

# NOTES

**Job Name:** London School of Hygiene & Tropical Medicine, 15-17 Tavistock Place, London  
**Job No:** 42230  
**Note No:** AQ001  
**Date:** 20<sup>th</sup> June 2018  
**Prepared By:** G.Harker  
**Subject:** Air Quality Dust Risk Assessment – Additional Information

Item	Subject								
1.	<p><b>Introduction</b></p> <p>An Air Quality Dust Risk Assessment was undertaken for planning application 2017/5914/P (42230, Air Quality Assessment, October 2017). Further information has been requested by Gabriel Berry-Khan in terms of the individual level of risk for each of Demolition, Earthworks, Construction, Trackout.</p> <p>This note provides the individual levels of risk to confirm the appropriate level of mitigation to employ in accordance with The Control of Dust and Emissions During Construction and Demolition SPG.</p>								
2.	<p><b>Original Assessment</b></p> <p>The original assessment was undertaken using a methodology that we have used for many projects, both inside and outside London. This judges the overall level of risk for the generation of dust from the site; which is either high, medium or low. Whilst the impact assessment can be split down into various categories, the recommended dust mitigation is simply taken from a list representing either high, medium or low mitigation; with mitigation from the highest risk category selected where there is uncertainty regarding the level of mitigation to employ. Overall, the assessment is one of exercising professional judgement, with the guidance provided to aid the assessment.</p> <p>The original assessment considered that the risk of dust emissions was low as the project would involve the demolition and construction of structures located in the rear of the site, with less than 20,000 m<sup>3</sup> to be demolished or built. The study area was considered to be of medium sensitivity, due to 10-100 residential properties within 50 m and shops within 20 m. Appropriate mitigation corresponding to a low risk site was therefore recommended to be included in the CEMP for the site.</p>								
3.	<p><b>Demolition Emission Magnitude</b></p> <p>The demolition dust emission magnitude is defined in accordance with Table 3.1.</p> <p>Table 3.1: Criteria for Demolition Dust Emission Magnitude</p> <table border="1" data-bbox="300 1615 1528 1995"> <thead> <tr> <th data-bbox="300 1615 491 1709">Dust Emission Magnitude</th> <th data-bbox="491 1615 1528 1709">Activity</th> </tr> </thead> <tbody> <tr> <td data-bbox="300 1709 491 1809">Large</td> <td data-bbox="491 1709 1528 1809">&gt;50,000 m<sup>3</sup> building demolished, dusty material (i.e. concrete), on-site crushing/screening, demolition &gt;20 m above ground level</td> </tr> <tr> <td data-bbox="300 1809 491 1906">Medium</td> <td data-bbox="491 1809 1528 1906">20,000 – 50,000 m<sup>3</sup> building demolished, dusty material (i.e. concrete) 10 – 20 m above ground level</td> </tr> <tr> <td data-bbox="300 1906 491 1995">Small</td> <td data-bbox="491 1906 1528 1995">&lt;20,000 m<sup>3</sup> building demolished, non-dusty material, &lt;10 m above ground level, work in winter</td> </tr> </tbody> </table>	Dust Emission Magnitude	Activity	Large	>50,000 m <sup>3</sup> building demolished, dusty material (i.e. concrete), on-site crushing/screening, demolition >20 m above ground level	Medium	20,000 – 50,000 m <sup>3</sup> building demolished, dusty material (i.e. concrete) 10 – 20 m above ground level	Small	<20,000 m <sup>3</sup> building demolished, non-dusty material, <10 m above ground level, work in winter
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## NOTES

	<p>The project involves the demolition of a single storey shed at the rear of the site and there is no on-site crushing.</p> <p>As the building to be demolished is a single storey, then activities will be undertaken less than 10 m above ground level, the building to be demolished is less than 20,000 m<sup>3</sup> in volume and it is considered that the materials are non-dusty. The overall demolition dust emission magnitude is therefore considered to be low.</p>								
4.	<p><b>Earthworks</b></p> <p>The earthworks dust emission magnitude is defined in accordance with Table 4.1.</p> <p>Table 4.1: Criteria for Earthworks Dust Emission Magnitude</p> <table border="1" data-bbox="300 622 1528 1086"> <thead> <tr> <th data-bbox="300 622 491 719">Dust Emission Magnitude</th> <th data-bbox="491 622 1528 719">Activity</th> </tr> </thead> <tbody> <tr> <td data-bbox="300 719 491 837">Large</td> <td data-bbox="491 719 1528 837">&gt;10,000 m<sup>2</sup> site area, dusty soil type (i.e. clay), &gt;10 earth moving vehicles active simultaneously, &gt;8 m high bunds formed, &gt;100,000 tonnes material moved</td> </tr> <tr> <td data-bbox="300 837 491 972">Medium</td> <td data-bbox="491 837 1528 972">2,500 – 10,000 m<sup>2</sup> site area, moderately dusty soil (i.e. silt), 5 – 10 earth moving vehicles active simultaneously, 4 m – 8 m high bunds, 20,000 -100,000 tonnes material moved</td> </tr> <tr> <td data-bbox="300 972 491 1086">Small</td> <td data-bbox="491 972 1528 1086">&lt;2,500 m<sup>2</sup> site area, non-dusty soil, &lt;5 earth moving vehicles active simultaneously, &lt;4 m high bunds, &lt;10,000 tonnes material moved</td> </tr> </tbody> </table> <p>As the site is a previously developed site in London, and is in a constrained location, there would not be extensive landscaping works involving moving large quantities of soil.</p> <p>The basement site area to be excavated is approximately 600 m<sup>2</sup> and therefore well below 2,500 m<sup>2</sup>. The quantity of material excavated is less than 10,000 tonnes. Excavated mater will be continuously removed.</p> <p>In accordance with the Ground Investigation and Basement Impact Assessment Report (GEA, September 2017) the material to be excavated includes made ground, gravel and clay. However, groundwater was been measured at depths of between 3.11 m and 5.59 m, and as such some form of groundwater control will be required during the basement excavation. This indicates that whilst the excavated material is potentially dusty, it is likely to be damp and therefore with a low potential to generate dust. Overall therefore, the dust emission magnitude for earthworks is considered to be small.</p>	Dust Emission Magnitude	Activity	Large	>10,000 m <sup>2</sup> site area, dusty soil type (i.e. clay), >10 earth moving vehicles active simultaneously, >8 m high bunds formed, >100,000 tonnes material moved	Medium	2,500 – 10,000 m <sup>2</sup> site area, moderately dusty soil (i.e. silt), 5 – 10 earth moving vehicles active simultaneously, 4 m – 8 m high bunds, 20,000 -100,000 tonnes material moved	Small	<2,500 m <sup>2</sup> site area, non-dusty soil, <5 earth moving vehicles active simultaneously, <4 m high bunds, <10,000 tonnes material moved
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5.	<p><b>Construction</b></p> <p>The construction dust emission magnitude is defined in accordance with Table 5.1.</p> <p>Table 5.1: Criteria for Construction Dust Emission Magnitude</p> <table border="1" data-bbox="300 1727 1528 1964"> <thead> <tr> <th data-bbox="300 1727 512 1794">Dust Emission Magnitude</th> <th data-bbox="512 1727 1528 1794">Activity</th> </tr> </thead> <tbody> <tr> <td data-bbox="300 1794 512 1877">Large</td> <td data-bbox="512 1794 1528 1877">&gt;100,000 m<sup>3</sup> building volume, piling, on site concrete batching, sandblasting</td> </tr> <tr> <td data-bbox="300 1877 512 1964">Medium</td> <td data-bbox="512 1877 1528 1964">25,000 – 100,000 m<sup>3</sup> building volume, potentially dusty construction material, on site concrete batching</td> </tr> </tbody> </table>	Dust Emission Magnitude	Activity	Large	>100,000 m <sup>3</sup> building volume, piling, on site concrete batching, sandblasting	Medium	25,000 – 100,000 m <sup>3</sup> building volume, potentially dusty construction material, on site concrete batching		
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6.	<p data-bbox="304 488 1527 517"><b>Trackout</b></p> <p data-bbox="304 548 1527 577">The earthworks dust emission magnitude is defined in accordance with Table 6.1.</p> <p data-bbox="304 609 1527 638">Table 6.1: Criteria for Trackout Dust Emission Magnitude</p> <table border="1" data-bbox="304 638 1527 913"> <thead> <tr> <th data-bbox="304 638 512 703">Dust Emission Magnitude</th> <th data-bbox="512 638 1527 703">Activity</th> </tr> </thead> <tbody> <tr> <td data-bbox="304 703 512 779">Large</td> <td data-bbox="512 703 1527 779">&gt;50 HDVs out / day, dusty soil type (i.e. clay), &gt;100 m unpaved roads</td> </tr> <tr> <td data-bbox="304 779 512 855">Medium</td> <td data-bbox="512 779 1527 855">10 - 50 HDVs out / day, moderately dusty surface material, 50 – 100 m unpaved roads</td> </tr> <tr> <td data-bbox="304 855 512 913">Small</td> <td data-bbox="512 855 1527 913">&lt;10 HDVs out / day, non-dusty soil, &lt; 50 m unpaved roads</td> </tr> </tbody> </table> <p data-bbox="304 945 1527 1070">The site access is via paved roads into an already developed site, with much less than 50 m of unpaved roads. There will therefore be less than 10 HDVs per day leaving the site on unpaved ground, where they could accumulate mud and dirt that could be tracked out on the public highway. The trackout dust emission magnitude is therefore considered to be small.</p>	Dust Emission Magnitude	Activity	Large	>50 HDVs out / day, dusty soil type (i.e. clay), >100 m unpaved roads	Medium	10 - 50 HDVs out / day, moderately dusty surface material, 50 – 100 m unpaved roads	Small	<10 HDVs out / day, non-dusty soil, < 50 m unpaved roads											
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7.	<p data-bbox="304 1099 1527 1128"><b>Site sensitivity</b></p> <p data-bbox="304 1160 1527 1285">The original dust risk assessment considered that the site sensitivity was medium due to the risk of dust soiling and the presence of high sensitive receptors in close proximity to the site. However, the site is constrained by buildings on all sides and therefore the buildings will act as a natural shelter, reducing the risk of wind-blown dust.</p> <p data-bbox="304 1317 1527 1406">In terms of human health impacts, annual mean PM<sub>10</sub> concentrations measured at the urban background site at Bloomsbury and Defra background map concentrations are less than 24 µg/m<sup>3</sup> (Table 4.3 of the SPG), and therefore the area sensitivity to PM<sub>10</sub> concentrations would be low.</p> <p data-bbox="304 1438 1527 1467">There are no ecological receptors that could be affected by dust emissions from the site.</p>																			
8.	<p data-bbox="304 1496 1527 1525"><b>Summary of Risk</b></p> <p data-bbox="304 1556 1527 1624">In accordance with Table 4.10 of the SPG, and taking into account the relative combination of emission magnitude and area sensitivity; the risk of each element is summarised in Table 8.1.</p> <p data-bbox="304 1655 1527 1684">Table 8.1: Summary Dust Risk Assessment</p> <table border="1" data-bbox="304 1684 1527 1868"> <thead> <tr> <th data-bbox="304 1684 491 1749" rowspan="2">Potential Impact</th> <th colspan="4" data-bbox="491 1684 1527 1713">Dust Risk</th> </tr> <tr> <th data-bbox="491 1713 746 1749">Demolition</th> <th data-bbox="746 1713 1002 1749">Earthworks</th> <th data-bbox="1002 1713 1257 1749">Construction</th> <th data-bbox="1257 1713 1527 1749">Trackout</th> </tr> </thead> <tbody> <tr> <td data-bbox="304 1749 491 1807">Dust Soiling</td> <td data-bbox="491 1749 746 1807">Low</td> <td data-bbox="746 1749 1002 1807">Low</td> <td data-bbox="1002 1749 1257 1807">Low</td> <td data-bbox="1257 1749 1527 1807">Negligible</td> </tr> <tr> <td data-bbox="304 1807 491 1868">Human Health</td> <td data-bbox="491 1807 746 1868">Negligible</td> <td data-bbox="746 1807 1002 1868">Negligible</td> <td data-bbox="1002 1807 1257 1868">Negligible</td> <td data-bbox="1257 1807 1527 1868">Negligible</td> </tr> </tbody> </table> <p data-bbox="304 1899 1527 1989">In accordance with the risk assessment, mitigation techniques for a low risk site should be incorporated for demolition, earthworks and construction. Mitigation for a negligible risk site should be incorporated for trackout.</p>	Potential Impact	Dust Risk				Demolition	Earthworks	Construction	Trackout	Dust Soiling	Low	Low	Low	Negligible	Human Health	Negligible	Negligible	Negligible	Negligible
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9.	<p><b>Mitigation Techniques</b></p> <p>Considering the individual risk elements has essentially led to the same conclusion as the original assessment apart for trackout; where the risk is judged to be negligible instead of low. The dust mitigation measures that should be applied are summarised below.</p> <p><b>Site Management</b></p> <ul style="list-style-type: none"> <li>▪ Display the name and contact details of persons accountable on the site boundary;</li> <li>▪ Display the head or regional office information on the site boundary;</li> <li>▪ Record and respond to all dust and air quality pollutant emissions complaints;</li> <li>▪ Make a complaint log available to the local authority when asked;</li> <li>▪ Carry out regular site inspections to monitor compliance with air quality and dust control procedures, record inspection results, and make an inspection log available to the local authority when asked;</li> <li>▪ Increase site inspection frequency during prolonged dry or windy conditions and when activities with high dust potential are being undertaken; and</li> <li>▪ Record any exceptional incidents that cause dust and air quality pollutant emissions, either on or off the site, and the action taken to resolve the situation is recorded in the log book.</li> </ul> <p><b>Preparing and Maintaining the Site</b></p> <ul style="list-style-type: none"> <li>▪ Plan site layout so that machinery and dust causing activities are located away from receptors, as far as possible;</li> <li>▪ Erect solid screens or barriers around dusty activities or the site boundary at least as high as any stockpile on site;</li> <li>▪ Fully enclosure site or specific operations where there is a high potential for dust production and the site is active for an extensive period;</li> <li>▪ Avoid site runoff of water or mud;</li> <li>▪ Keep site fencing, barriers and scaffolding clean using wet techniques; and</li> <li>▪ Remove potentially dusty materials from site as soon as possible.</li> </ul> <p><b>Operating Vehicle/Machinery</b></p> <ul style="list-style-type: none"> <li>▪ Ensure all on road vehicles comply with the London Low Emission Zone;</li> <li>▪ Ensure all non-road mobile machinery (NRMM) comply with the standards;</li> <li>▪ Ensure all vehicles switch off engines when stationary;</li> <li>▪ Avoid the use of diesel or petrol powered generators where possible;</li> <li>▪ Impose and signpost a maximum speed limit of 10mph on surface haul and work areas; and</li> </ul>
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## NOTES

- Implement a Travel Plan that supports and encourages sustainable travel (public transports, cycling, walking, and car-sharing).

### Operations

- Only use cutting, grinding and sawing equipment with dust suppression equipment;
- Ensure an adequate supply of water on site for dust suppressant; (using recycled water where possible);
- Use enclosed chutes and conveyors and covered skips; and
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use water sprays on such equipment where appropriate.

### Waste Management

- Reuse and recycle waste to reduce dust from waste materials; and
- Avoid bonfires and burning of waste materials on site.

### Demolition

- Use of soft strip inside buildings before demolition;
- Ensure effective water suppression is used during demolition operations;
- Avoid explosive blasting; and
- Bag and remove any biological debris or damp down such material before demolition.

### Construction

- Avoid scabbling (roughening of concrete surfaces) if possible; and
- Ensure sand and other aggregates are stored in banded areas and are not allow to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.