

## Appendix AQT1: Construction Phase Methodology and Assessment

- 1.1.1 The following section outlines criteria developed by the Institute of Air Quality Management (IAQM) and Greater London Authority (GLA) for the assessment of air quality impacts arising from construction activities. The assessment procedure is divided into five steps and is summarised below:

### Step 1: Screening the Need for a Detailed Assessment

- 1.1.2 An assessment will normally be required where there are human receptors within 350m of the site boundary and/or within 50m of the route(s) used by construction vehicles on the public highway, up to 500m from the site entrance(s). Designated ecological sites within 50m of the site boundary or within 50m of the route(s) used by construction vehicles on the public highway, up to 500m from the site entrance(s), are also identified at this stage. A designated ecological site 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.
- 1.1.3 Where the need for a more detailed assessment is screened out, it can be concluded that the level of risk is 'negligible'.
- 1.1.4 There were a number of human receptors within 350m of the site boundary; a Detailed Assessment was therefore required. As there were no designated ecological sites within 50m of the site boundary, the impact of dust on ecological sites was not assessed.

### Step 2: Assess the Risk of Dust Impacts

- 1.1.5 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 (demolition, construction, earthworks and trackout).

#### Step 2A: Define the Potential Dust Emission Magnitude

- 1.1.6 The IAQM and GLA guidance documents recommend that the dust emission magnitude is determined for demolition, earthworks, construction and trackout. The dust emission magnitude is based on the scale of the anticipated works. **Table AQT1-1** describes the potential dust emission class criteria for each outlined construction activity.

**Table AQT1-1: Criteria Used in the Determination of Dust Emission Class**

Activity	Criteria used to Determine Dust Emission Class		
	Small	Medium	Large
Demolition	<ul style="list-style-type: none"> <li>Total building volume &lt;20,000m<sup>2</sup>;</li> <li>Material with low potential for dust release</li> </ul>	<ul style="list-style-type: none"> <li>Total building volume 20,000 – 50,000m<sup>2</sup>;</li> <li>Potentially dusty material.</li> </ul>	<ul style="list-style-type: none"> <li>Total building volume &gt;50,000m<sup>2</sup>;</li> <li>Potentially dusty material.</li> </ul>
Earthworks	<ul style="list-style-type: none"> <li>Total site area &lt;2,500m<sup>2</sup>;</li> <li>&lt;5 heavy moving earth vehicles active at any one time.</li> </ul>	<ul style="list-style-type: none"> <li>Total site area 2,500 – 10,000m<sup>2</sup>;</li> <li>5 – 10 heavy moving earth moving vehicles active at any one time.</li> </ul>	<ul style="list-style-type: none"> <li>Total site area &gt;10,000m<sup>2</sup>;</li> <li>&gt;10 heavy earth moving vehicles active at any one time.</li> </ul>

Activity	Criteria used to Determine Dust Emission Class		
	Small	Medium	Large
Construction	<ul style="list-style-type: none"> <li>Total building volume &lt;25,000m<sup>3</sup>;</li> <li>Construction material with low potential for dust release.</li> </ul>	<ul style="list-style-type: none"> <li>Total building volume 25,000 – 100,000m<sup>3</sup>;</li> <li>Potentially dusty construction material (e.g. concrete).</li> </ul>	<ul style="list-style-type: none"> <li>Total building volume &gt;100,000m<sup>3</sup>;</li> <li>On site concrete batching.</li> </ul>
Trackout	<ul style="list-style-type: none"> <li>&lt;10 outward HGV trips in any one day;</li> <li>Unpaved road length &lt;50m.</li> </ul>	<ul style="list-style-type: none"> <li>10 – 50 outward HGV trips in any one day.</li> <li>Unpaved road length 50 – 100m.</li> </ul>	<ul style="list-style-type: none"> <li>&gt;50 outward HGV trips in any one day;</li> <li>Unpaved road length &gt;100m.</li> </ul>

1.1.7 The potential dust emission magnitude for the Proposed Development site was determined from assumptions provided by the client team and using the criteria detailed in **Table AQT1-1**:

- Demolition: the demolition volume was estimated to be less than 20,000m<sup>2</sup>. Therefore, the dust emission magnitude for demolition was defined as small.
- Earthworks: the total site area is between 2,500m<sup>2</sup> – 10,000m<sup>2</sup> and there are estimated to be less than 5 heavy earth moving vehicles on site at any one time, with less than 20,000 – 100,000 tonnes of material moved. Therefore the dust emission magnitude for earthworks was defined as medium.
- Construction: the construction volume was calculated from the site layout plan and building dimensions of the Proposed Development and was estimated to be between 25,000m<sup>3</sup> – 100,000m<sup>3</sup>. Therefore, the dust emission magnitude from construction was defined as medium.
- Trackout: the maximum outward HGV movements in any one day were estimated to be between 10 – 50 in any one day. Therefore the dust emission magnitude from trackout was defined as medium.
- The dust magnitudes for demolition, earthworks, construction and trackout are summarised in **Table AQT1-2**.

**Table AQT1-2: Dust Emission Magnitude for the Site.**

Activity	Dust Emission Magnitude
Demolition	Small
Earthworks	Medium
Construction	Medium
Trackout	Medium

### Step 2B: Define the Sensitivity of the Area

1.1.8 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 PM<sub>10</sub> concentration; and
- site-specific factors, such as whether there are natural shelters, such as trees, to reduce the risk of windblown dust.

**Table AQT1-3: Criteria for Determining Sensitivity of Receptors**

Sensitivity of Receptor	Criteria for Determining Sensitivity	
	Dust Soiling Effects	Health Effects of PM <sub>10</sub>
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
Medium	Parks, places of work	Office and shop workers not occupationally exposed to PM <sub>10</sub>
Low	Playing fields, farmland, footpaths, short-term car parks and roads	Public footpaths, playing fields, parks and shopping streets

1.1.9 The criteria detailed in **Tables AQT1-4** and **AQT1-5** were used to determine the sensitivity of the area to dust soiling effects and human health impacts. **Figure AQT2** details the distance bands, as detailed in **Tables AQT1-4** and **AQT1-5**, from the site boundary for use in the construction phase assessment.

**Table AQT1-4: 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

**Table AQT1-5: Sensitivity of the Area to Human Health Impacts**

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

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

### Sensitivity of People to Dust Soiling

- Demolition, construction, earthworks and trackout: there is more than one place of work within 20m of the site boundary and access roads. The sensitivity is therefore medium.

### Sensitivity of people to health effects of PM<sub>10</sub>

- Demolition, construction, earthworks and trackout: the annual mean background PM<sup>10</sup> concentration at the site is less than 24µg.m<sup>-3</sup>, and there are more than ten places of work within 20m of the boundary and access roads. The sensitivity is therefore low.

The sensitivity of the area to dust soiling and human health impacts to each activity is summarised in **Table AQT1-6**.

**Table AQT1-6: Outcome of Defining the Sensitivity of the Area**

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

### Step 2C: Define the Risk of Impacts

- 1.1.10 The dust emission magnitude and sensitivity of the area are combined and the risk of impacts from each activity (demolition, earthworks, construction and trackout) before mitigation is applied should be determined using the criteria detailed in **Tables AQT1-7 – AQT1-9**.

**Table AQT1-7: Risk of Dust Impacts- Demolition**

Potential Impact	Dust Emission Magnitude		
	Large	Medium	Small
<b>High</b>	High Risk	Medium Risk	Low Risk
<b>Medium</b>	High Risk	Medium Risk	Low Risk
<b>Low</b>	Medium Risk	Low Risk	Negligible

**Table AQT1-8: Risk of Dust Impacts- Earthworks and Construction**

Potential Impact	Dust Emission Magnitude		
	Large	Medium	Small
<b>High</b>	High Risk	Medium Risk	Low Risk
<b>Medium</b>	Medium Risk	Medium Risk	Low Risk
<b>Low</b>	Low Risk	Low Risk	Negligible

**Table AQT1-9: Risk of Dust Impacts- Trackout**

Potential Impact	Dust Emission Magnitude		
	Large	Medium	Small
<b>High</b>	High Risk	Medium Risk	Low Risk
<b>Medium</b>	Medium Risk	Low Risk	Low Risk
<b>Low</b>	Low Risk	Low Risk	Negligible

- 1.1.11 The risks for dust soiling and human health were determined using **Tables AQT1-7 – AQT1-8** and are summarised in **Table AQT1-9**.

**Table AQT1-10: Summary Dust Risk Table to Define Site-specific Mitigation**

Potential Impact	Risk			
	Demolition	Earthworks	Construction	Trackout
<b>Dust Soiling</b>	Medium Risk	Medium Risk	Medium Risk	Low Risk
<b>Human Health</b>	Negligible	Low Risk	Low Risk	Low Risk

### **Step 3: Site-Specific Mitigation**

- 1.1.12 Step three of the IAQM and GLA guidance documents identifies appropriate site-specific mitigation. These measures are related to whether the site is a low, medium or high risk site. The highly recommended mitigation for the Proposed Development are detailed in the mitigation section of this report.

### **Step 4: Determine Significant Effects**

- 1.1.13 With the implementation of the above mitigation measures, the residual impacts from the construction are considered to be not significant, in accordance with IAQM and GLA guidance documents.