

## 8 Air Quality

### EIA Addendum Update

The proposed reduction of 22 accommodation units at Woodbank and deletion of Area 10 does not change the outcome of the original assessment which raised no significant air quality issues. No changes have been made to this chapter.

### 8.1 Introduction

- 8.1.1 This chapter of the EIAR provides an assessment of the likely significant effects from the proposed development on local air quality. The assessment is based on the characteristics of the site and surrounding area and the key parameters of the proposed development detailed in **Chapter 2 – Site and Proposed Development**.
- 8.1.2 This chapter has been prepared by Stantec, in line with best practice, a statement outlining the relevant expertise and qualifications of competent experts appointed to prepare this EIAR is provided in **Appendix 1.1**.
- 8.1.3 The aims of this chapter are to:
- Identify the relevant context in which the air quality assessment has been undertaken;
  - Describe the methods used to undertake the assessment;
  - Outline the relevant baseline conditions currently existing at the site and surroundings;
  - Identify the likely direct and indirect air quality effects of the proposed development under the future baseline scenario;
  - Identify mitigation and enhancement measures where required to address likely effects;
  - Assess likely residual effects; and,
  - Assess likely cumulative effects on air quality from the proposed development in combination with other relevant cumulative developments.
- 8.1.4 This chapter is supported by **Appendix 8.1 – EPUK IAQM Guidance (2017) Screening Criteria**.

### 8.2 Policy Context, Legislation, Guidance and Standards

#### Legislation

- 8.2.1 The overarching legislative framework applicable to this EIA for the proposed development is outlined in **Chapter 4 – Legislative and Policy Context**. Subject specific legislation of relevance to this assessment are detailed in the section below.

#### Air Quality Regulations

- 8.2.2 The Air Quality (Scotland) Regulations 2000 (AQR) defined Air Quality Objectives (AQOs, a combination of concentration-based thresholds, averaging periods and compliance dates) for a limited range of pollutants. Subsequent amendments were made to the AQR in 2001 and 2002 to incorporate 'limit values' and 'target values' for a wider range of pollutants as defined in European Union (EU) Directives.
- 8.2.3 These amendments were consolidated by the Air Quality Standards (Scotland) Regulations 2010 (AQSR) (with subsequent amendments most notably in 2016 and for the devolved administrations), which transposed the EU's Directive on ambient air quality and cleaner air for Europe (2008/50/EC).

8.2.4 Following the Transition Period after the UK's departure from the EU in January 2020, the Air Quality (Amendment of Domestic Regulations) (EU Exit) Regulations 2019 (and subsequent amendments for the devolved administrations) have amended the AQ Standards Regulations 2010 to reflect the fact that the UK has left the EU, but do not change the pollutants assessed or the numerical thresholds.

8.2.5 The relevant AQOs for this assessment are shown in **Table 8-1**.

Table 8-1: Relevant Air Quality Objectives

Pollutant	Time Period	AQOs
Nitrous Dioxide NO <sub>2</sub>	1-hour mean	200 µg/m <sup>3</sup> not to be exceeded more than 18 times a year
	Annual mean	40 µg/m <sup>3</sup>
Particulate Matter PM <sub>10</sub>	24-hour mean	50 µg/m <sup>3</sup> not to be exceeded more than 7 times a year
	Annual mean	18 µg/m <sup>3</sup>
Particulate Matter PM <sub>2.5</sub>	Annual mean	10 µg/m <sup>3</sup>

### National Air Pollution Plan for NO<sub>2</sub> in the UK

8.2.6 The National Air Quality Plan for NO<sub>2</sub> (DEFRA, 2018) sets out how the Government plans to deliver reductions in NO<sub>2</sub> throughout the UK, with a focus on reducing concentrations to below the EU Limit Values throughout the UK within the 'shortest possible time'.

8.2.7 The plan requires all LAs in Scotland which DEFRA identified as having exceedances of the Limit Values in their areas past 2020 to develop local plans to improve air quality and identify measures to deliver reduced emissions, with the aim of meeting the Limit Values within their area within "*the shortest time possible*". Potential measures include changing road layouts, encouraging public and private ultra-low emission vehicle (ULEV) uptake, the use of retrofitting technologies and new fuels and encouraging public transport. In cases where these measures are not sufficient to bring about the required change within 'the shortest time possible' then LAs may consider implementing access restrictions on more polluting vehicles (e.g. Clean Air Zones (CAZs)).

### Air Quality Management

#### The Air Quality Strategy

8.2.8 Part IV of the Environment Act 1995 (Environment Act, 1995) required the Secretary of State to prepare and publish and 'strategy' regarding air quality.

8.2.9 The Air Quality Strategy (2007) establishes the policy framework for ambient air quality management and assessment in the UK (DEFRA, 2007). The primary objective of the Air Quality Strategy is to ensure that everyone can enjoy a level of ambient air quality which poses no significant risk to health or quality of life. The Air Quality Strategy sets out the AQOs and Government policy on achieving these.

8.2.10 The Clean Air for Scotland 2 Strategy (The Scottish Government, 2021) sets out how the Scottish Government will deliver air quality improvements over the next 5 years. The strategy aims to lower emissions of pollutants in Scotland, thereby minimising human exposure to harmful concentrations of pollution.

#### Local Air Quality Management

8.2.11 Part IV of the Environment Act 1995 (Environment Act, 1995) introduced a system of Local Air Quality Management (LAQM) which requires local authorities to regularly and systematically review and assess air quality within their boundary and appraise development and transport plans against these assessments.

8.2.12 Where a AQO is unlikely to be met, the local authority must designate an Air Quality Management Area (AQMA) and draw up an Air Quality Action Plan (AQAP) setting out the measures it intends to introduce in pursuit of the AQO's within its AQMA.

8.2.13 The Local Air Quality Management: Policy Guidance (The Scottish Government, 2018) provides guidance intended to help local authorities with their local air quality management duties. This guidance also makes reference to the Local Air Quality Management Technical Guidance 2016 (LAQM.TG (16); DEFRA, 2021) as an accompanying guidance document. LAQM.TG (16) provides advice as to where the AQOs apply. These include outdoor locations where members of the public are likely to be regularly present for the averaging period of the objective (which vary from 15 minutes to a year) as summarised in **Table 8-2**.

Table 8-2: Relevant Public Exposure

Averaging Period	AQOs Should Apply at:	AQOs Don't Apply at:
Annual mean	All locations where members of the public might be regularly exposed For example: <ul style="list-style-type: none"> <li>Building façades of residential properties, schools, hospitals, care homes etc.</li> </ul>	Façades of offices or other places of work where members of the public do not have regular access Hotels, unless people live there as their permanent residence Gardens of residences Kerbside sites Any other location where public exposure is expected to be short term
24-hour mean and 8-hour mean	All locations where the annual mean AQO would apply, together with hotels and gardens of residences	Kerbside sites Any other location where public exposure is expected to be short term
1-hour mean	All locations where the annual mean and 24 and 8-hour mean AQOs apply as well as: <ul style="list-style-type: none"> <li>Kerbside sites;</li> <li>Those parts of car parks, bus stations and railway stations etc. which are not fully enclosed, where members of the public might reasonably be expected to spend one hour or more; and,</li> <li>Any outdoor locations where members of the public might reasonably be expected to spend one hour or longer.</li> </ul>	Kerbside locations where the public would not be expected to have regular access
15-minute mean	All locations where members of the public might reasonably be regularly exposed for a period of 15 minutes or longer.	

## Policy

8.2.14 The planning policy framework applicable to this EIA for the proposed development is outlined in **Chapter 4 – Legislative and Policy Context**. The statutory Development Plan applicable to the site presently comprises:

8.2.15 Planning policy considerations of specific relevance to this assessment are:

- Scottish Planning Policy (2014);
- Planning Advice Note 51 Planning Environmental Protection and Regulation (Revised October 2006);
- Planning Advice Note 75: Planning for Transport;
- Cleaner Air for Scotland 2 – Towards a Better Place for Everyone;
- Adopted West Dunbartonshire Local Plan (2010) – Policy GD 1 – Development Control;
- West Dunbartonshire LDP Proposed Plan 2016 – Policy DS4 – Air Quality; and,

- West Dunbartonshire LDP2 Proposed Plan (2020) – Policy ENV8 – Air, Light and Noise Pollution.

### Guidance and Relevant Technical Standards

8.2.16 The following guidance and technical standards have informed this assessment:

- The Local Air Quality Management: Policy Guidance;
- Defra 'Local Air Quality Management Technical Guidance (LAQM.TG (16))'; and,
- EPUK-IAQM 'Land-Use Planning & Development Control: Planning for Air Quality.

## 8.3 Methodology

### Overview

#### Assessment Scope

8.3.1 The principal aspects considered within this assessment are:

- Existing air quality within the study area; and,
- Operational road traffic effects of the proposed development on local air quality.

8.3.2 This chapter presents an assessment of likely significant effects on air quality from the proposed development. The assessment has been prepared in accordance with the EIA Regulations.

8.3.3 In accordance with the EIA Scoping Report and subsequent EIA Scoping Opinion provided in **Appendix 3.1**, the following potential effects have been scoped out of detailed consideration within the assessment:

- Construction phase effects on dust and elevated PM<sub>10</sub> concentrations.

#### Assessment Process

8.3.4 In undertaking the assessment presented in this ES chapter, the following activities have been carried out:

- EIA Scoping and consultation (see below);
- Desktop review of current and expected future baseline environmental conditions at the site and surrounding area;
- Assessment of likely operational air quality effects; and,
- Identification and assessment of residual likely significant effects, considering proposed mitigation and enhancement measures and including consideration of likely cumulative effects.

### Consultation

#### EIA Screening and Scoping

8.3.5 This assessment has been informed by an EIA Scoping Report prepared by Stantec in June 2021 and the subsequent EIA Scoping Opinion issued by LLTNPA in July 2021 in respect of the EIA for the proposed development. The EIA Scoping Opinion is provided in **Appendix 3.1**.

#### Post Scoping Consultation

8.3.6 No post scoping consultation has been carried out.

#### Study Area

8.3.7 The Study Area adopted for this assessment is:

- All roads within 250m of the site and any other roads predicted to experience an increase of greater than 500 vehicles per day as a result of the proposed development.

## Information Sources

### Desk Top Study

- 8.3.8 Information on existing air quality has been obtained by collating the results of monitoring carried out by WDC. Background concentrations for the site have been defined using the national pollution maps published by Defra. These cover the whole country on a 1x1 km grid (Defra, 2018).

### Approach to Assessment

- 8.3.9 The potential for impacts as a result of emissions from traffic associated with the proposed development is determined based on the screening criteria outlined in the EPUK / IAQM Guidance (EPUK / IAQM 2017) (see **Appendix 8.1**) which includes consideration of the volume and composition of traffic associated with the proposed development and existing local air quality conditions (i.e. the presence of any declared AQMAs).
- 8.3.10 The criteria defined in the IAQM guidance are precautionary and should be treated as indicative, the guidance states:
- 'They are intended to function as a sensitive 'trigger' for initiating an assessment in cases where there is a possibility of significant effects arising on local air quality. This possibility will, self-evidently, not be realised in many cases. The criteria should not be applied rigidly; in some instances, it may be appropriate to amend them on the basis of professional judgement, bearing in mind that the objective is to identify situations where there is a possibility of a significant effect on local air quality.'*
- 8.3.11 Therefore, the application of these thresholds requires consideration of baseline air quality, location of receptors and future trends in emissions to conclude whether there is a risk of significant effects.
- 8.3.12 Information on the trip generation associated with the proposed development has been provided by the Project's transport consultants, Stantec.

## 8.4 Baseline

### Ambient Air Quality

#### LAQM

- 8.4.1 WDC has investigated air quality within its area as part of its responsibilities under the LAQM regime. Currently, WDC has not declared any Air Quality Management Areas (AQMA) within the authority.

### Local Monitoring Data

#### NO<sub>2</sub>

- 8.4.2 WDC operates two automatic monitoring stations within its administrative boundary. The nearest automatic monitor is located approximately 7 km from the Site at Glasgow Road, Dumbarton. WDC also undertakes monitoring using NO<sub>2</sub> diffusion tubes at 35 sites. The closest diffusion tube monitoring to the Site, DT21, is located approximately 700m south of the Site on A811 within Balloch. These two monitoring sites are described in **Table 8-3 to Table 8-4**.

Table 8-3: Measured Annual Mean NO<sub>2</sub> Concentrations 2016 – 2019

Site ID	Location	Site Type	Annual Mean (µg/m <sup>3</sup> )			
			2016	2017	2018	2019
<b>Automatic Monitor</b>						
CM2	Glasgow Road, West Dunbartonshire	Roadside	21	20	18	18
<b>Diffusion Tube</b>						
DT21	Balloch 1	Kerbside	19.6	22.8	18.0	20.1

Data from 2020 Air Quality Annual Progress Report for West Dunbartonshire Council (WDC 2020)

8.4.3 The measured concentrations were all well below the annual mean NO<sub>2</sub> AQO between 2016 – 2019 at all monitoring locations.

Table 8-4: Measured Exceedances of the Hourly Mean NO<sub>2</sub> AQO 2016 – 2019

Site ID	Number of Hours >200µg/m <sup>3</sup>			
	2016	2017	2018	2019
CM2 Glasgow Road, West Dunbartonshire	0	0	0	0

Data from 2020 Air Quality Annual Progress Report for West Dunbartonshire Council (WDC 2020)

8.4.4 **Table 8-4** shows that there have been no exceedances of the hourly mean NO<sub>2</sub> AQO between 2016 – 2019.

#### PM<sub>10</sub> and PM<sub>2.5</sub>

8.4.5 WDC does not carry out any monitoring of PM<sub>10</sub> or PM<sub>2.5</sub> near the site.

### Predicted Background Concentrations

8.4.6 Estimated background concentrations for the Site have been obtained from the Scottish Air Quality Maps (Scottish Government & Ricardo Energy & Environment, 2021) and are provided in **Table 8-5**. The background concentrations are all well below the relevant AQOs.

Table 8-5: Estimated Annual Mean Background Concentrations

Year	Location	Annual Mean (µg/m <sup>3</sup> )		
		NO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
2022	238_682	4.0	7.2	4.4
<b>AQO</b>		<b>40</b>	<b>18</b>	<b>10</b>

Note: Projections in the 2018 reference year background maps and associated tools are based on assumptions which were current before the Covid-19 outbreak in the UK. In consequence these tools do not reflect short- or longer-term impacts on emissions in 2020 and beyond resulting from behavioural change during the national or local lockdowns.

## 8.5 Embedded Mitigation

8.5.1 As detailed in **Chapter 2 – Site and Proposed Development**, several design features and embedded mitigation measures have been incorporated into the design of the proposed development to avoid, prevent, or minimise significant adverse environmental effects and to enhance beneficial effects. Embedded mitigation measures of relevance to this assessment are:

8.5.2 Travel Plan to promote sustainable travel choices by staff and visitors to the site. This will reduce the number of single-occupancy car journeys made to and from the site.

## 8.6 Assessment of Likely Effects

### Operational Phase

#### Road Traffic Emissions

8.6.1 Data derived from the Transport Assessment indicates that the vehicular trip generation due to the proposed development is predicted to be 1,433 per day. Traffic flows associated with the proposed development are predicted to exceed 500 AADT on the A811, Balloch Road and Ben Lomond Way, however

- 8.6.2 These screening criteria are precautionary and are defined at thresholds that are unlikely to lead to an impact in excess of 1% of the annual average air quality objectives, i.e. traffic flows below 500 AADT are unlikely to result in annual average NO<sub>2</sub> impacts greater than 0.4 µg/m<sup>3</sup>.
- 8.6.3 There are no residential receptors located on the A811 or Ben Lomond Way and those located on Balloch Road are set back from the road.
- 8.6.4 Therefore, given the likely traffic flows, the limited residential receptors along the roads experiencing an increase greater than 500 AADT, and the very low background concentrations there is not considered to be a risk of significant air quality impacts due to traffic associated with the proposed development and no further assessment is considered necessary.

#### **Site Suitability**

- 8.6.5 The NO<sub>2</sub> concentrations at the local monitoring sites are well below the objective at all locations in 2019. Measured concentrations are well below 60 µg/m<sup>3</sup>, indicating that the one-hour mean NO<sub>2</sub> objective is unlikely to be exceeded within the site. PM<sub>10</sub> and PM<sub>2.5</sub> are also expected to be well below the objectives. Background concentrations of NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> are well below the annual mean of AQO and the Site is considered suitable for the proposed use.

### **8.7 Further Mitigation and Enhancement**

#### **Operational Phase**

##### **Road Traffic Emissions**

- 8.7.1 No further mitigation measures are required.

##### **Site Suitability**

- 8.7.2 The Site is considered suitable without the need for site-specific mitigation associated with air quality.

### **8.8 Residual Effects**

- 8.8.1 The operational phase residual effects are negligible.

### **8.9 Monitoring**

- 8.9.1 In the absence of any likely significant adverse effects, no monitoring is considered to be proportionate or required.

### **8.10 Cumulative Effects**

- 8.10.1 None of the relevant cumulative developments are likely to result in significant cumulative transport effects in combination with the proposed development. The cumulative effect of traffic on air quality is not likely to be significant.

### **8.11 Summary**

- 8.11.1 The air quality effects associated with the operational phase of the proposed development have been assessed. The assessment was undertaken in accordance with guidance from the Institute of Air Quality Management (IAQM) and national and local policy.
- 8.11.2 The chapter described the existing baseline air quality and assessed the impact of the operation of the development on local air quality. The main air pollutants of concern for road traffic are nitrogen dioxide (NO<sub>2</sub>) and particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>).
- 8.11.3 The site does lie not within an Air Quality Management Area (AQMA). Measured NO<sub>2</sub> concentrations at monitoring locations representative of the site have been well below the annual mean objective between 2016 and 2019. Background concentrations for the site are also well below the objectives for NO<sub>2</sub> and particulates (PM<sub>10</sub> and PM<sub>2.5</sub>).

- 8.11.4 The increase in traffic because of the development has been compared against criteria contained within the IAQM guidance on land use planning and development control. Given the limited residential receptors along the roads experiencing an increase greater than 500 AADT, and the very low background concentrations, the effect of road traffic emissions on human health is therefore not significant and no further direct mitigation is required. Notwithstanding this, a Travel Plan will be developed and implemented during the operational phase of the proposed development to promote sustainable travel choices by staff and visitors to the site. This will reduce the number of single-occupancy car journeys made to and from the site.
- 8.11.5 Overall, the operational air quality effects of the proposed development are judged to be not significant.

## 8.12 References

- Department of the Environment, Food and Rural Affairs (DEFRA) (2018). '*UK Plan for tackling Roadside Nitrogen Dioxide Concentrations: Detailed Plan*'. Available at: <https://www.gov.uk/government/publications/air-quality-plan-for-nitrogen-dioxide-no2-in-uk-2017>.
- Department of the Environment, Food and Rural Affairs (DEFRA) in partnership with the Scottish Executive, The National Assembly for Wales and the Department of the Environment for Northern Ireland (2007). '*The Air Quality Strategy for England, Scotland, Wales, Northern Ireland*' HMSO, London.
- Department for Transport (2018). '*The Road to Zero*'. Available at: <https://www.gov.uk/government/publications/reducing-emissions-from-road-transport-road-to-zero-strategy>.
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- Scottish Government, 2014, "*Scottish Planning Policy*"
- Scottish Government (2015) Cleaner Air for Scotland - The Road to a Healthier Future <http://www.gov.scot/Publications/2015/11/5671>
- Statutory Instrument 2000, No 921, '*The Air Quality (Scotland) Regulations 2000*' HMSO, London.
- Statutory Instrument 2002, No 3034, '*The Air Quality (Scotland) (Amendment) Regulations 2002*' HMSO, London.
- Statutory Instrument 2010, No. 1001, '*The Air Quality Standards Regulations 2010*' HMSO, London.
- Statutory Instrument 2016, No. 1184, '*The Air Quality Standards (Amendment) Regulations 2016*' HMSO, London.



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- The Scottish Executive, 2006, '*Planning Advice Note 51: Planning, Environmental Protection and Regulation*'.
  - The Scottish Executive, '*Planning Advice Note 75: Planning for Transport*'.
  - West Dunbartonshire Council (2020) 2020 Air Quality Annual Progress Report for West Dunbartonshire Council June 2020.