



**AQUIND Limited**

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## **APPENDIX 22.2**

**IAQM Construction Assessment Methodology**



# CONTENTS

## APPENDIX 22.2 - IAQM CONSTRUCTION ASSESSMENT METHODOLOGY

1

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### **TABLES**

Table 1 - Table 2A: Examples of Human Receptor Sensitivity to Construction Phase Impacts	1
Table 2 - Table 2Ba: Sensitivity of the Area to Dust Soiling Effects	3
Table 3 - Table 2Bb: Sensitivity of the Area to Human Health Impacts	4
Table 4 - Table 2Bc: Sensitivity of the Area to Ecological Impacts	6
Table 5 - Table 2C: Risk of Dust Impacts	6



## APPENDIX 22.2 IAQM CONSTRUCTION ASSESSMENT METHODOLOGY

### STEP 1 - SCREENING THE NEED FOR A DETAILED ASSESSMENT

- 1.1.1.1 An assessment will normally be required where there are:
- ‘Human receptors’ within 350 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); and/or
  - ‘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).
- 1.1.1.2 Where the need for a more detailed assessment is screened out, it can be concluded that the level of risk is “negligible”.

### STEP 2A - DEFINE THE POTENTIAL DUST EMISSION MAGNITUDE

- 1.1.1.3 The following are examples of how the potential dust emission magnitude for different activities can be defined. (Note that not all the criteria need to be met for a particular class). Other criteria may be used if justified in the assessment.

**Table 1 - Table 2A: Examples of Human Receptor Sensitivity to Construction Phase Impacts**

Dust Emission Magnitude	Activity
Large	Demolition >50,000 m <sup>3</sup> building demolished, dusty material (e.g. concrete), on-site crushing/screening, demolition >20 m above ground level
	Earthworks >10,000 m <sup>2</sup> site area, dusty soil type (e.g. clay), >10 earth moving vehicles active simultaneously, >8m high bunds formed, >100,000 tonnes material moved
	Construction >100,000 m <sup>3</sup> building volume, on site concrete batching, sandblasting

	<p>Trackout</p> <p>&gt;50 HDVs out / day, dusty surface material (e.g. clay), &gt;100 m unpaved roads</p>
<b>Medium</b>	<p>Demolition</p> <p>20,000-50,000 m<sup>3</sup> building demolished, dusty material (e.g. concrete) 10-20 m above ground level</p>
	<p>Earthworks</p> <p>2,500-10,000 m<sup>2</sup> site area, moderately dusty soil (e.g. silt), 5-10 earth moving vehicles active simultaneously, 4m-8m high bunds, 20,000 -100,000 tonnes material moved</p>
	<p>Construction</p> <p>25,000-100,000 m<sup>3</sup> building volume, dusty material e.g. concrete, on site concrete batching</p>
	<p>Trackout</p> <p>10-50 HDVs out / day, moderately dusty surface material (e.g. clay), 50 -100 m unpaved roads</p>
<b>Small</b>	<p>Demolition</p> <p>&lt;20,000 m<sup>3</sup> building demolished, non-dusty material (e.g metal cladding), &lt;10 m above ground level, work during wetter months</p>
	<p>Earthworks</p> <p>&lt;2,500 m<sup>2</sup> site area, soil with large grain size (e.g. sand), &lt;5 earth moving vehicles active simultaneously, &lt;4m high bunds, &lt;20,000 tonnes material moved, earthworks during wetter months</p>
	<p>Construction</p> <p>&lt;25,000 m<sup>3</sup>, non-dusty material (e.g. metal cladding or timber)</p>
	<p>Trackout</p> <p>&lt;10 HDVs out / day, non-dusty soil, &lt; 50 m unpaved roads</p>

## STEP 2B - DEFINE THE SENSITIVITY OF THE AREA

### 1.1.1.4

The tables below present the IAQM assessment methodology to determine the sensitivity of the area to dust soiling, human health and ecological impacts respectively. The Air Quality Construction Guidance provides guidance to allow the sensitivity of individual receptors to dust soiling and health effects to assist in the assessment of the overall sensitivity of the study area.

**Table 2 - Table 2Ba: 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
	1-10	Medium	Low	Low	Low
Medium	>1	Medium	Low	Low	Low
Low	>1	Low	Low	Low	Low

**Table 3 - Table 2Bb: Sensitivity of the Area to Human Health Impacts**

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



		1-10	Medium	Low	Low	Low	Low
	28-32	>10	Medium	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
	24-28	>10	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
	<24	>10	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
<b>Low</b>	-	1	Low	Low	Low	Low	Low

**Table 4 - Table 2Bc: Sensitivity of the Area to Ecological Impacts**

Receptor Sensitivity	Distance from the Sources (m)	
	<20	<50
High	High	Medium
Medium	Medium	Low
Low	Low	Low

## STEP 2C - DEFINE THE RISK OF IMPACTS

1.1.1.5

The dust emissions magnitude determined at Step 2A should be combined with the sensitivity of the area determined at Step 2B to determine the risk of impacts without mitigation applied. For those cases where the risk category is 'negligible' no mitigation measures beyond those required by legislation will be required.

**Table 5 - Table 2C: Risk of Dust Impacts**

Sensitivity of surrounding area	Dust Emission Magnitude		
	Large	Medium	Small
<b>Demolition</b>			
High	High Risk	Medium Risk	Medium Risk
Medium	High Risk	Medium Risk	Low Risk
Low	Medium Risk	Low Risk	Negligible
<b>Earthworks and Construction</b>			
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible
<b>Trackout</b>			
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Low Risk	Negligible
Low	Low Risk	Low Risk	Negligible

### **STEP 3 -SITE SPECIFIC MITIGATION**

- 1.1.1.6 Having determined the risk categories for each of the four activities it is possible to determine the site-specific measures to be adopted. These measures will be related to whether the site is considered to be a low, medium or high-risk site. The Air Quality Construction Guidance details the mitigation measures required for high, medium and low risk sites as determined in Step 2C.

### **STEP 4 - DETERMINE SIGNIFICANT EFFECTS**

- 1.1.1.7 Once the risk of dust impacts has been determined in Step 2C and the appropriate dust mitigation measures identified in Step 3, the final step is to determine whether there are significant effects arising from the construction phase. For almost all construction activities, the application of effective mitigation should prevent any significant effects occurring to sensitive receptors and therefore the residual effect will normally be negligible.