

## **Appendix 9.1 – Method of Construction Dust Assessment**

### **Step 1: Need for Assessment**

The first step is the initial screening for the need for a detailed assessment. According to the IAQM guidance, an assessment is required where there are sensitive receptors within 350m of the site boundary (for ecological receptors this is 50m) and/or within 50m of the route(s) used by the construction vehicles on the public highway and up to 500m from the site entrance(s).

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

This step is split into three sections as follows:

- 2A. Define the potential dust emission magnitude;
- 2B. Define the sensitivity of the area; and
- 2C. Define the risk of impacts.

Each of the dust-generating activities is given a dust emission magnitude depending on the scale and nature of the works (step 2A) based on the criteria shown in Table 1.

The sensitivity of the surrounding area is then determined (step 2B) for each dust effect from the above dust-generating activities, based on the proximity and number of receptors, their sensitivity to dust, the local PM10 background concentrations and any other site-specific factors.

Tables 2 to 4 show the criteria for defining the sensitivity of the area to different dust effects.

The overall risk of the impacts for each activity is then determined (step 2C) prior to the application of any mitigation measures and an overall risk for the site derived (Table 5).

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

Once each of the activities is assigned a risk rating, appropriate mitigation measures are identified. Where the risk is negligible, no mitigation measures beyond those required by legislation are necessary.

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

Once the risk of dust impacts has been determined and the appropriate dust mitigation measures identified, the final step is to determine whether there are any residual significant effects. The IAQM guidance notes that it is anticipated that with the implementation of effective site-specific mitigation measures, the environmental effect will not be significant in most cases.

### **Step 5: Prepare a Dust Assessment Report**

The last step of the assessment is the preparation of a dust assessment report. This forms part of the main ES Chapter.

**Table 1: Dust emission magnitude**

Dust emission magnitude		
Small	Medium	Large
<b>Demolition</b>		
<ul style="list-style-type: none"> <li>• total building volume &lt;20,000m<sup>3</sup></li> <li>• construction material with low potential for dust release (e.g. metal cladding or timber)</li> <li>• demolition activities &lt;10m above ground</li> <li>• demolition during wetter months</li> </ul>	<ul style="list-style-type: none"> <li>• total building volume 20,000 – 50,000m<sup>3</sup></li> <li>• potentially dusty construction material</li> <li>• demolition activities 10 – 20m above ground level</li> </ul>	<ul style="list-style-type: none"> <li>• total building volume &gt;50,000m<sup>3</sup></li> <li>• potentially dusty construction material (e.g. concrete)</li> <li>• on-site crushing and screening</li> <li>• demolition activities &gt;20m above ground level</li> </ul>
<b>Earthworks</b>		
<ul style="list-style-type: none"> <li>• total site area &lt;2,500m<sup>2</sup></li> <li>• soil type with large grain size (e.g. sand)</li> <li>• &lt;5 heavy earth moving vehicles active at any one time</li> <li>• formation of bunds &lt;4m in height</li> <li>• total material moved &lt;10,000 tonnes</li> <li>• earthworks during wetter months</li> </ul>	<ul style="list-style-type: none"> <li>• total site area 2,500m<sup>2</sup> – 10,000m<sup>2</sup></li> <li>• moderately dusty soil type (e.g. silt)</li> <li>• 5 – 10 heavy earth moving vehicles active at any one time</li> <li>• formation of bunds 4 – 8m in height</li> <li>• total material moved 20,000 – 100,000 tonnes</li> </ul>	<ul style="list-style-type: none"> <li>• total site area &gt;10,000m<sup>2</sup></li> <li>• potentially dusty soil type (e.g. clay, which will be prone to suspension when dry due to small particle size)</li> <li>• &gt;10 heavy earth moving vehicles active at any one time</li> <li>• formation of bunds &gt;8m in height</li> <li>• total material moved &gt;100,000 tonnes</li> </ul>
<b>Construction</b>		
<ul style="list-style-type: none"> <li>• total building volume &lt;25,000 m<sup>3</sup></li> <li>• construction material with low potential for dust release (e.g. metal cladding or timber)</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> <li>• on-site concrete batching</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> <li>• sandblasting</li> </ul>
<b>Trackout</b>		
<ul style="list-style-type: none"> <li>• &lt;10 HDV (&gt;3.5t) outward movements in any one day</li> <li>• surface material with low potential for dust release</li> <li>• unpaved road length &lt;50m</li> </ul>	<ul style="list-style-type: none"> <li>• 10 – 50 HDV (&gt;3.5t) outward movements in any one day</li> <li>• moderately dusty surface material (e.g. high clay content)</li> <li>• unpaved road length 50 – 100m;</li> </ul>	<ul style="list-style-type: none"> <li>• &gt;50 HDV (&gt;3.5t) outward movements in any one day</li> <li>• potentially dusty surface material (e.g. high clay content)</li> <li>• unpaved road length &gt;100m</li> </ul>

**Table 2: Sensitivity of the area to dust soiling effects**

Receptor sensitivity	Number of receptors	Distance from the source (m)			
		<20	<50	<100	<350
High	> 100	High	High	Medium	Low
	10 – 100	High	Medium	Low	Low
	< 10	Medium	Low	Low	Low
Medium	> 1	Medium	Low	Low	Low
Low	> 1	Low	Low	Low	Low

**Table 3: Sensitivity of the area to human health impacts**

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

**Table 4: Sensitivity of the area for ecological impacts**

Receptor sensitivity	Distance from the source (m)	
	<20	<50
High	High	Medium
Medium	Medium	Low
Low	Low	Low

**Table 5: Risk of dust impacts**

Sensitivity of area	Dust emission magnitude		
	Large	Medium	Small
<b>Demolition</b>			
High	High risk site	Medium risk site	Medium risk site
Medium	High risk site	Medium risk site	Low risk site
Low	Medium risk site	Low risk site	Negligible
<b>Earthworks</b>			
High	High risk site	Medium risk site	Low risk site
Medium	Medium risk site	Medium risk site	Low risk site
Low	Low risk site	Low risk site	Negligible
<b>Construction</b>			
High	High risk site	Medium risk site	Low risk site
Medium	Medium risk site	Medium risk site	Low risk site
Low	Low risk site	Low risk site	Negligible
<b>Trackout</b>			
High	High risk site	Medium risk site	Low risk site
Medium	Medium risk site	Low risk site	Negligible
Low	Low risk site	Low risk site	Negligible