authority Diffusion Tube Monitoring – Manchester City Council

Name	Location	Co-ordinates		Type	In AQMA?	Bias Adjusted Annual Mean Concentration (µg/m^3)					
		X	Y			2007	2008	2009	2010	2011	2012
MCC01	Alma Road	387358	393991	Roadside	Y	-	-	40.0	40.0	34.3	32.4
MCC03	Burnage	386781	392650	Urban Background	N	34.0	26.0	30.0	28.0	22.9	23.8
MCC10	Hyde Road	388604	396043	Roadside	Y	-	51.0	42.0	49.0	41.4	43.7
MCC11	Kingsway	385401	390096	Roadside	Y	-	41.0	39.0	45.0	39.6	37.7
MCC14	M56	381657	387492	Roadside	Y	65.0	56.0	57.0	58.0	54.6	48.3
MCC18	Peaceville Road	386585	394081	Urban Background	N	-	-	31.0	33.0	28.2	27.8
MCC19	Princess Road	382828	391496	Roadside	Y	48.0	45.0	43.0	54.0	44.9	42.4
MCC23	St Pauls School	381398	387502	Urban Background	Y	41.0	35.0	52.0	56.0	31.7	30.7
MCC24	Stockport Road	387365	394615	Kerbside	Y	-	56.0	36.0	38.0	51.0	54.6
MCC25	Styal	384200	382958	Suburban	N	22.0	15.0	17.0	19.0	16.7	14.4
MCC28	Manchester South (co-location)	383904	385818	Suburban	N	-	-	24.0	28.0	-	24.3

Table 0B-4 - Details of Local Authority Diffusion Tube Monitoring – Stockport Metropolitan Borough Council

Name	Location	Co-ordinates		Type	In AQMA?	Bias Adjusted Annual Mean Concentration (µg/m^3)					
		X	Y			2007	2008	2009	2010	2011	2012
SMBC01	Whitehill Fire Station	389077	392012	Urban Background	N	17.0	22.0	22.0	26.0	25.0	23.7
SMBC02	Heald Green Health Centre	384889	385846	Urban Background	N	24.0	21.0	24.0	29.0	25.0	25.4
SMBC03	Denby Lane	388552	391847	Urban Background	N	29.0	27.0	28.0	31.0	30.0	28.9

Name	Location	Co-ordinates		Type	In AQMA?	Bias Adjusted Annual Mean Concentration (µg/m^3)					
		X	Y			2007	2008	2009	2010	2011	2012
SMBC04	Compstall Library	396468	390801	Rural	N	16.0	13.0	14.0	18.0	15.3	16.0
SMBC06	Cheadle Library	385953	388534	Urban Background	N	21.0	17.0	19.0	23.0	21.5	21.1
SMBC07	Civic Centre, Hazel Grove	392043	386980	Roadside	Y	53.0	42.0	46.0	52.0	47.6	49.5
SMBC08	Marshalls Yard, Hazel Grove	392017	387043	Urban Background	Y	26.0	22.0	24.0	27.0	29.8	28.6
SMBC09	Alderley Close, Hazel Grove	392743	385680	Urban Background	N	16.0	13.0	15.0	18.0	15.1	14.5
SMBC10	Deneside Crescent, Hazel Grove	392781	387272	Urban Background	N	18.0	15.0	17.0	20.0	18.4	17.5
SMBC11	A6 Norwood Road, Woodsmoor	391083	387939	Roadside	Y	43.0	46.0	40.0	45.0	47.4	46.4
SMBC12	A34 Kingsway	385027	388287	Roadside	Y	60.0	55.0	63.0	66.0	56.1	60.7
SMBC13	Prospect Vale	394679	386365	Urban Background	N	18.0	17.0	18.0	22.0	20.6	20.3
SMBC14	Upton Avenue	387362	385910	Urban Background	N	18.0	17.0	19.0	20.0	19.1	20.6
SMBC15	Bramhall Lane	389886	388961	Roadside	Y	42.0	37.0	40.0	42.0	41.0	42.7
SMBC16	Stockport Road, Bredbury	391569	391227	Roadside	Y	30.0	23.0	26.0	34.0	27.8	30.6
SMBC17	Yew Street	388471	390093	Urban Background	Y	34.0	29.0	29.0	34.0	29.8	30.8
SMBC18	Debenhams	389260	390407	Urban Centre	Y	53.0	41.0	48.0	46.0	47.0	50.2
SMBC19	Gorton Road, Reddish	389479	393466	Roadside	Y	46.0	43.0	47.0	47.0	46.5	46.2
SMBC20	Kennilworth Road, Cheadle Heath	386481	389530	Urban Background	Y	40.0	35.0	42.0	53.0	42.3	45.2
SMBC21	Carmichael Street	388598	389415	Urban Background	N	31.0	24.0	23.0	30.0	28.3	29.5
SMBC22	Greek Street (co-location)	389387	389604	Urban Background	Y	31.0	28.0	26.0	31.0	26.6	30.0
SMBC23	Greek Street (co-location)	389387	389604	Urban Background	Y	31.0	28.0	26.0	31.0	26.6	29.3
SMBC24	Greek Street (co-location)	389387	389604	Urban Background	Y	31.0	27.0	25.0	31.0	27.3	29.1
SMBC25	Stockport Road, Marple	395771	388655	Roadside	N	29.0	30.0	29.0	32.0	30.6	31.6
SMBC26	Midland Road	389405	387339	Urban Background	N	19.0	16.0	17.0	21.0	21.2	19.4
SMBC27	Pinewood Close	387099	391385	Urban Background	N	19.0	17.0	18.0	24.0	20.5	21.2
SMBC28	Finney Lane	385701	386227	Roadside	Y	40.0	38.0	40.0	49.0	42.2	44.7
SMBC29	Russell Street	390085	388547	Urban Background	N	20.0	20.0	20.0	24.0	20.9	22.3

Appendix 8C: Scheme Specific Diffusion Tubes Data

Table 8C-1 Mouchel 2009 Diffusion Tubes Results Summary

Site ID	Name	Estimated Annual Mean Concentrations (µg/m^3) adjusted for bias	Data Capture (%)
1	Bleasdale Road N	31.1	75
2	Bleasdale Road S	33.5	67
3	Cranham Road W	34	75
4	Cranham Road E	30.4	83
5	Boulder Drive E	32.7	83
6	Boulder Drive W	32	83
7	Selstead Road	41.8	83
8	Roxholme Walk	23.3	83
9	Woodhouse Road	22	50
10	Swithin Road	26.4	58
11	Wynfield Avenue	40.6	67
12	Tedder Drive Transect 1	40.1	83
13	Tedder Drive Transect 2	36.2	83
14	Tedder Drive Transect 3	25.1	75
15	Tedder Drive Transect 4	24.3	83
16	Emerald Road	24	83
17	Cunningham Drive	34.4	75
18	Styal Road N	38.7	83
19	Styal Road S	35.6	83
20	Manchester Road (steep hill)	44.9	83
21	Handforth Road S	31.8	83
22	Handforth Road S	30	83
23*	Handforth Road N	-	-
24	Wilmslow Road/Spath Lane	31.9	83
25	B5358/A555 roundabout	34.2	83
26	B5358 S of roundabout	37.5	83
27	Pickmere Road	18.9	75
28	Longsight Lane	25.2	83
29	Ack Lane West - E	30.8	75
30	Ack Lane West - W	28.5	83

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Site ID	Name	Estimated Annual Mean Concentrations (µg/m^3) adjusted for bias	Data Capture (%)
31	Spath Lane East	20.4	67
32	Hall Moss Lane Transect N	34.2	83
33	Hall Moss Lane Transect N	33.6	83
34	Hall Moss Lane Transect N	35.5	58
35	Hall Moss Lane Transect N	33.1	83
36*	Hall Moss Lane Transect S	-	25
37*	Hall Moss Lane Transect S	-	42
38	Hall Moss Lane Transect S	29.3	83
39	Hall Moss Lane Transect S	28.2	75
40	Woodford Road S of roundabout N	43.2	83
41	Woodford Road S of roundabout S	49.2	83
42	Woodford Road N of roundabout N	40.9	83
43	Woodford Road N of roundabout S	44	83
44	Bramhall Lane South S of Bridge Lane S	44.2	67
45	Bramhall Lane South S of Bridge Lane N	35.9	75
46	Bramhall Lane South N of Bridge Lane S	39.8	83
47	Bramhall Lane South N of Bridge Lane N	48.7	75
48	Albany Road (school parking nearby)	17.3	83
49	Meadway Urban BG	19.5	67
50	Longnor Road Urban BG	15.7	75
51	Macclesfield Road N	43.6	75
52	Macclesfield Road S	35.7	83
53	Ashbourne Road	15.3	83
54	A6 Buxton Road N	51.7	83
55	A6 Buxton Road S	50.1	75
56	Buxton Road, High Lane E	50.4	83
57	Buxton Road, High Lane W	43.8	75
58	Torkington Road	43.8	83
59	A34 SB N	73.4	83
60	A34 SB S	69.7	83
61	A34 NB S	47.7	83
62	A34 NB Centre near Gatley Road jct	72.4	83
63	A34 NB near M60 jct	43.5	50
64	Moss Lane	30.6	75

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Site ID	Name	Estimated Annual Mean Concentrations (µg/m^3) adjusted for bias	Data Capture (%)
65	Acre Lane	38.7	75
66	A523/Clifford Road co-location	34.8	83
67	A6 London Road	38.3	83

* Inadequate data capture – not used.

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Construction Phase - Evaluation of Dust Impacts

8.1.1 There are no formal assessment criteria for dust. In the absence of formal criteria, the approach developed by the IAQM has therefore been used. The assessment involved the following tasks:

- Evaluation of the proposed site activities, their location and duration, and phasing of the development, as far as it was known at the time of the assessment. The evaluation of the likely timescale of impact has involved a review of the indicative construction programme provided in Chapter 5 and of the likely duration of the higher risk dust generating activities such as earthworks which will be associated with each site;
- Collection and appraisal of meteorological data related to wind speed, direction and frequency for the local and wider area. Meteorological data has been gathered from Manchester Airport Meteorological Station (382028, 383808) , 0.5 km south-west of the proposed scheme corridor;
- Identification of any natural shelters, such as trees, to reduce the risk of wind-blown dust;
- Collection of PM_{10}, local background concentrations.
- Identification of the location and type of sensitive receptors within 350m of the boundary of the site. A distance of 350m has been selected for assessment on the basis that the substantial proportion of dust particles associated with earthworks and construction activities of the type proposed are relatively large and will normally be deposited within 100m of the construction site. The 350m buffer allows for the likelihood that smaller volumes of finer dust particles will be likely to be deposited beyond the 100m distance. The location of sensitive receptors has involved use of Ordnance Survey Address Layer 2 data;
- Assessment of the risk of dust effects arising using three risk categories: low risk, medium risk, and high risk. The site was allocated to a risk category based on two factors:
  - *the scale and nature of the works, which determined the risk of dust arising (i.e. the magnitude of potential dust emissions) classed as: small, medium or large; and*
  - *the proximity of receptors, considered separately for ecological and human receptors (i.e. the potential for effects)*
- Identification of the significance of dust impacts prior to mitigation at the receptors within 350m of the construction site.
- Identification of appropriate mitigation measures; and

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- Description of the likely effects taking mitigation into account.

8.1.2 Based on the information available at the time of writing activities on construction site have been divided into two types to reflect their different potential impacts. These were Earthworks and Construction activities. These are addressed in turn below;

Earthworks

8.1.3 The dust emission classes used in Table 0-1 to determine the earthworks risk category are as follow:

- Large: Total site area >10,000m^2, potentially dusty soil type (e.g. clay, which will be prone to suspension when dry due to small particle size), >10 heavy earth moving vehicles active at any one time, formation of bunds >8m in height, total material moved >100,000 tonnes;
- Medium: Total site area 2,500m^2 – 10,000m^2, moderately dusty soil type (e.g. silt), 5 – 10 heavy earth moving vehicles active at any one time, formation of bunds 4m – 8m in height, total material moved 20,000 tonnes – 100,000 tonnes; and
- Small: Total site area <2,500m^2, soil type with large grain size (e.g. sand), <5 heavy earth moving vehicles active at any one time, formation of bunds <4m in height, total material moved <10,000 tonnes, earthworks during wetter months.

Construction Activities

8.1.4 The dust emission classes used in Table 0-1 to determine the construction risk category are as follow:

- Large: Total building volume >100,000m^3, piling, on site concrete batching; sandblasting;
- Medium: Total building volume 25,000m^3 - 100,000m^3, potentially dusty construction material (e.g. concrete), piling, on site concrete batching; and
- Small: Total building volume <25,000m^3, construction material with low potential for dust release.

Table 0-1 - Risk Category from Earthworks and Construction Activities

Distance to Nearest Receptor (m)		Dust Emission Class		
Dust Soiling and PM_{10}	Ecological	Large	Medium	Small
< 20	-	High Risk Site	High Risk Site	Medium Risk Site
20 – 50	-	High Risk Site	Medium Risk Site	Low Risk Site
50 – 100	<20	Medium Risk Site	Medium Risk Site	Low Risk Site

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100 – 200	20 – 40	Medium Risk Site	Low Risk Site	Negligible
200 – 350	40 – 100	Low Risk Site	Low Risk Site	Negligible

Definition of Sensitivity and Significance of Effects

8.1.5 Sensitivity of a particular cluster of receptors was based on criteria set out in the IAQM dust guidance:

- Very High: >100 dwellings within 20m/very sensitive receptor present;
- High: 10-100 dwellings within 20m of site;
- Medium: <10 dwellings within 20m of site; and
- Low: No dwellings within 20m of site/wooded area between site and receptors.

8.1.6 The significance of the estimated effects without mitigation is presented on Table 0-2. It shows how sensitivity and risk of a site are considered to inform of significance of effects for construction and earthworks activities at each risk cluster before mitigation.

Table 0-2 - Significance of Effects Classification Without Mitigation

Sensitivity of Surrounding Area	Risk of a Site Given Rise to Dust Effects		
	High	Medium	Low
Very high	Substantial Adverse	Moderate Adverse	Moderate Adverse
High	Moderate Adverse	Moderate Adverse	Slight Adverse
Medium	Moderate Adverse	Slight Adverse	Negligible
Low	Slight Adverse	Negligible	Negligible

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Appendix 8E: Designated Sites Information

8.1 Cotteril Clough

8.1.1 Cotteril Clough lies 15km south of Manchester city centre immediately to the west of Manchester Airport. The site comprises part of a ravine, or clough, cut into the Keuper Marl by the erosion of the Cotteril Brook. The majority of the site is woodland with associated stream habitat and is the most diverse clough woodland on base rich soils in Greater Manchester.

8.1.2 Three distinct zones exist within the woodland. The first of these occurs on the plateau edge and contains birch-oak woodland in which pedunculate oak and sycamore are the dominant tree species with holly, rowan and down birch also occasionally found.

8.1.3 Bracken and bramble are abundant in the ground flora with hairy woodrush and foxglove locally frequent. This grades into ash-wych elm woodland with sycamore and pedunculate oak also commonly found. Wild cherry, hazel, honeysuckle and hawthorn are common in the understorey with aspen, bird cherry Prunus padus, whitebeam Sorbus aria, goat willow and guelder rose Viburnum opulus occasional. The ground flora is dominated by ramsons with honeysuckle, bluebell, wood anemone, lesser celandine and black bryony also commonly found.

8.1.4 Alley alder woodland dominates the bottom of the clough. Alder, which has been extensively coppiced in the past, sallow and ash are the main tree species. Ramsons is again the most abundant herb in the ground flora which also commonly includes marsh marigold and pendulous sedge. Less common plants present in the wood include goldilocks Ranunculus auricomus, alternate-leaved golden saxifrage Chrysosplenium alternifolium, wood vetch, toothwort Lathraea squamaria, giant bellflower, twayblade, hard shield fern Polystichum aculeatum and thin-spiked wood sedge.

8.1.5 The embankment, which was created when the A358 was built, supports neutral grassland in which red fescue, sweet vernal grass and Yorkshire fog are the main grasses with tufted hair grass frequent in wetter areas. Common herbs include coltsfoot, ribwort plantain and creeping buttercup with common spotted orchid Dactylorhiza fuchsii occasionally present.

8.1.6 Cotteril Clough also has an interesting bird fauna with spotted fly-catcher, lesser spotted, greater spotted and green woodpecker, blackcap and whitethroat all known to breed in the woodlands. The invertebrate fauna is also diverse with 79 species of spider having been recorded as well as the rare beetle Dropephylla grandiloqua.

8.2 Lindow Common

8.2.1 Lindow Common has been selected to represent one of the few remaining areas of lowland heath in Cheshire. The site consists of a mixture of wet and dry heath, bog, open water and scattered scrub and woodland.

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8.2.2 Most of the dry heath is dominated by heather Calluna vulgaris and purple moor grass Molinia caerulea together with associated species such as bilberry Vaccinium myrtillus and gorse Ulex europaeus.

8.2.3 Many lower lying areas of the heath are either permanently or seasonally waterlogged. These areas support very different plants and animals which add considerably to the diversity of the site. In these areas notable species include common cotton-grass Eriophorum angustifolium, hare's tail cotton-grass E. vaginatum, cross-leaved heath Erica tetralix, cranberry Vaccinium oxycoccos and sundew Drosera rotundifolia. In the wettest areas bog mosses Sphagnum spp.ecome dominant.

8.2.4 Black Lake in the centre of the site contains peaty, acidic water. Aquatic macrophytes are sparse although several areas of lesser reedmace Typha angustifolia are present which form an important roost for swallows and house martins.

8.2.5 Most of the woodland is dominated by birch Betula pendula with scattered oak Quercus robur saplings. Some holly Ilex aquifolium is also present. The ground flora is poor, dominated by Yorkshire fog Holcus lanatus and wavy hair-grass Deschampsia flexuosa.

8.2.6 Patches of heather and bilberry occur in the more open areas.

8.2.7 For more detailed information the reader is referred to Chapter 11.

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