

AIR QUALITY ASSESSMENT

on behalf of

HALL & CO PROJECTS LTD

for

CARLTON WORKS, MONTON, ECCLES

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Summary

This air quality report is submitted in support of a planning application for a proposed residential development of approximately 24 dwellings at Carlton Works, Monton, Eccles.

An air quality assessment was undertaken to consider the impact of existing vehicle emissions from the M602 motorway on the proposed development and therefore to assess the suitability of the site for future residential use.

The assessment concluded that the northern section of the site, where the residential development will take place, is likely to be below the annual mean objective at all floor levels.

The impact of the development on local air quality is considered to be insignificant as the development will only introduce 44 LGV AADT movements and will remove 11 HGV ADT movements from the local road network. The traffic data is based on the original plan of 50 dwellings, it is likely that the new plans of 24 dwellings will produce less traffic movements.

The assessment also considered whether the proposed development could significantly change air quality during the construction phase. With the implementation of mitigation measures the dust impacts from the construction are considered to be not significant, in accordance with IAQM guidance.

There is, therefore, with the implementation of the recommended mitigation during demolition and construction, no reason for this application to be refused on the grounds of air quality.

Prepared By Melody Horan

Reviewed By Jo Miller

Signed



Signed



Date

21st December 2017

Date

21st December 2017

Record of changes

Version	Date	Change	Initials
D	6th July 2017	First draft	AV
2	21st December 2017	The plan proposes 24 dwellings rather than 50	MH

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1 Introduction

- 1.1 This air quality report is submitted in support of a planning application for a proposed residential development of approximately 24 dwellings at Carlton Works, Monton, Eccles. The site lies within the administrative boundary of Salford City Council (SCC).
- 1.2 The report provides a review of the existing air quality in proximity to the proposed development site and assesses the potential impact of the proposed development on local air quality, in accordance with Local Air Quality Management Technical Guidance¹.
- 1.3 Air pollution in urban areas is generally dominated by emissions from road vehicles. The quantity and composition of vehicle emissions is dependent on the type of fuel used, engine type, size and efficiency, vehicle speeds and the type of exhaust emissions abatement equipment employed.
- 1.4 The main pollutants of health concern from road traffic exhaust releases are nitrogen dioxide (NO₂) and fine particulates – normally assessed as the fraction of airborne particles of mean aerodynamic diameter less than ten micrometres (PM₁₀), since these pollutants are most likely to approach their respective air quality objectives in proximity to major roads and in congested areas. This assessment has therefore focused on the impact of existing concentrations of NO₂ and PM₁₀ on future residential receptors.

2 Site Description

- 2.1 The site is located approximately 900 m to the North West of Eccles town centre and is currently used as an engineering works for the fabrication of steel, with onsite office use. The site location is shown in **Appendix A**.
- 2.2 The M602 motorway runs along the southern boundary of the site. Lansdowne Road runs along the western boundary of the site which leads under the motorway to a small industrial estate which houses a central heating service and a sewage disposal service. Carlton St runs along the northern boundary and residential dwellings lie adjacent to the eastern boundary. Residential dwellings also surround the site to the north and west of the site.

3 Proposed Development

- 3.1 The proposed development is for approximately 24 residential houses, the site layout plan is shown in **Appendix B**. Site access will be from Lansdowne Road.

¹ Department for the Environment Food and Rural Affairs (2016) 'Local Air Quality Management Technical Guidance Document LAQM.TG (16)', London: Defra.

4 Policy Context

4.1 The Air Quality Strategy

- 4.1.1 European Union (EU) legislation forms the basis for current UK air quality policy. The EU Air Quality Framework Directive 96/62/EC on Ambient Air Quality Assessment and Management came into force in September 1996². This is a framework for tackling air quality through European-wide air quality limit values in a series of daughter directives, prescribing how air quality should be assessed and managed by the Member States. Directive 96/62/EC and the first three daughter objectives were combined to form the new EU Directive 2008/50/EC³ on Ambient Air Quality and Cleaner Air for Europe, which came into force June 2008.
- 4.1.2 The Environment Act 1995 required the preparation of a national Air Quality Strategy (AQS) which set air quality standards and objectives for specified pollutants. The Act also outlined measures to be taken by local planning authorities (LPAs) in relation to meeting these standards and objectives (the Local Air Quality Management (LAQM) system).
- 4.1.3 The UK AQS was originally adopted in 1997 and has been reviewed and updated since then to take account of changing EU Legislation, technical and policy developments and the latest information on health effects of air pollution. The strategy was revised and reissued in 2000 as the AQS for England, Scotland, Wales and Northern Ireland. This was subsequently amended in 2003 and was last updated in July 2007⁴.
- 4.1.4 The standards and objectives relevant to the LAQM framework have been prescribed through the Air Quality (England) Regulations (2000) and the Air Quality (England) (Amendment) Regulations 2002; the Air Quality Standards Regulations 2010 set out the combined Daughter Directive limit values and interim targets for Member State compliance.
- 4.1.5 The current air quality standards and objectives (for the purpose of LAQM) are presented in **Table 1**. Pollutant standards relate to ambient pollutant concentrations in air, set on the basis of medical and scientific evidence of how each pollutant affects human health. Pollutant objectives, however, incorporate target dates and averaging periods which take into account economic considerations, practicability and technical feasibility.

² European Parliament (1996) Council Directive 96/62/EC on Ambient Air Quality Assessment and Management.

³ European Parliament (2008) Council Directive 2008/50/EC on Ambient Air Quality and Cleaner Air for Europe.

⁴ Department for Environment, Food and Rural Affairs (DEFRA) (2007) 'The Air Quality Strategy for England, Scotland, Wales and Northern Ireland'

Table 1: Air Quality Strategy Objectives (England) for the Purposes of Local Air Quality Management

Pollutant	Air Quality Objective		To be Achieved by
	Concentration	Measured As*	
Benzene	5 µg/m ³	Annual mean	31/12/2010
1,3 Butadiene	2.25 µg/m ³	Running annual mean	31/12/2003
Carbon monoxide	10 mg/m ³	Maximum daily running 8-hour mean	31/12/2003
Lead	0.25 µg/m ³	Annual mean	31/12/2008
Nitrogen dioxide (NO ₂)	200 µg/m ³	1-hour mean not to be exceeded more than 18 times per year	31/12/2005
	40 µg/m ³	Annual mean	31/12/2005
Particles (PM ₁₀)	50 µg/m ³	24-hour mean not to be exceeded more than 35 per year	31/12/2004
	40 µg/m ³	Annual mean	31/12/2004
Particles (PM _{2.5})	25 µg/m ³	Annual mean (target)	2020
	15% cut in annual mean (urban background exposure)		2010-2020
Sulphur Dioxide (SO ₂)	350 µg/m ³	1-hour mean not to be exceeded more than 24 times a year	31/12/2004
	125 µg/m ³	24-hour mean not to be exceeded more than 3 times a year	31/12/2004
	266 µg/m ³	15-minute mean not to be exceeded more than 35 times a year	31/12/2005

Note: *how the objectives are to be measured is set out in the UK Air Quality (England) Regulations (2000).

- 4.1.6** Where an air quality objective is unlikely to be met by the relevant deadline, local authorities must designate those areas as Air Quality Management Areas (AQMA) and take action to work towards meeting the objectives. Following the designation of an AQMA, local authorities are required to develop an Air Quality Action Plan (AQAP) to work towards meeting the objectives and to improve air quality locally.
- 4.1.7** Possible exceedances of air quality objectives are generally assessed in relation to those locations where members of the public are likely to be regularly present and are likely to be exposed for a period of time appropriate to the averaging period of the objective.

4.2 National Planning Policy Framework

4.2.1 National planning policy is now set by the National Planning Policy Framework (NPPF). The NPPF places a general presumption in favour of sustainable development, stressing the importance of local development plans. One of its 12 Core Planning Principles states that planning should:

“contribute to conserving and enhancing the natural environment and reducing pollution”, by (paragraph 109) “preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability”.

4.2.2 It goes on to state (paragraphs 120 and 124) that:

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

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

4.2.3 Planning Practice Guidance (PPG) for the NPPF has been issued in respect of Air Quality⁵. It explains 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 an air quality impact in an area where air quality is known to be poor. They could also arise where the development is likely to adversely impact upon the implementation of air quality strategies and action plans and/or, in particular, lead to a breach of EU legislation (including that applicable to wildlife). The steps a local planning authority might take in considering air quality are shown in **Appendix C**.

4.2.4 When deciding whether air quality is relevant to a planning application, considerations could include whether the development would:

- Significantly affect traffic in the immediate vicinity of the proposed development site or further afield. This could be by generating or increasing traffic congestion; significantly changing traffic volumes, vehicle speed or both; or significantly altering the traffic composition on local roads. Other matters to consider include whether the proposal involves the development of a bus station, coach or lorry park; adds to turnover in a large car park; or result in construction sites that would generate large Heavy Goods Vehicle flows over a period of a year or more;
- Introduce new point sources of air pollution. This could include furnaces which require prior notification to local authorities; or extraction systems (including chimneys) which require approval under pollution control legislation or biomass boilers or biomass-fuelled CHP plant; centralised boilers or CHP plant burning other fuels within or close to an air quality management area or introduce relevant combustion within a Smoke Control Area;

⁵ <http://planningguidance.planningportal.gov.uk/blog/guidance/air-quality/>

- Expose people to existing sources of air pollutants, for example by building new homes, workplaces or other development in places with poor air quality;
- Give rise to potentially unacceptable impact (such as dust) during construction for nearby sensitive locations; and
- Affect biodiversity.

4.2.5 The PPG goes on to state that where there are concerns about air quality, the local planning authority may want to know about:

- The 'baseline' local air quality;
- Whether the proposed development could significantly change air quality during the construction and operational phases; and/or
- Whether there is likely to be a significant increase in the number of people exposed to a problem with air quality, such as when new residential properties are proposed in an area known to experience poor air quality.

4.2.6 The PPG advises that air quality assessments should be proportionate to the nature and scale of development proposed and the level of concern about air quality, and because of this are likely to be location specific and should be agreed between the local planning authority and applicant before it is commissioned.

5 Methodology

5.1 Data Sources

5.1.1 The air quality assessment of the proposed development was undertaken with reference to information from a number of sources, as detailed in **Table 2**.

Table 2: Key Information Sources

Data Source	Reference
Greater Manchester Combined Authority (GMCA)	GMCA (2015) 2015 Air Quality Annual Status Report
Department for Environment Food and Rural Affairs (Defra)	Defra (2016) <i>Local Air Quality Management Technical Guidance TG(16)</i>
Environmental Protection UK (EPUK) and Institute of Air Quality Management (IAQM)	EPUK and IAQM (January 2017) <i>Land Use Planning and Development Control: Planning for Air Quality (v1.2)</i>
Defra's LAQM Support Tools	Local Air Quality Management 1 km x 1 km grid background pollutant maps
Institute of Air Quality Management (IAQM)	IAQM (2014) <i>Assessment of Dust from Demolition and Construction</i>

5.2 Consultation

- 5.2.1 Consultation in respect of the scope of this assessment and the methodology to be used was undertaken with Stephen Maslivec of Urban Vision. Stephen confirmed that the proposed methodology was suitable⁶. It was agreed that both a construction phase assessment and an assessment of road traffic emissions across the site would be undertaken for the proposed development. The types of assessments to be undertaken, meteorological data to be used, assessment roads, approach to verification and baseline data sources were also agreed and are detailed in the following sections.

5.3 Baseline Air Quality Conditions.

- 5.3.1 SCC has published a series of air quality Review and Assessment documents in accordance with the local air quality management (LAQM) process. Since 2012 the Greater Manchester Combined Authority (GMCA) has published joint reports for its ten constituent authorities, including SCC. The GMCA 2015 Annual Status Report (ASR), was obtained and reviewed in order to establish the existing conditions at, and in proximity to, the site.

5.4 Road Traffic Emissions Assessment

Air Dispersion Model

- 5.4.1 The Atmospheric Dispersion Modelling System for Roads (ADMS-Roads) v4.1.1.0 was used to assess the impact of existing vehicle exhaust emissions, on concentrations of NO₂ and PM₁₀, at proposed new receptors located adjacent to the assessed road network, to assess the suitability of the site for residential use.
- 5.4.2 The ADMS-Roads model is a comprehensive tool for investigating air pollution in relation to road networks. The model uses algorithms for the height-dependence of wind speed, turbulence and stability to produce improved predictions. It can predict long-term and short-term concentrations, as well as calculations of percentile concentrations.
- 5.4.3 The ADMS-Roads model has been comprehensively validated in a large number of studies by the software manufacturer CERC (Cambridge Environmental Research Consultants). This includes comparisons with data from the UK's Automatic Urban Network (AUN) and specific validation exercises using standard field, laboratory and numerical data sets. CERC is also involved in European programmes on model harmonisation, and their models have been compared favourably against other EU and US EPA systems. Further information in relation to this is available from the CERC web site at www.cerc.co.uk.

Assessment Scenarios

- 5.4.4 The assessment considered the following scenarios:
- Scenario 1: 2016 - base year;
 - Scenario 2: 2019- opening year 'with development'.

⁶ Meeting between Amy Van de Sande (MGL) and Steven Maslivec (Urban Vision-SCC) 29th June 2017.

Traffic Data

- 5.4.5 24 hour annual average daily traffic (AADT) flow data are required for input into the air quality assessment. Traffic data was used from the Department for Transport website, for use in the assessment.
- 5.4.6 The spatial scope for the assessment focused on those routes affected by the proposed development. The study area therefore included the following road links:
- M602.
- 5.4.7 The traffic data used in the assessment are detailed in **Appendix D**.
- 5.4.8 Vehicles within the study area were assumed to travel at 70 kph on the motorway.
- 5.4.9 Time varying emission factors have been included in the assessment. The time varying emission factors used in the assessment are the same as those used within the GMCA modelling of the AQMA⁷. Including these varying emissions factors ensured the modelling results more accurately matched the modelled AQMA, thus improving the accuracy of the model.

Meteorological Data

- 5.4.10 Meteorological data for 2016 from the Manchester Airport recording station was used in the ADMS-Roads model. This is the most representative recording station for the development site.

Model Verification

- 5.4.11 Model verification is the process of adjusting model outputs to improve the consistency of modelling results with respect to available monitored data. In this study, model uncertainty was minimised following Defra and EPUK guidance. There are no relevant monitoring locations in the vicinity of the development site, therefore, model verification could not be undertaken.
- 5.4.12 A baseline assessments for the year 2016 has been undertaken. A contour plot for NO₂ concentrations has been prepared to compare against the declared AQMA.

Sensitive Receptors

- 5.4.13 To assess onsite receptor locations, the whole site was assessed using concentration contour plots at three different heights; 1.5m for ground floor level, 4m for first floor level and 7m for second floor level.

Conversion of NO_x to NO₂

- 5.4.14 Oxides of nitrogen (NO_x) concentrations were predicted using the ADMS-Roads model. The modelled road contribution of NO_x at the identified receptor locations was then converted to NO₂ using the NO_x to NO₂ calculator (v5.1, 2016)⁸ in accordance with Defra guidance¹.

⁷ Transport for Greater Manchester 'The Greater Manchester Emissions Dispersion model-2016 Model Year' February 2014

⁸ <http://laqm.defra.gov.uk/review-and-assessment/tools/background-maps.html#NOxNO2calc>

Emission Factors

- 5.4.15 DEFRA's Emission Factor Toolkit (EFT), which is used within the ADMS model to predict emissions from road vehicles, was updated in August 2016 to version V7.0. There appears to be large uncertainty over the accuracy of these emission factors, and in general, they are reported to under predict emissions from vehicles more than the previous emissions factors within the previous version of EFT (for example V6.02).
- 5.4.16 To overcome this issue, the Air Quality Consultants CURED V2A spreadsheet have been used to calculate vehicle emissions. CURED V2A uses the same information on vehicle fleet compositions as EFT V7.0. It also uses same shaped speed-emissions curves as EFT V7.0; albeit that these have been uplifted to give higher predicted emissions of NO_x. The emissions output from CURED V2A have been utilised within the ADMS model.

Background Concentrations

- 5.4.17 The ADMS model requires the derivation of background pollutant concentration data that are factored to the year of assessment, to which the model adds contributions from the assessed roads.
- 5.4.18 Background concentrations used within the model were taken from the Eccles automatic urban background monitoring location as it was agreed with SCC that this location was representative of site conditions.

6 Baseline Air Quality

6.1 Local Air Quality Management

- 6.1.1 There are several locations along major roads within the Salford area where air quality does not meet the national objectives that aim to protect people's health and the environment. The first Air Quality Management Area (AQMA) was declared in 1999, following further work it was re-defined in 2005 for exceedances of the annual mean nitrogen dioxide. The AQMA covers the areas surrounding the M60 and M602 motorways, as well as the A666 Manchester Road and the A6 East Lancashire Road. The AQMA in relation to the development site is shown in **Appendix E**. The AQMA has been declared on the exceedance of 35 µg/m³.
- 6.1.2 The 2015 Greater Manchester ASR concluded that the annual mean nitrogen dioxide concentrations in the AQMA remain above the air quality objective and therefore the AQMA should remain.

6.2 Air Quality Monitoring

Nitrogen Dioxide (NO₂)

- 6.2.1 SCC undertake monitoring of NO₂ across its authority. One automatic station and three co-located diffusion tubes are located in the proximity of the site. The long term and short-term results are shown in **Table 3** and **Table 4** and their locations in **Appendix F**.

Table 3: Annual Mean NO₂ Concentrations from Monitoring Sites within the Study Area.

Site ID and Type	Location		Annual Mean NO ₂ Concentrations (µg/m ³)				
			2012	2013	2014	2015	2016
Automatic Stations							
Eccles (Urban Industrial) (NO _x concentration (µg/m ³))	377926	398728	28 (56)	30 (49)	30 (50)	27 (46)	29 (54)
Diffusion Tubes							
SA23 (Urban Background)	377925	398728	33.5	29.5	31.1	26.3	30.4
SA24 (Urban Background)	377925	398728	34.9	29.5	29.3	26.8	29.0
SA29 (Urban Background)	377925	398728	33.3	29.4	30.0	26.4	30.2
Annual Mean NO ₂ air quality objective					40 µg/m ³		

6.2.2 The monitoring results in **Table 3** indicate that annual mean background concentrations of NO₂ have not been close to the NO₂ annual mean objective at all monitoring locations since 2012. Roadside concentrations will, however, be higher than the monitored background concentrations. This can be seen by the declaration of the adjacent AQMA.

Table 4: Number of 1-hour Mean NO₂ Objective Exceedances from Monitoring Sites within the Study Area.

Site ID and Type	Location		Annual Mean NO ₂ Concentrations (µg/m ³)				
			2012	2013	2014	2015	2016
Automatic Stations							
Eccles (Urban Industrial)	377926	398728	2	0	0	0	0
1-hour Mean NO ₂ air quality objective			200 µg/m ³ not to be exceeded more than 18 times per year				

6.2.3 **Table 4** shows that there have been no exceedances of the 1-hour mean NO₂ objective at the automatic station since 2012. In 2012 the 1-hour mean of 200 µg/m³ was exceeded, however, it was only exceed twice, therefore, the 1 hour mean objective was not exceeded. It is unlikely that the co-located diffusion tubes have also not exceeded the objective as monitored results are less than 60 µg/m³ ¹.

Particulate Matter (PM₁₀)

6.2.4 SCC undertakes monitoring of PM₁₀ using one automatic station which is in proximity of the site. The results are shown in **Table 5** and **Table 6** and its location in **Appendix F**.

Table 5: Annual Mean PM₁₀ Monitoring Data from the nearest Automatic Monitoring Site to the Study Area

Site ID and Type	Location		Annual Mean PM ₁₀ Concentrations (µg/m ³)				
			2012	2013	2014	2015	2016
Eccles (Urban Industrial)	377926	398728	15	19	18	18	17
Annual Mean PM ₁₀ air quality objective			40 µg/m ³				

6.2.5 The monitoring results in **Table 5** indicate that annual mean background concentrations of PM₁₀ have not been close to the PM₁₀ annual mean objective at this monitoring locations since 2012.

Table 6: Number of 24-hour Mean PM₁₀ Objective Exceedances from the nearest Automatic Monitoring Site to the Study Area

Site ID and Type	Location		Annual Mean PM ₁₀ Concentrations (µg/m ³)				
			2012	2013	2014	2015	2016
Eccles (Urban Industrial)	377926	398728	6	6	6	5	2
24-hour Mean PM ₁₀ air quality objective			50 µg/m ³ not to be exceeded more than 35 times a year				

6.2.6 **Table 6** shows that there have been a maximum of 6 exceedances of 50 µg/m³ at the automatic station since 2012. There has, however, not been more than 35 exceedances of 50 µg/m³, therefore, the 24-hour mean PM₁₀ objective has not been exceeded.

6.3 Background Concentrations

6.3.1 There are urban background monitoring locations in proximity of the site, for NO_x, NO₂ and PM₁₀, as shown in **Table 3** and **Table 5**. For comparison, background concentrations of NO_x, NO₂ and PM₁₀ were also obtained from the background concentration maps provided by Defra for the grid squares covering the proposed development and receptor locations⁹. These are shown in **Table 7** below.

⁹ <http://uk-air.defra.gov.uk/data/laqm-background-maps?year=2013>

Table 7: Background Pollutant Concentrations Obtained for the 1km x 1km Grid Squares Covering the Site and Receptor Locations*

Location	Grid Square	Pollutant	2016	2019
			(µg/m ³)	(µg/m ³)
Background Monitoring Location	377500,398500	NO _x	41.3	34.6
		NO ₂	26.4	22.8
		PM ₁₀	16.5	16.0
Development Site and Existing Receptors	376500,399500	NO _x	36.1	29.9
		NO ₂	23.8	20.2
		PM ₁₀	15.8	15.3

* Background concentrations obtained from the latest 2013 based background maps

6.3.2 **Table 7** shows that the DEFRA background map concentrations are lower than those measured at the automatic station as shown in **Table 3** and **Table 5**. To ensure an accurate and worst-case assessment is undertaken, it was agreed with SCC⁶ that the monitored concentrations at the Eccles automatic station would be used as background concentrations in the assessment for the baseline year assessment. As the monitored NO₂ concentrations haven't decreased since 2014, the future year assessment (2019) year background concentrations have been kept at opening year (2016) concentrations.

6.4 Proposed Receptor Locations

6.4.1 The development site is partially located in the AQMA as shown in **Appendix E**. In order to assess whether the whole of the site is suitable for residential development, contour plots have been produced for NO₂ and PM₁₀ concentrations across the development site at a height of 1.5m, 4m and 7m to represent ground floor, first floor and second floor levels.

7 Model Verification

7.1 There is no roadside NO₂ monitoring undertaken within the study area, therefore, it was not possible to undertake verification on NO₂ concentrations.

7.2 There is no PM₁₀ monitoring undertaken within the study area, therefore it was not possible to undertake verification of PM₁₀ concentrations.

8 Baseline Assessment

8.1 In order to determine if the model is predicting similar concentrations to the declared AQMA, a contour plot for NO₂ has been produced for the baseline year of 2016 as shown in **Appendix G**, which also shows the declared AQMA for comparison.

8.2 **Appendix G** shows that the model is predicting concentrations slightly higher than the declared AQMA as the NO₂ contour extends further from the motorway than the AQMA. The assessment is, therefore, likely to be a worst case assessment.

9 Existing Road Traffic Impact Assessment

- 9.1 Pollutant concentration contour plots have been produced to determine the areas of the development site which will be suitable for residential use at the proposed opening year of the development (2019).
- 9.2 **Appendices H, I and J** show the NO₂ annual mean concentrations across the site at the receptors heights 1.5 m (ground floor), 4 m (first floor) and 7 m (second floor) respectively.
- 9.3 **Appendices H, I and J** show the NO₂ annual mean concentrations will be below the annual mean NO₂ objective within the development
- 9.4 **Appendix K** shows the PM₁₀ annual mean concentrations across the site at the receptors heights 1.5 m. The plot shows that the annual mean PM₁₀ concentrations across the development at this height are well below the annual mean objective. No plots have, therefore, been produced for any other heights as it is expected that 1.5m will be a worst-case scenario.
- 9.5 To summarise, the development site is expected to be experiencing concentrations well below the annual mean objective.

10 Impact of the Development on Existing Air Quality

- 10.1 The difference in vehicle movements from the existing site use to the proposed residential use have been provided by SCP Transport and are shown in **Table 8** below.

Table 8: Net Difference in Vehicle Movements with Proposed Development

Vehicle	Daily (07:00 to 19:00)		Total Net Difference
	Arrivals	Departures	
LGV	18	26	44
HGV	-6	-5	-11

- 10.4 **Table 8** shows that the proposed development would introduce 44 more LGV movements, but remove 11 HGV movements in comparison to the existing site use. IAQM guidance¹⁰ states that if a development introduces less than 100 LGV AADT, within or adjacent to an AQMA, then the impact of the development on local air quality can be considered as being insignificant.
- 10.5 As the development will only introduce 44 more LGV AADT, and actually removes some HGV movements, it can be concluded, therefore, that the development will have an insignificant impact on air quality experienced at existing sensitive receptor locations.

¹⁰ EPUK and IAQM (January 2017) Land Use Planning and Development Control: Planning for Air Quality (v1.2)

- 10.6 The traffic data was calculated based on the original site plan of 50 dwellings. As the amended planning proposal is for 24 dwellings, the traffic movements will be lower which will result in a lower traffic impact than predicted within this model.

11 Road Traffic Mitigation Measures

- 11.1 The residential development is expected to be experiencing concentrations below the objective at ground floor level, therefore, no mitigation is required at this location.

12 Dust Risk Assessment Methodology

- 12.1 The following section outlines criteria developed by the IAQM for the assessment of air quality impacts arising from construction and demolition activities¹¹. The assessment procedure is divided into four steps and is summarised below:

Step 1: Screen the Need for a Detailed Assessment

- 12.2 An assessment will normally be required where there are human receptors within 350 m of the site boundary and/or within 50 m of the route(s) used by construction vehicles on the public highway, up to 500 m from the site entrance(s). Ecological receptors within 50 m of the site boundary or within 50 m of the route(s) used by construction vehicles on the public highway, up to 500 m from the site entrance(s), are also identified at this stage. An ecological receptor refers to any sensitive habitat affected by dust soiling. For locations with a statutory designation, such as a Site of Specific Scientific Interest (SSSI), Special Area of Conservation (SACs) and Special Protection Areas (SPAs), consideration should be given as to whether the particular site is sensitive to dust. Some non-statutory sites may also be considered if appropriate.
- 12.3 Where the need for a more detailed assessment is screened out, it can be concluded that the level of risk is 'negligible' and any effects will not be significant.

Step 2: Assess the Risk of Dust Impacts

- 12.4 In step two, a site is allocated to a risk category on the basis of the scale and nature of the works (Step 2A) and the sensitivity of the area to dust impacts (Step 2B). These two factors are combined in Step 2C to determine the risk of dust impacts before the implementation of mitigation measures. The assigned risk categories may be different for each of the construction activities outlined by the IAQM (construction, demolition, earthworks and trackout). A site can be divided into zones, for example on a large site where there are differing distances to the nearest receptors.

Step 2A: Define the Potential Dust Emission Magnitude

- 12.5 Dust emission magnitude is based on the scale of the anticipated works and is classified as Small, Medium or Large. The IAQM guidance recommends that the dust emission magnitude is determined separately for demolition, earthworks, construction and trackout. **Table 9** describes the potential dust emission class criteria for each outlined activity.

¹¹ IAQM "Assessment of dust from demolition and construction" 2014

Table 9: Criteria Used in the Determination of Dust Emission Magnitude

Activity	Criteria used to Determine Dust Emission Magnitude		
	Small	Medium	Large
Demolition	Total building volume <20,000 m ³ , construction materials with low potential for dust release.	Total building volume 20,000 m ³ – 50,000 m ³ , potential dusty construction material.	Total building volume >50,000 m ³ , potentially dusty construction material.
Earthworks	Total site area <2,500 m ² , soil type with large grain	Total site area 2,500 – 10,000 m ² , moderately dusty soil type	Total site area >10,000 m ² , potentially dusty soil type
Construction	Total building volume <25,000 m ³ .	Total building volume 25,000 – 100,000 m ³ .	Total building volume >100,000 m ³ .
Trackout	<10 outward HDV trips in any one day. Unpaved road length <50 m.	10-50 outward HDV trips in any one day. Unpaved road length 50-100 m.	>50 outward HDV trips in any one day. Unpaved road length >100 m.

Step 2B: Define the Sensitivity of the Area

12.6 The sensitivity of the area takes into account the following factors:

- the specific sensitivities of receptors in the area;
- the proximity and number of receptors;
- the local background PM₁₀ concentration; and
- site-specific factors, such as whether there are natural shelters, such as trees, to reduce the risk of windblown dust.

12.7 The criteria detailed in **Table 10** is used to determine the sensitivity of the receptor in relation to dust soiling, health effects and ecological effects.

Table 10: Criteria for Determining Sensitivity of Receptors

Sensitivity of Receptor	Criteria for Determining Sensitivity		
	Dust Soiling Effects	Health Effects of PM ₁₀	Ecological Sites
High	Dwellings, museums and other culturally important collections, medium and long-term car parks and car showrooms	Residential properties, hospitals, schools and residential care homes	International or national designation <i>and</i> the features may be affected by dust soiling
Medium	Parks, places of work	Office and shop workers not occupationally exposed to PM ₁₀	Presence of an important plant species where dust sensitivity is uncertain or locations with a national designation with features that may be affected by dust deposition
Low	Playing fields, farmland, footpaths, short-term car parks and roads	Public footpaths, playing fields, parks and shopping streets	Local designation where features may be affected by dust deposition

12.8 **Table 11** and **Table 12** are then used to define the sensitivity of the area to dust soiling and human health effects. This should be derived for each of construction, demolition, earthworks and trackout.

Table 11: Sensitivity of the Area to Dust Soiling Effects on People and Property.

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

*distances considered are to the dust source

Table 12: Sensitivity of the Area to Human Health Impacts

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

12.9 The sensitivity of the area is then summarised.

Step 2C Define the Risks of Impacts

12.10 The dust emission magnitude from **Table 9** and sensitivity of the area and receptors from **Table 10**, **Table 11** and **Table 12** are combined, and the risk of impacts from each activity (demolition, earthworks, construction and trackout) before mitigation is applied, is determined using the criteria detailed in **Table 13** to **Table 16**.

Table 13: Risk of Dust Impacts - Demolition

Potential Impact Sensitivity of the 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

Table 14: Risk of Dust Impacts- Earthworks

Potential Impact Sensitivity of the 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

Table 15: Risk of Dust Impacts- Construction

Potential Impact Sensitivity of the 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

Table 16: Risk of Dust Impacts- Trackout

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

Step 3 Determine Site Specific Mitigation

- 12.11 Step three of the IAQM guidance identifies appropriate site-specific mitigation. These measures are related to whether the site is a low, medium or high risk site.

Step 4 Determine Significance of Residual Effects

- 12.12 At step four the significance of residual effects is assessed. For almost all construction activity, the aim should be to prevent significant effects on receptors through the use of effective mitigation. Experience shows that this is normally possible. Hence the residual effect will normally be 'not significant'.
- 12.13 There may be cases where, for example, there is inadequate access to water for dust suppression to be effective, and even with other mitigation measures in place there may be a significant effect. Therefore, it is important to consider the specific characteristics of the site and the surrounding area to ensure that a conclusion of no significant effect is robust.

13 Dust Impact Assessment

13.1 Step 1 – The Need for a Detailed Assessment

- 13.1.1 The site boundary is within 350 m of human receptors. In addition there are human receptors within 50 m of the route(s) used by construction vehicles on the public highway, up to 500 m from the site entrance. Therefore, a detailed assessment of the construction phase of the development was undertaken. The detailed assessment has not addressed ecological receptors.

13.2 Step 2 – Assess the Risk of Dust Impacts

Step 2A Dust Emission Magnitude

- 13.2.1 The potential dust emission magnitude in relation to the development has been determined using the criteria detailed in **Table 9**:
- Demolition: The total building volume to be demolished is 20 000 - 50 000 m³. The dust emission magnitude for demolition is, therefore, considered to be **Medium**.
 - Earthworks: The total site area is 2 500 - 10 000 m². The dust emission magnitude for earthworks is, therefore, considered to be **Medium**.
 - Construction: The total building volume to be constructed is 25 000 - 100 000 m³. The dust emission magnitude for construction is, therefore, considered to be **Medium**.
 - Trackout: It is conservatively assumed that there are likely to be 10 - 50 HDV outward movements in any one day. The unpaved road length is likely to be 50 - 100 metres. The dust emission magnitude for trackout is, therefore, considered to be **Medium**.
- 13.2.2 The scale and nature of works onsite were considered to determine the potential dust emission magnitude for demolition, earthworks and trackout activities as outlined in **Table 17**.

Table 17: Dust Emission Magnitudes for Each Activity

Activity	Dust Emission Magnitudes	Justification
Demolition	Medium	total building volume to be demolished is 20 000 - 50 000 m³
Earthworks	Medium	the site area is 2 500 -10 000 m²
Construction	Medium	total building volume to be constructed is 25 000 m³ - 100 000 m³
Trackout	Medium	there are likely to be 10 - 50 HDV outward movements in any one day

Step 2B Sensitivity of the Receptors to Dust Soiling and Health Effects

13.2.3 Human receptors are located in residential houses adjacent to the site within a distance of 20 m from construction, demolition and earthworks and 20 m of road edges used by traffic associated with the site construction. In accordance with the criteria in **Table 10** and the IAQM guidance, the sensitivity of human receptors to the effects of dust soiling and health effects from construction, demolition, earthwork activities, and from trackout is therefore likely to be **High**.

Step 2B Sensitivity of the Area to Dust Soiling

13.2.4 The sensitivity of the area to dust soiling effects has been determined using the criteria detailed in **Table 11**:

- Demolition - sensitivity is considered to be **High** as demolition activities take place less than 20 m of 10 - 100 high sensitivity receptors;
- Earthworks - sensitivity is considered to be **High** as earthworks activities take place less than 20 m of 10 - 100 high sensitivity receptors;
- Construction - sensitivity is considered to be **High** as construction activities take place less than 20 m of 10 - 100 high sensitivity receptors; and
- Trackout activities – sensitivity is considered to be **High** as there are more than 100 high sensitivity receptors within 20 metres of roads which relevant vehicles are likely to use that are up to 500 metres from the site.

Step 2B Sensitivity of People to the Health Effects of PM₁₀

13.2.5 The modelled PM₁₀ concentrations for 2019 'without development' are shown in **Appendix K**.

13.2.6 Local levels of PM₁₀ are therefore likely to be less than 24 µg/m³, during the construction phase.

13.2.7 Using this information and **Table 12**, the sensitivity of human receptors to health impacts from dust and PM₁₀ for each activity were defined as:

- Demolition - sensitivity is considered to be **Low** as demolition activities take place less than 20 m from 10 - 100 high sensitivity receptors and the background PM₁₀ concentration is predicted to be less than 24 µg/m³;
- Earthworks - sensitivity is considered to be **Low** as earthworks activities take place less than 20 m from 10 - 100 high sensitivity receptors and the background PM₁₀ concentration is predicted to be less than 24 µg/m³;

- Construction - sensitivity is considered to be **Low** as construction activities take place less than 20 m from 10 - 100 high sensitivity receptors and the background PM₁₀ concentration is predicted to be less than 24 µg/m³; and
- Trackout activities – sensitivity is considered to be **Medium** as there are more than 100 high sensitivity receptors within 20 metres of roads which relevant vehicles are likely to use that are up to 500 metres from the site, and the background PM₁₀ concentration is predicted to be less than 24 µg/m³.

13.2.8 The sensitivity of the area to dust soiling and human health in each activity is summarised in **Table 18**.

Table 18: Outcome of Defining the Sensitivity of the Area

Potential Impact	Sensitivity of the Surrounding Area			
	Demolition	Earthworks	Construction	Trackout
Dust Soiling	High	High	High	High
Human Health	Low	Low	Low	Medium

Step 2C Risk of Impacts

13.2.9 The dust emission magnitude and sensitivity of the area were combined and the risk of impacts determined using the criteria detailed in **Table 13** to **Table 16**.

- Demolition – is considered to be **Medium** risk for dust soiling and **Low** risk for human health;
- Earthworks – is considered to be **Medium** risk for dust soiling and **Low** risk for human health;
- Construction – is considered to be **Medium** risk for dust soiling and **Low** risk for human health; and
- Trackout activities – is considered to be **Medium** risk for dust soiling and **Low** risk for human health;

13.2.10 A summary of the risks, before mitigation measures are applied, for dust soiling and human health are shown in **Table 19**.

Table 19: Risk of Dust Impacts

Potential Impact	Dust Risk			
	Demolition	Earthworks	Construction	Trackout
Dust Soiling	Medium risk	Medium risk	Medium risk	Medium risk
Human Health	Low risk	Low risk	Low risk	Low risk

13.3 Step 3 – Site-Specific Mitigation

13.3.1 Step 3 of the IAQM guidance identifies appropriate site-specific mitigation. These measures are related to the site risk for each activity. Good practice mitigation measures highly recommended for the proposed development taken from the IAQM guidance are detailed below.

13.3.2 The general mitigation measures (for site management, preparing and maintaining the site, operating vehicle/machinery, operations and waste management), are appropriate for a site with a 'medium risk'

classification (in this instance the site is classified as “medium” risk due to demolition, earthworks, construction and trackout)¹². Mitigation measures specific to earthworks, construction and trackout are proposed based on the risk classifications in **Table 19**.

Site Management

- Develop and implement a stakeholder communications plan that includes community engagement before work commences on site;
- Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager;
- Display the head or regional office contact information;
- Develop and implement a Dust Management Plan (DMP);
- Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken;
- Make the complaints log available to the local authority when asked; and
- Record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation in the log book.

Monitoring

- Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100 m of site boundary, with cleaning to be provided if necessary;
- Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the local authority when asked; and
- Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.

Preparing and maintaining the site

- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible;
- Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site;
- Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period;
- Avoid site runoff of water or mud;
- Keep site fencing, barriers and scaffolding clean using wet methods;
- Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below; and
- Cover, seed or fence stockpiles to prevent wind whipping.

¹² For those mitigation measures that are general, the highest risk category should be applied. For example, if the site is medium risk for earthworks and construction, but a high risk for demolition and track-out, the general measures applicable to a high risk site should be applied.

Operating vehicle/machinery and sustainable travel

- Ensure all on-road vehicles comply with the requirements of the London Low Emission Zone and the London NRMM standards, where applicable ;
- Ensure all vehicles switch off engines when stationary - no idling vehicles;
- Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable;
- Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on unsurfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate);
- Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials; and
- Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing).

Operations

- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems;
- Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate;
- Use enclosed chutes and conveyors and covered skips;
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate; and
- Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.

Waste management

- Avoid bonfires and burning of waste materials.

Measures specific to demolition

There is a medium risk of dust associated with demolition onsite, it is therefore, 'highly desirable' that the following measures are implemented:

- Soft strip inside buildings before demolition (retaining walls and windows in the rest of the building where possible, to provide a screen against dust);
- Ensure effective water suppression is used during demolition operations. Hand held sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed. In addition high volume water suppression systems, manually controlled, can produce fine water droplets that effectively bring the dust particles to the ground;
- Avoid explosive blasting, using appropriate manual or mechanical alternatives; and
- Bag and remove any biological debris or damp down such material before demolition

Measures specific to earthworks

There is a medium risk of dust associated with earthworks activities onsite, it is therefore, 'desirable' that the following measures are implemented:

- Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable;
- Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable; and
- Only remove the cover in small areas during work and not all at once.

Measures specific to construction

There is a medium risk of dust associated with construction onsite, it is therefore, 'highly desirable' that the following measures are implemented:

- Avoid scabbling (roughening of concrete surfaces) if possible;
- Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place;
- Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery; and
- For smaller supplies of fine powder materials ensure bags are sealed after use and stored appropriately to prevent dust.

Measures specific to trackout

There is a medium risk of dust associated with trackout, it is therefore, 'highly desirable' that the following measures are implemented:

- Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use;
- Avoid dry sweeping of large areas;
- Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport;
- Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable;
- Record all inspections of haul routes and any subsequent action in a site log book;
- Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned;
- Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable);
- Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits; and
- Access gates to be located at least 10 m from receptors where possible.

13.4 Step 4 – Determine Significant Effects

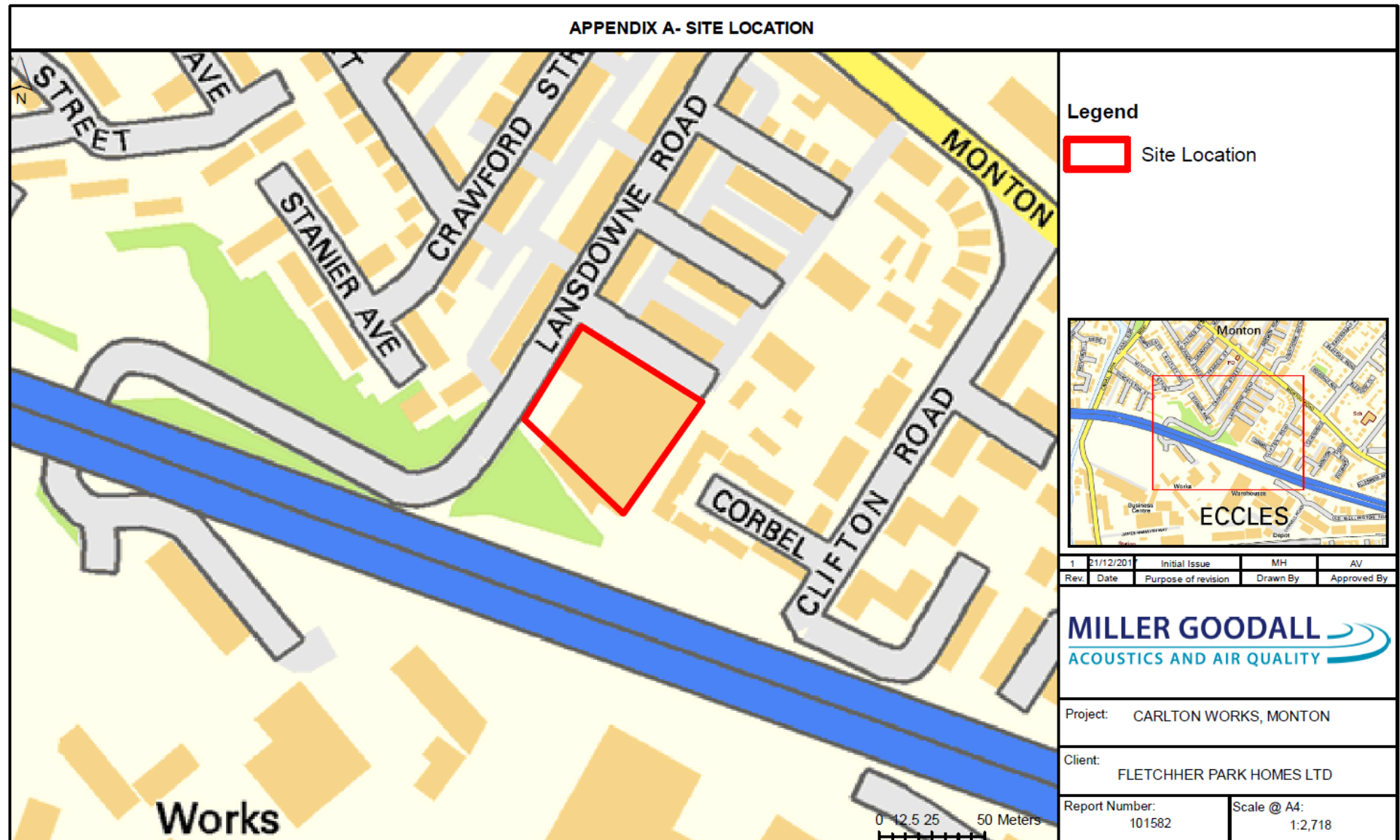
- 13.4.1** The characteristics of the site and the surrounding area suggest that mitigation would not be impracticable or ineffective. With the implementation of the above mitigation measures, therefore, the residual impacts from the construction are considered to be not significant, in accordance with IAQM guidance.

14 Summary of Impacts and Conclusion

- 14.1 An air quality assessment was undertaken to consider the impact of existing vehicle emissions from the M602 motorway on a proposed development and, therefore to assess the suitability of the site for future residential use.
- 14.2 The assessment concluded that the residential development is likely to be below the annual mean objective at all floor levels. Therefore, no mitigation is recommended within these dwellings.
- 14.3 The impact of the development on local air quality is considered to be insignificant as the development will only introduce 44 LGV AADT movements and will remove 11 HGV ADT movements from the local road network. This traffic data is based on the original plans of 50 dwellings. As the revised plan introduces 24 dwellings, less traffic will be introduced by the development, resulting in a lower impact.
- 14.4 The assessment also considered whether the proposed development could significantly change air quality during the construction phase. With the implementation of mitigation measures the dust impacts from the construction are considered to be not significant, in accordance with IAQM guidance.
- 14.5 There is, therefore, with the implementation of the recommended mitigation, no reason for this application to be refused on the ground of air quality.

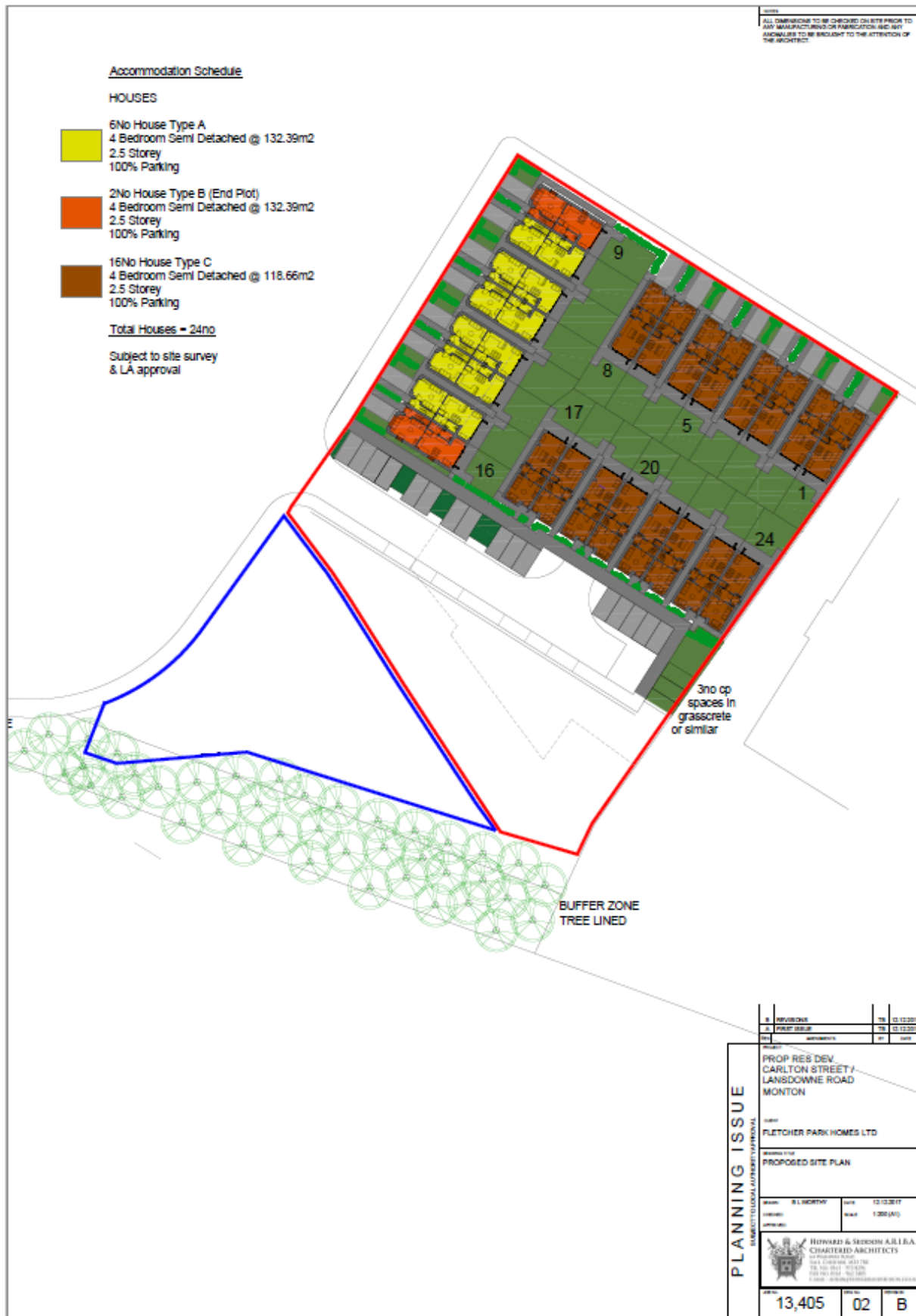
APPENDICES

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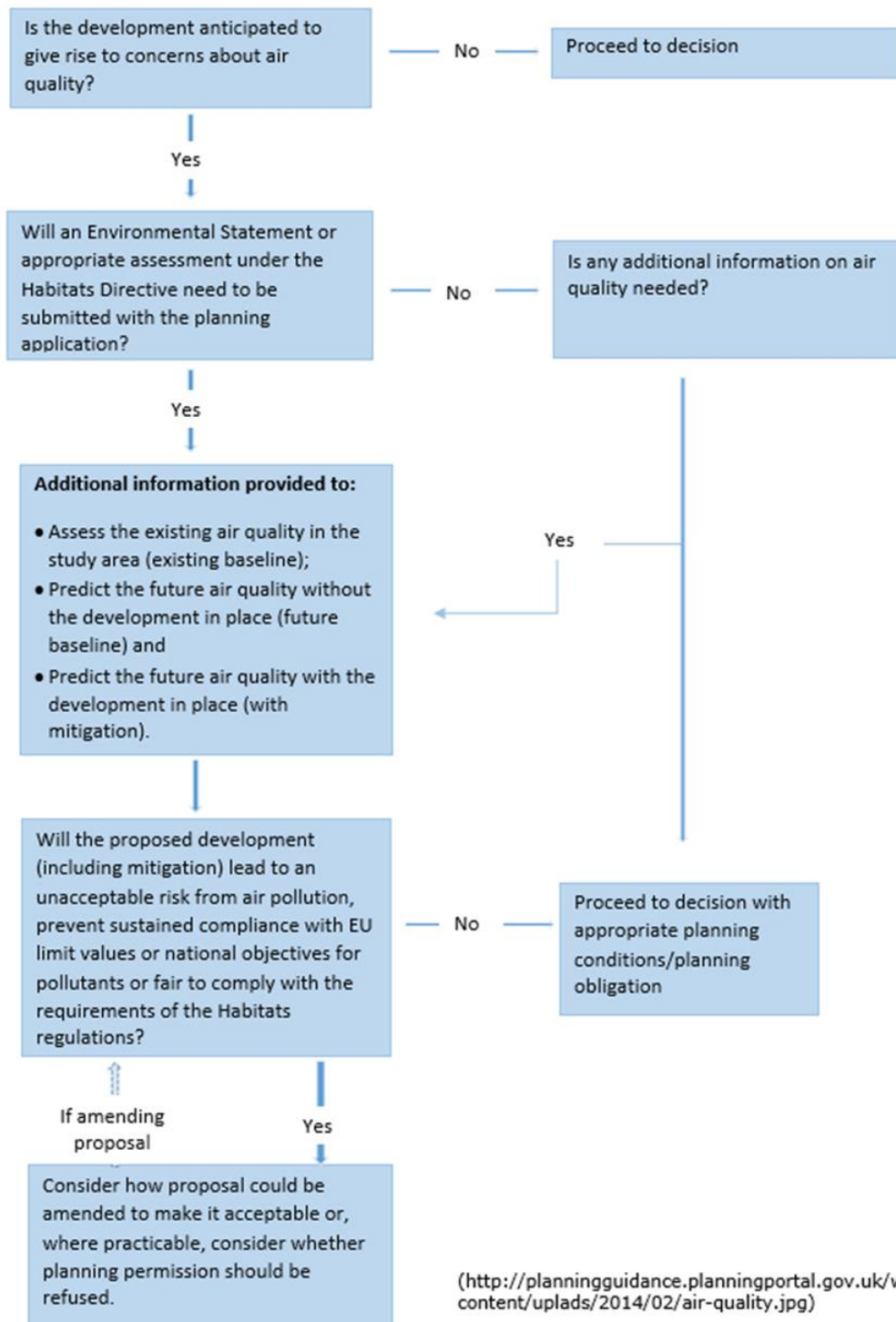
Appendix B: Site Layout Plan



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Appendix C: Planning Practice Guidance

How considerations about air quality fit into the development management process.



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Appendix D: Traffic Data used in the Air Quality Assessment

Link Number	Road	2016 Base Year/Verification		2019 Opening Year	
		Hourly LGV	Hourly HGV	Hourly LGV	Hourly HGV
1	M602 Motorway	3126	224	3275	235

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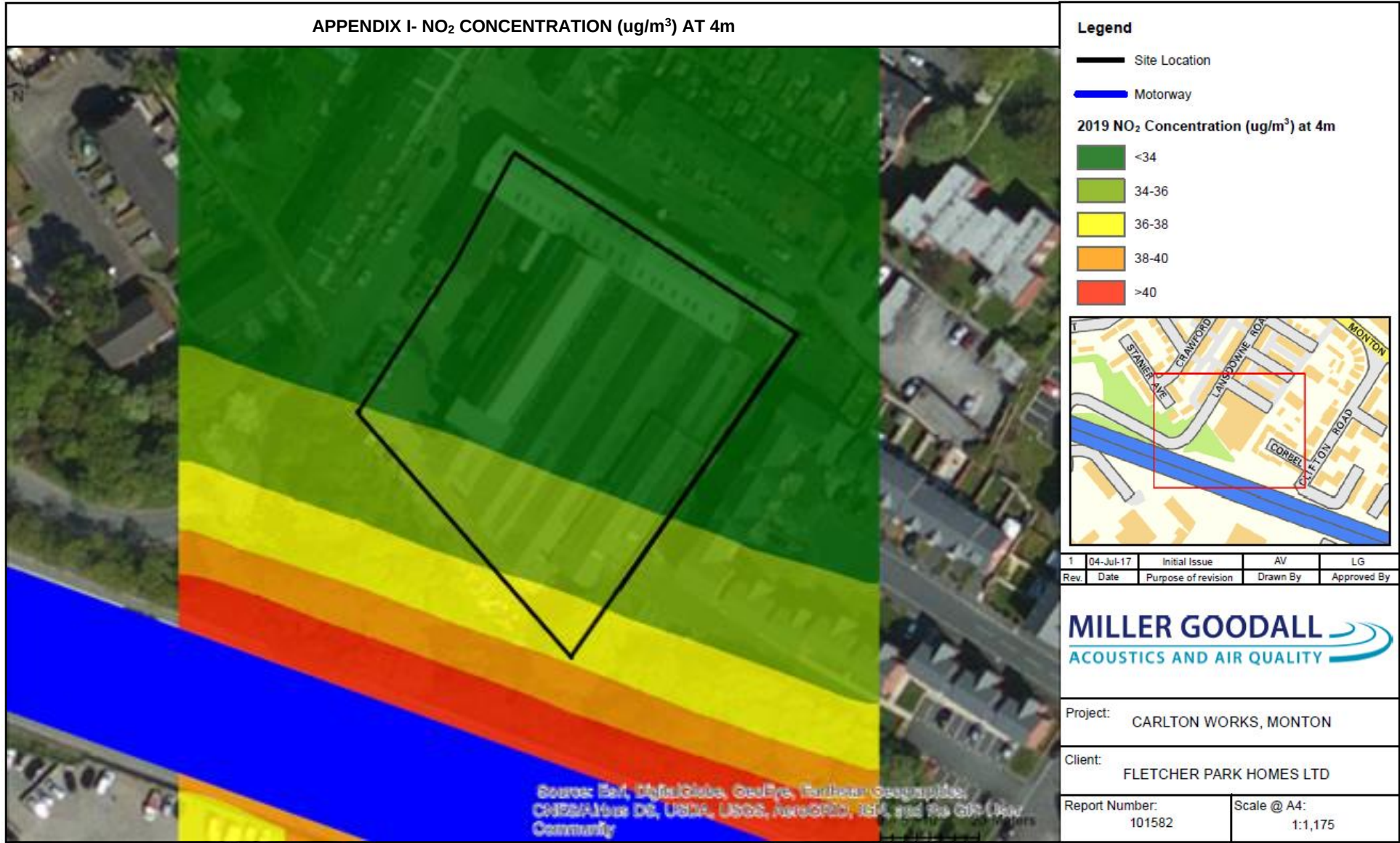
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Glossary of Terms

AADT Annual Average Daily Traffic flow

Air Quality Standard Pollutant standards relate to ambient pollutant concentrations in air, set on the basis of medical and scientific evidence of how each pollutant affects human health and the environment

Air Quality Objective Pollutant Objectives incorporate future dates by which a standard is to be achieved, taking into account economic considerations, practicability and technical feasibility

Annual Mean A mean pollutant concentration value in air which is calculated on a yearly basis, yielding one annual mean per calendar year. In the UK air quality regulations, the annual mean for a particular substance at a particular location for a particular calendar year is:

- (a) in the case of lead, the mean of the daily levels for that year;
- (b) in the case of nitrogen dioxide, the mean of the hourly means for that year;
- (c) in the case of PM₁₀, the mean of the 24-hour means for that year.

Annoyance (Dust) Loss of amenity due to dust deposition or visible dust plumes, often related to people making complaints, but not necessarily sufficient to be a legal nuisance.

AQAP Air Quality Action Plan

AQEG Air Quality Expert Group

AQMA Air Quality Management Area

AQMP Air Quality Management Plan

AQO Air Quality Objective

AQS Air Quality Strategy for England, Scotland, Wales and Northern Ireland

Background Concentrations The term used to describe pollutant concentrations which exist in the ambient atmosphere, excluding local pollution sources such as roads and stacks

CO Carbon monoxide

Construction Any activity involved with the provision of a new structure (or structures), its modification or refurbishment. A structure will include a residential dwelling, office building, retail outlet, road, etc.

Construction Impact Assessment An assessment of the impacts of demolition, earthworks, construction and trackout. In this Guidance, specifically the air quality impacts.

Defra Department for Environment, Food and Rural Affairs

Demolition Any activity involved with the removal of an existing structure (or structures). This may also be referred to as de-construction, specifically when a building is to be removed a small part at a time.

Deposited Dust that is no longer in the air and which has settled onto a surface. Deposited dust is also sometimes called amenity dust or nuisance dust, with the term nuisance applied in the general sense rather than the specific legal definition.

DMRB Design Manual for Roads and Bridges

DMP Dust Management Plan; a document that describes the site-specific methods to be used to control dust emissions.

Dust Solid particles that are suspended in air, or have settled out onto a surface after having been suspended in air. The terms dust and particulate matter (PM) are often used interchangeably, although in some contexts one term tends to be used in preference to the other. In this guidance the term 'dust' has been used to include the particles that give rise to soiling, and to other human health and ecological effects. Note: this is different to the definition given in BS 6069, where dust refers to particles up to 75 µm in diameter.

Earthworks Covers the processes of soil-stripping, ground-levelling, excavation and landscaping.

Effects The consequences of the changes in airborne concentration and/or dust deposition for a receptor. These might manifest as annoyance due to soiling, increased morbidity or mortality due to exposure to PM₁₀ or PM_{2.5} or plant dieback due to reduced photosynthesis. The term 'significant effect' has a specific meaning in EIA regulations. The opposite is an insignificant effect. In the context of construction impacts any effect will usually be adverse, however, professional judgement is required to determine whether this adverse effect is significant based in the evidence presented.

EPAQS Expert Panel on Air Quality Standards

EPUK Environmental Protection UK

HGV Heavy Goods Vehicle

Impacts The changes in airborne concentrations and/or dust deposition. A scheme can have an 'impact' on airborne dust without having any 'effects', for instance if there are no receptors to experience the impact.

LAQM Local Air Quality Management

LDF Local Development Framework

LGV Light Goods Vehicle

Mg/m³ Microgrammes (of pollutant) per cubic metre of air. A measure of concentration in terms of mass per unit volume. A concentration of 1 µg/m³ means that one cubic metre of air contains one microgramme (millionth of a gramme) of pollutant

NO₂ Nitrogen Dioxide

NO_x A collective term used to represent the mixture of nitrogen oxides in the atmosphere, as nitric oxide (NO) and nitrogen dioxide (NO₂)

NPPF National Planning Policy Framework

Nuisance The term nuisance dust is often used in a general sense when describing amenity dust. However, this term also has specific meanings in environmental law:

Statutory nuisance, as defined in S79(1) of the Environmental Protection Act 1990 (as amended from time to time).

Private nuisance, arising from substantial interference with a person's enjoyment and use of his land.

Public nuisance, arising from an act or omission that obstructs, damages or inconveniences the right of the community.

Each of these applying in so far as the nuisance relates to the unacceptable effects of emissions. It is recognised that a significant loss of amenity may occur at lower levels of emission than would constitute a statutory nuisance.

Note: as nuisance has a specific meaning in environmental law, and to avoid confusion, it is recommended that the term is not used in a more general sense.

PM_{2.5} The fraction of particles with a mean aerodynamic diameter equal to, or less than, 2.5 µm. More strictly, particulate matter which passes through a size selective inlet as defined in the reference method for the sampling and measurement of PM_{2.5}, EN 14907, with a 50% efficiency cut-off at 2.5 µm aerodynamic diameter

PM₁₀ The fraction of particles with a mean aerodynamic diameter equal to, or less than, 10 µm. More strictly, particulate matter which passes through a size selective inlet as defined in the reference method for the sampling and measurement of PM₁₀, EN 12341, with a 50% efficiency cut-off at 10 µm aerodynamic diameter

RSS Regional Spatial Strategy

Running Annual Mean A mean pollutant concentration value in air which is calculated on an hourly basis, yielding one running annual mean per hour. The running annual mean for a particular substance at a particular location for a particular hour is the mean of the hourly levels for that substance at that location for that hour and the preceding 8759 hours

Trackout The transport of dust and dirt from the construction/demolition site onto the public road network, where it may be deposited and then re-suspended by vehicles using the network. This arises when heavy duty vehicles (HDVs) leave the construction/demolition site with dusty materials, which may then spill onto the road, and/or when HDVs transfer dust and dirt onto the road having travelled over muddy ground on site.

