



**Nov 2016**

**96 Green Lane  
Buxton  
SK17 9DJ  
Tel 01298 71761  
07973 711589  
enquiries@structech.co.uk**

## Construction and Environmental Method Statement

### **Pile driving**

At the present time it is not envisaged that pile driving will be required. Should site investigations determine this to be so, then driving would take place using an accredited company such as Anvil Piling.

Pile driving would only take place ( should this be required) during the working hours of 09.00 to 16.00 hrs Monday to Friday. No piling would take place on Saturdays, Sundays or Bank Holidays.

Nestles would be given two weeks prior notification before works began.

### **Hours of construction activities**

Hours of work for construction will be 08.00 – 18.00 hrs Monday to Friday and 08.00 – 13.00 hrs on Saturday. No work will take place on Sundays or on a Bank Holiday.

### **Person responsible**

The site manager for these operations will be Mr Mark Dickinson  
Contact e mail [m.dickinson@pennineaggregates.co.uk](mailto:m.dickinson@pennineaggregates.co.uk)

## **Dust Suppression**

Dust suppression will take place in accordance to the recommendations given in Appendix A.

## **Wheel Cleaning**

Wheel cleaning will take place using a hired facility as shown in Appendix B. This facility is a 20m x 4m drive on drive off metal ramp which has proved as successful as water washing facilities and is shown on web page <http://www.ecogreenplanthire.co.uk/>

This will be positioned as shown in Drawing No. Penn/Plan7.

This wheel washing facility will be cleaned on a weekly basis and the road adjacent to the site will also be swept on a weekly basis.

## **Recycling/Disposal of waste**

Any waste taken off site will be carried by licensed operators and disposed of at a licensed tip.

The ground dug out for the sustainable retention pond will be re-distributed around the site in the mounds required by the landscaping requirements.

Any hardcore on site will be stored and recycled on site utilising a hired crusher or taken to Woods Plant Hire, that is close to the site, and crushed and recycled there.

## **Parking of vehicles of site operatives and visitors.**

These details are shown on Drwg. No. Penn/Plan7

## **Loading and unloading of plant and materials**

These details are shown on Drwg. No. Penn/Plan7

## **Storage of plant and materials**

These details are shown on Drwg. No. Penn/Plan7

## **Security hoarding and/or fencing**

These details are shown on Drwg. No. Penn/Plan7

S F Wherry

S F Wherry B.SC. ( Civ.Eng) MRaPS, FCABE



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# **Appendix A**

**Dust suppression measures**

# Dust control measures **2**

**This section gives advice on control methods to minimise the emission of dust and fine particles from construction-related phases and activities.**

- 2.1** Background
- 2.2** Haulage routes, vehicles and construction plant
  - 2.2.1 Roads, surfaces and public highways
  - 2.2.2 Static and mobile combustion plant emissions
  - 2.2.3 Tarmac laying, bitumen surfacing and coating
- 2.3** Materials handling, storage, stockpiling, spillage and disposal
  - 2.3.1 Handling, storage, stockpiling and spillage of dusty materials
  - 2.3.2 Burning of waste materials and uprooted foliage
- 2.4** Site preparation and restoration after completion
- 2.5** Demolition
- 2.6** Construction and fabrication processes
- 2.7** Internal and external finishing and refurbishment

# Dust control measures

## 2.1 BACKGROUND

Dust and fine particle generation from construction and demolition activities can be substantially reduced through carefully selected mitigation techniques and effective management. Once particles are airborne, it is very difficult to prevent them from dispersing into the surrounding area. The most effective technique is to control dust at source and prevent it from becoming airborne, since suppression is virtually impossible once it has become airborne.

The control guidance given in the following sections sets out techniques and methods currently used by industry, with many of the methods applicable to a variety of dust and particle problems. They have not been validated under controlled conditions and therefore have yet to be subject to independent verification.

Consequential risks, such as those related to water (eg slips, skids, chemical reactions, electrical hazards and contamination/blockage of water services) or dust explosion in contaminated areas are outside the scope of this document and have not been dealt with.

## 2.2 HAULAGE ROUTES, VEHICLES AND CONSTRUCTION PLANT

### 2.2.1 Roads, surfaces and public highways

During dry and windy weather conditions, dust and mud from roads and haulage routes can become airborne through movement of vehicles, both on and outside the site (Figure 2.1). Relevant control measures should be taken to minimise this problem by drawing on the guidance given in Table 2.1 as appropriate.

Since many of the techniques given in Table 2.1 rely on washing and damping down, it is important that the run-off water does not itself become a source of water pollution.



Figure 2.1 Vehicle-raised particles from an unpaved roadway  
(Source: Midwest Research Institute, USA  
[www.mriresearch.org](http://www.mriresearch.org))

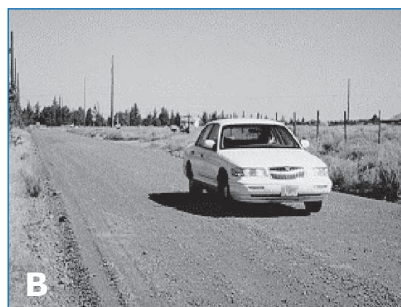


Figure 2.2 Road surface (A) without dust control and (B) with dust control  
(Source: [www.brooksnsw.com.au](http://www.brooksnsw.com.au))

**Table 2.1 Dust control guidance for roads, surfaces and highways**

Potential dust source	Dust control guidance
Major haul roads and traffic routes	<ul style="list-style-type: none"> <li>■ Install permanent surfaces with regular inspection and maintenance (Figure 2.2).</li> <li>■ Plan routes to be away from residents and other sensitive receptors, such as schools and hospitals.</li> </ul>
Construction and maintenance of unsurfaced roads and verges	<ul style="list-style-type: none"> <li>■ Grade fine materials from unsurfaced haul roads.</li> <li>■ Keep in compacted condition using static sprinklers, bowsers, commercially available additives and binders (subject to Environment Agency (EA), Scottish Environment Protection Agency (SEPA) requirements).</li> </ul>
Public roads	<ul style="list-style-type: none"> <li>■ Clean regularly subject to Local Authority or Highway Authority approval.</li> </ul>
Edges of roads and footpaths	<ul style="list-style-type: none"> <li>■ Clean by using hand broom with damping, as necessary.</li> </ul>
High level walkways and surfaces (scaffold planking and other surfaces)	<ul style="list-style-type: none"> <li>■ Clean regularly using wet methods and not dry sweeping.</li> </ul>
Vehicle waiting areas and hard standings	<ul style="list-style-type: none"> <li>■ Regularly inspect and keep clean by brushing or vacuum sweeping.</li> <li>■ Spray regularly with water to maintain surface moisture if needed.</li> </ul>
Vehicle and wheel washing	<ul style="list-style-type: none"> <li>■ Washing facilities, such as hose-pipes and ample water supply should be provided at site exits, including mechanical wheel spinners where practicable.</li> <li>■ If necessary, all vehicles should be washed down before exiting the site (Figure 2.3).</li> </ul>
Site traffic <ul style="list-style-type: none"> <li>– management</li> <li>– speed control</li> </ul>	<ul style="list-style-type: none"> <li>■ Restrict general site traffic to watered or treated haul roads.</li> <li>■ Keep vehicle movements to a minimum.</li> <li>■ Limit vehicle speeds – the slower the vehicle speeds, the lower the dust generation. Typical recommendations are:               <ul style="list-style-type: none"> <li>– 20 mph or less for surfaced roads</li> <li>– 5 mph for unmade surfaces.</li> </ul> </li> </ul>
Road cleaning	<ul style="list-style-type: none"> <li>■ Approved mechanical road sweeper should be readily available, with circular brush commonly fitted to side for cleaning kerbs, removed.</li> <li>■ Frequency of cleaning will depend on site size, location and operation. However, cleaning should be carried out on a daily basis (working day) or more frequently if required.</li> </ul>



Figure 2.3 Wheel washing of lorry prior to exiting site

### 2.2.2 Static and mobile combustion plant emissions

Engine exhaust emissions, especially from those operating on diesel fuel, can be a significant source of fine particle generation from construction sites. As the particles are small, they can easily be transported to beyond the site boundary and affect the local environmental air quality and health. Control guidance for these types of emissions are given in Table 2.2.

**Table 2.2 Dust control guidance for static and mobile combustion plant**

Potential dust source	Dust control guidance
Visible exhaust smoke	<ul style="list-style-type: none"> <li>■ Vehicles and equipment should not emit black smoke from exhaust systems except during ignition at start-up.</li> </ul>
Maintenance	<ul style="list-style-type: none"> <li>■ Engines and exhaust systems should be maintained so that exhaust emissions do not breach statutory emission limits set for the vehicle/equipment type and mode of operation.</li> </ul>
Servicing	<ul style="list-style-type: none"> <li>■ This should be routinely scheduled, rather than just following breakdowns.</li> </ul>
Operating time	<ul style="list-style-type: none"> <li>■ Internal combustion plant should not be left running unnecessarily.</li> </ul>
Exhaust direction	<ul style="list-style-type: none"> <li>■ Vehicle exhausts should be directed away from the ground and other surfaces and preferably upwards to avoid road dust being re-suspended to the air.</li> </ul>
Exhaust heights	<ul style="list-style-type: none"> <li>■ Exhausts should be positioned at a sufficient height to ensure adequate local dispersal of emissions.</li> </ul>
Location of plant and equipment	<ul style="list-style-type: none"> <li>■ Plant and equipment should be operated away from residential areas or sensitive receptors near to the site.</li> </ul>

### 2.2.3 Tarmac laying, bitumen surfacing and coating

It is difficult to avoid the production of black smoke particles with the types of hot bitumen processes commonly used in construction, although it can be minimised (Table 2.3).

**Table 2.3 Dust control guidance for emissions from tarmac laying, bitumen surfacing and coating**

Potential dust source	Dust control guidance
Bitumen over-heating	<ul style="list-style-type: none"><li>■ Do not overheat bitumen, but use minimum acceptable temperature.</li><li>■ Measure temperature directly, especially on large heating plant.</li><li>■ Avoid if possible, heating with open flame burners.</li></ul>
Fume production	<ul style="list-style-type: none"><li>■ Cover pots or tanks containing hot bitumen.</li></ul>
Small accidental fires	<ul style="list-style-type: none"><li>■ Extinguish immediately.</li></ul>
Spillage	<ul style="list-style-type: none"><li>■ Minimise spillages, especially any likely to contact open flames.</li></ul>
Direct application of open flames ('torching')	<ul style="list-style-type: none"><li>■ Use great care.</li><li>■ Avoid overheating the surface.</li></ul>



## 2.3 MATERIALS HANDLING, STORAGE, STOCKPILING, SPILLAGE, AND DISPOSAL

### 2.3.1 Handling, storage, stockpiling and spillage of dusty materials

Method statements and procedures for the storage and handling of fine, powdery and dry materials should be established and agreed at the planning stage of the project (see Section 3 for further details).

Previously settled dust has the potential to become airborne during windy weather conditions. Solid fencing or hoarding can provide shelter from the wind and reduce the possibility of dust suspension from the ground. However, any improvement will occur only in the region of the fence.

Sheltering efficiency can be improved by using porous fences. Fence porosities (the fraction of the fence area that is open) up to ~50% are best. The porosity can be achieved by vertical or horizontal slatting or by a mesh structure, as long as the element size is no more than about a fifth of the fence height. Hedges typically have the same properties. Areas of the site that are expected to be strong local sources of dust generation can be fenced in this way. In general, fences around for example stockpiles, need to be of the same approximate size as the object being protected or slightly larger, if they are to be effective.

Wet material is likely to dry out during periods of hot weather and more frequent damping will be required. Advice and approval from the Environment Agency may be required on how to control the run-off of slurry when dusty material is damped down using water.

**Table 2.4 Dust control guidance for emissions from handling of materials**

Potential dust source	Dust control guidance
Material handling operations	<ul style="list-style-type: none"> <li>Always keep the number of handling operations to a minimum by ensuring that dusty material isn't moved or handled unnecessarily.</li> </ul>
Transport of fine powdery materials	<ul style="list-style-type: none"> <li>Use closed tankers.</li> </ul>
Transport of dusty materials and aggregates	<ul style="list-style-type: none"> <li>Use enclosed or sheeted vehicles.</li> </ul>
Handling areas	<ul style="list-style-type: none"> <li>Keep clean and free from dust.</li> </ul>
Vehicle loading	<ul style="list-style-type: none"> <li>Use material handling methods that minimise the generation of airborne dust.</li> <li>Damp down using water.</li> </ul>
Loading materials onto vehicles and conveyors (Figure 2.4)	<ul style="list-style-type: none"> <li>Drop heights must be kept to a minimum and enclosed wherever possible.</li> <li>Damp down with water.</li> </ul>
Chutes, skips and conveyor transfer points	<ul style="list-style-type: none"> <li>Drop heights must be kept to a minimum and enclosed wherever possible (Figure 2.5).</li> <li>Damp down with water.</li> </ul>
Conveyor loads	<ul style="list-style-type: none"> <li>Damp down wherever possible.</li> </ul>
Dust dispersing over the site boundary	<ul style="list-style-type: none"> <li>Use static sprinklers, bowsers, hand held hoses and other watering methods, as necessary.</li> </ul>

**Table 2.5 Dust control guidance for emissions from storage of powder material**

Potential dust source	Dust control guidance
Bulk cement, bentonite and similar materials	■ Delivered by tanker and stored in silos
Silos	■ Ventilators should be fitted with particle filters.
Accidental spillages when filling or operating silos	■ Methods and equipment for cleaning should be in place. If necessary, include the use of audible and visual alarm systems.
Fine, dry materials (less than ~3 mm in particle size)	■ Store inside buildings or enclosures or with adequate protection from the wind eg by using sheeting.
Dry materials (greater than ~3 mm in particle size diameter)	■ Store materials in banded areas.
Storage location	■ Store materials away from the site boundary and sensitive areas, wherever possible.



Figure 2.4 Dump truck filling  
(Source: Midwest Research Institute, USA  
[www.mriresearch.org](http://www.mriresearch.org))



Figure 2.5 Material dropped into skips  
(Source: BRE Archive)

**Table 2.6 Dust control guidance for emissions from stockpiles**

Potential dust source	Dust control guidance
Stockpile location	<ul style="list-style-type: none"> <li>■ Stockpiles should be located away from sensitive receptors eg residential, commercial and educational buildings, places of public access or other features, such as watercourses.</li> </ul>
Building stockpiles	<ul style="list-style-type: none"> <li>■ Ensure slopes of stockpiles, tips and mounds are at an angle not greater than the natural angle of repose of the material.</li> <li>■ Avoid sharp changes of shape.</li> </ul>
Small and short-term stockpiles – protecting from wind erosion	<ul style="list-style-type: none"> <li>■ Where possible, ensure stockpiles are kept enclosed or under sheeting.</li> <li>■ Dusty materials can be damped down using suitable and sufficient water sprays.</li> <li>■ Wind barriers (protective fences) of similar size and height to the stockpile may be used.</li> </ul>
Larger and long-term stockpiles – protecting from wind erosion	<ul style="list-style-type: none"> <li>■ Shrouding, wind shielding using screens, watering and controlled spraying of the surface with chemical bonding agents, should be carried out (subject to necessary approval from the Environment Agency).</li> <li>■ Wind barriers (protective fences) of similar size and height to the stockpile may be used.</li> <li>■ Long-term stockpiles can be capped or grassed over.</li> </ul>

**Table 2.7 Dust control guidance for emissions from spillages**

Potential dust source	Dust control guidance
Cleaning up	<ul style="list-style-type: none"> <li>■ Methods and equipment should be in place for immediate clean-up of spillages of dusty or potentially dusty materials.</li> </ul>
Inspection	<ul style="list-style-type: none"> <li>■ Regularly inspect site for spillages.</li> </ul>
Cement powder (and similar)	<ul style="list-style-type: none"> <li>■ Clean up spillages using wet handling methods.</li> </ul>

### 2.3.2 Burning of waste materials and uprooted foliage

Under the Clean Air Act (1993), open fires (Figure 2.6) are not recommended on site (see Section 1.5.1). The use of small incinerators is regarded as being more acceptable but would need to be approved, under Section 21 of the Clean Air Act (1993).

Many waste timbers from construction sites (especially roofing timbers) are often impregnated with treatments to prevent bacterial, fungal and insect attack or, painted with lead-based paint. Some of these materials, either in their original form or as partial products of combustion, are toxic. Roofing timbers, for example, have been commonly treated with arsenic-based compounds to prevent insect attack. Therefore, arsenical compounds are released in the fire plume if they are burned. It is therefore advised that such timbers are not burned on site.

It is recommended that building materials which are not contaminated are reclaimed and reused wherever possible.

**Table 2.8 Dust control guidance on disposal of waste material from construction**

Potential dust source	Dust control guidance
Disposal method	■ Use alternative disposal method to burning, if possible.
Combustion method	■ Use an incinerator and not open fires.
Incinerator	■ Must be an approved appliance (under the Clean Air Act 1993).
Supervision	■ Any fires or incineration must be supervised at all times.
Treated timbers	■ Timbers treated chemically to resist rotting, insects etc should not be burned.



Figure 2.6 Open bonfire  
(Source: Envirobods Ltd)

## 2.4 SITE PREPARATION AND RESTORATION AFTER COMPLETION

Earthworks, excavation, soil stripping, earthmoving and landscaping can be significant sources of particle generation, especially during dry weather periods and, in particular, if followed by high winds. Surfaces should always be disturbed as little as possible, and stabilised as soon as possible afterwards.

**Table 2.9 Dust control guidance for emissions during site preparation and restoration**

Potential dust source	Dust control guidance
Earthworks, excavation and digging	<ul style="list-style-type: none"> <li>■ Vegetation and cover should be removed in discrete sections and not all at once.</li> <li>■ Earthworks, excavation and digging activities should be kept damp and, if possible, be avoided during exceptionally dry weather periods.</li> </ul>
Completed earthworks	<ul style="list-style-type: none"> <li>■ Stabilise surfaces and/or re-vegetate as soon as possible.</li> </ul>
Storage mounds	<ul style="list-style-type: none"> <li>■ Seal surfaces by seeding or surface with vegetation that has previously been removed from the site. For example, turfing which has been removed may be stored and reused.</li> <li>■ Alternatively, cover with correctly secured tarpaulins.</li> </ul>
Landscaping	<ul style="list-style-type: none"> <li>■ Soils may be landscaped into suitable shapes for secondary functions, such as visual screening.</li> </ul>
Transitory soil mounds	<ul style="list-style-type: none"> <li>■ Soil mounds should be treated with surface binding agents to reduce wind erosion.</li> <li>■ Consultation with the Environment Agency is necessary before employing any binding agent.</li> </ul>
Processing aggregates, crushing and screening	<ul style="list-style-type: none"> <li>■ Crushers should be sited as far away as possible from sensitive receptors.</li> <li>■ Mobile plant for crushing, screening and grading of materials may require authorisation (under the Environmental Protection Act, 1990) by the appropriate Local Authority in whose area the operating company's registered office is situated.</li> </ul>



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# Appendix B

Wheel cleaning measures



# Ecogreen Plant Hire

Clients include: Aggregate Industries • Bam Construction • Balfour Beatty • Skanska



Tel: 01606 75525  
Hire Desk: 0800 130 3438  
Scotland: 0800 1303439



## Testimonials

### The Greener, Cost-Reducing Alternative to Wheel Wash, Bath and Spray systems

#### Skanska

"There are three Skanska sites at Addenbrookes. The other two have wheel washes, and we chose a waterless DriveOn V-Tech system from Ecogreen Plant Hire. They are also both using road sweepers. We don't need to."

**Geoff Sutton**

Skanska GF

"The dry wheel cleaner has been a great asset to this site. We were paying for a road sweeper for 10 hours a day and now need a road sweeper for only two days a week for two hours plus travel, saving us in the region of £1,300.00 per week on our forecast."

**Malcolm Lindsley**

Senior Project Manager, Skanska Central and Regions

[For this project Skanska received the 'Considerate Constructors Scheme' award – the system scoring them a point – and the comment in the Innovative Activities section of the CCS scorecard was "An innovative wheel cleaning system, which does not use power or water and does not require an operator, is used to keep the public roads free of mud. This unit is very effective, and carbon free during use".]

#### Aggregate Industries

"We replaced our wheel wash with a DriveOn V-Tech and have saved:

- 14k pa on energy costs
- Reduced carbon emissions by 27 metric tonnes pa
- Reduced our water consumption by 22 million litres pa

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