

# Management of Dust from Development Sites

GUIDANCE FOR DEVELOPING A DUST EMISSION CONTROL PLAN

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## Introduction >>

Dust from demolition and construction work, if badly managed, can cause environmental nuisance and impact those living adjacent or near the work site. Impacts can affect quality of life and can lead to potential health impacts. Dust can also impact on the health and safety of workers on the construction site.

The Townsville region is forecast to have a population of over 300,000 in the next 25 years. In response to this Townsville City Plan has moved towards the concept of approving developments within the community where infrastructure already exists (infilling). This reduces the need for new infrastructure by utilising the existing and therefore creating a sustainable community.

Measures to prevent nuisance to existing residential developments will therefore be crucial to ensure the continual amenity within the community.

A dust emission control plan is a useful tool to identify where dust emitting activities are likely to occur and when, who might be affected by that activity and how it might be controlled. Implementing a dust emission control plan will also assist with compliance of the environmental nuisance provisions of the *Environmental Protection Act 1994*.

This document aims to assist in the development of a dust emission control plan by providing information on:

- how to complete a site impact assessment;
- provide information on the control and mitigation methods; and
- a monitoring program.

## Legislative Framework >>

There are various sources of air pollutants (which include dust) that affect air quality, and that can cause harm or injury to persons. As a result there is a variety of legislative measures in place aimed at improving air quality or protecting persons from harm or injury. These are from a national, state and local level.

### National Legislation

#### National Environment Protection (Ambient Air Quality) Measure 1998

This national piece of legislation sets goals for various pollutants including particles.

### State Legislation

#### Environmental Protection Act 1994

At a State level the *Environmental Protection Act 1994*, *Environmental Protection Regulations 2008* and the *Environmental Protection (Air) Policy 2008* are in place to protect and improve air quality in Queensland.

The object of the *Environmental Protection Act 1994* is “to protect Queensland’s environment while allowing for development that improves the total quality of life...” (Queensland Government, n.d.). Within this legislation is a requirement that environmental harm or nuisance must not be caused by an activity. Environmental harm and nuisance can be caused by contaminants which include particles such as dust.

#### Environmental Nuisance

Section 15 of the Act refers to the offence of environmental nuisance. This is when there is unreasonable interference with an environmental value.

Should dust be uncontrolled and causing an environmental nuisance as defined by the Act, the person causing the nuisance can be issued with a Direction Notice to remedy the situation; receive an on-the-spot fine; or in some cases, face prosecution.

#### General Environmental Duty

The general environmental duty, section 319 of the Act, makes it a requirement for a person to take all reasonable and practicable measures to minimise environmental harm.

Section 21 of the Act cites best practice environmental management which is the management of the activity to minimise environmental harm through cost effective measures. (Queensland Government, n.d.)

#### Environmental Protection Regulation & Policy

The *Environmental Protection Regulation 2008* provides a list of activities that require an environmental authority (EA) to operate. These EA’s usually come with a suite of conditions which limit emissions and set the operating standards. Dust emission controls are often incorporated within these conditions.

The *Environmental Protection (Air) Policy 2008 (the Policy)* provides a list of long term objectives which includes the emission limits for particles. Two examples of this are PM<sub>2.5</sub> and PM<sub>10</sub> which have been given a limit within this Policy to protect the environmental value of human health and wellbeing.

Section 9 of the Policy lays down the management hierarchy for air emissions. These are in order of preference:

- a) Avoid
- b) Recycle
- c) Minimise
- d) Manage

## Other Legislative Acts

### Planning Act 2016

The *Planning Act 2016* requires that any development approval conditions that are placed upon a development must be relevant and reasonable. Conditions can include the requirement of documents including a dust emission control plan.

### Public Health Act 2005

The dispersal or release of a by-product which could be hazardous to health, from construction or demolition work (not a workplace) is considered to be a public health risk. The release of asbestos fibres from demolition work or alterations from a home renovator is an example of this.

### Work Health & Safety Act 2011

At a State level the *Work Health and Safety Act 2011* aims to secure the health and safety of workers in Queensland by protecting both the workers and other people from harm to their health, safety and welfare.

The Act lays down the requirement to ensure the health and safety of people through eliminating or minimising risks to health and safety.

### Workplace Health and Safety Codes of Practice

There are a number of Codes of Practice which provide information about the health and safety obligations and the steps that need to be taken to ensure the health and safety of employees.

Risks associated with the work should be identified, assessed and controls implemented to control the identified risks. Reviewing and maintaining the effectiveness of the controls should also be undertaken.

### Formwork Code of Practice 2006

Formwork is the casting of concrete walls or columns.

Potential hazards during erection, alteration and/or dismantling formwork include noise and dust. Engineering controls such as dust extraction or by wetting down can be used to minimise dust emissions.

### Excavation Work Code of Practice 2013

Excavation work means involving the removal of rock or soil from a site to form an open face, hole or cavity. This is usually completed using tools, machinery or explosives.

Potential hazards include airborne and buried contaminants such as asbestos.

### Demolition Work Code of Practice 2013

Demolition work means to demolish or dismantle a structure or part of a structure.

Hazardous materials associated with demolition include asbestos, lead, polychlorinated biphenyls (PCB's) and synthetic mineral fibres and dust.

A demolition plan might be prepared which may include how the demolition would affect neighbouring properties.

## Background>>

### What is dust?

Dust is made up of solid, dry particles which are dispersed in the air and are usually between 1-100  $\mu\text{m}$  (micrometre or micron) in diameter. Types of dust include:

- Metallic (e.g. lead, nickel)
- Mineral (e.g. cement, soil)
- Organic (e.g. wood)
- Biohazards (e.g. spores & moulds)

### Dust Sources

There are various sources of dust that can arise from a construction (or demolition) site. These include:

- Wind-blown dust from exposed surfaces from land clearing
- Mining and quarrying
- Crushing and screening activities
- Loading and unloading dusty material
- Wind-blown dust from stockpiling
- Vehicle movements from unsealed roads
- Wind-blown dust from demolition activities

### Health Impacts

Particles of dust can be inhaled into the body through the nose or mouth. Some of the larger particles are filtered within the nose; however the smaller particles can reach the lungs where they are deposited. Particles that are not cleared by the body can remain for a long time leading to an increased potential to cause disease.

The health effects of dust are associated with the particle size usually about 10 microns in size (called  $\text{PM}_{10}$ .) (Ministry For the Environment New Zealand, n.d.). The *Environmental Protection (Air) Policy 2008* has a  $\text{PM}_{10}$  limit of 50 micrograms per cubic metre within a 24 hour period.

There are a number of health risks associated with dust which include:

- Eye irritation
- Lung cancer
- Silicosis
- Asthma (Health & Safety Executive, n.d.)

### Nuisance Impacts

Under the *Environmental Protection Act 1994*, dust is considered an environmental nuisance when the release of dust interferes with an environmental value. Section 9 of the Act describes an environmental value as:

- a) A quality or physical characteristic of the environment conducive to ecological health or public amenity or safety; or
- b) Another quality of the environment identified and declared under an environmental policy or regulation.



An example of nuisance is dust released from the grinding of paving slabs which is entering a neighbour's residence which then subsequently is affecting their health.

It is an offence to cause an environmental nuisance as per Section 440 of the Act and all reasonable steps should be taken to prevent the release of dust.

### **Enforcement Options**

Council has the authority to enforce both the *Environmental Protection Act 1994* and the *Planning Act 2016*. Other State agencies including the Queensland Government enforce laws such as the Workplace Health & Safety legislation.

Under these laws there are various enforcement options available should breaches of the legislation occur. These include:

- On-the-spot fines (All)
- Direction Notices (Env. Protection Act)
- Environmental Protection Orders (Env. Protection Act)
- Improvement Notices (WHS Act)
- Prohibition Notices (WHS Act)
- Prosecutions (All)

## What is a Dust Emission Control Plan? >>

A dust emission control plan is a document that records details of the construction site, what work will take place and when, and what mitigation methods will be used during the lifetime of the construction site.

A document will assist council with drafting and incorporating reasonable conditions about dust into development approvals and helps developers in understanding the requirements in relation to dust mitigation and control.

A dust emission control plan should be provided to the council with the development application.

A dust emission control plan should contain the following information:

- Summary of work to be carried out;
- Map of site layout – including the roadways, location of site equipment and stockpiles;
- Location (or indication) of the nearest sensitive receptor
- Timetable of dust generating activities;
- Details of the site impact assessment;
- List of dust control methods to be used;
- Information on the responsible persons for the site (contact details etc.);
- Sampling methods, levels and procedures (if required); and
- Log book of complaints and any actions taken

## Developing the Dust Emission Control Plan >>

There are three phases in producing a dust emission control plan. These are:

### **Phase 1: Site Impact Assessment**

A site impact assessment is undertaken to determine the risk (high, medium or low) that the site will pose in relation to dust emissions. The results of the impact assessment will help to determine the level of risk that the site poses and subsequent mitigation and control measures that will be required to minimise this risk.

### **Phase 2: Site Control Measures**

Based on the site impact assessment the minimum controls for the site can be determined and drafted into the plan.

### **Phase 3: Site Monitoring**

Depending on the site impact assessment, it may mean that dust will need to be monitored. Development conditions may include a limit to the amount of dust that is permitted to leave the site. Monitoring programmes are a way to ensure compliance with nuisance laws and any development conditions.

A dust emission control plan template has been provided in Appendix 4. This can be used to capture the information required in each phase, creating dust emission control plan.

## Phase 1. Site Impact Assessment

Initially the site will need to be evaluated to determine whether it is a low, medium or high risk. This will be assessed using:

- the area/size of the development;
- the number of properties to be built; and
- the potential for the dust emissions to cause issues to neighbouring sensitive receptors (e.g. schools, residential dwellings, library, childcare centre, hospitals or public park).

Other considerations during the site evaluation include:

- Occurrence of a demolition stage;
- Location, size and length of time any stockpiles will be on site;
- Prevailing weather conditions;
- Potential for traffic movements to cause dust during construction;
- Location of the nearest sensitive receptors
- Scale and occurrence of dust generating activities such as sawing; and
- Need for on-site concrete crusher

### Low Risk

- Development of up to 1000m<sup>2</sup> of land; OR
- Development of one property and up to a maximum of six; AND
- Potential for emissions & dust to have an infrequent impact on sensitive receptors.

### Medium Risk

- Development of between 1000 - 15,000m<sup>2</sup> of land; OR
- Development of between six and 50 properties; AND
- Potential for emissions & dust to have an intermittent or likely impact on sensitive receptors

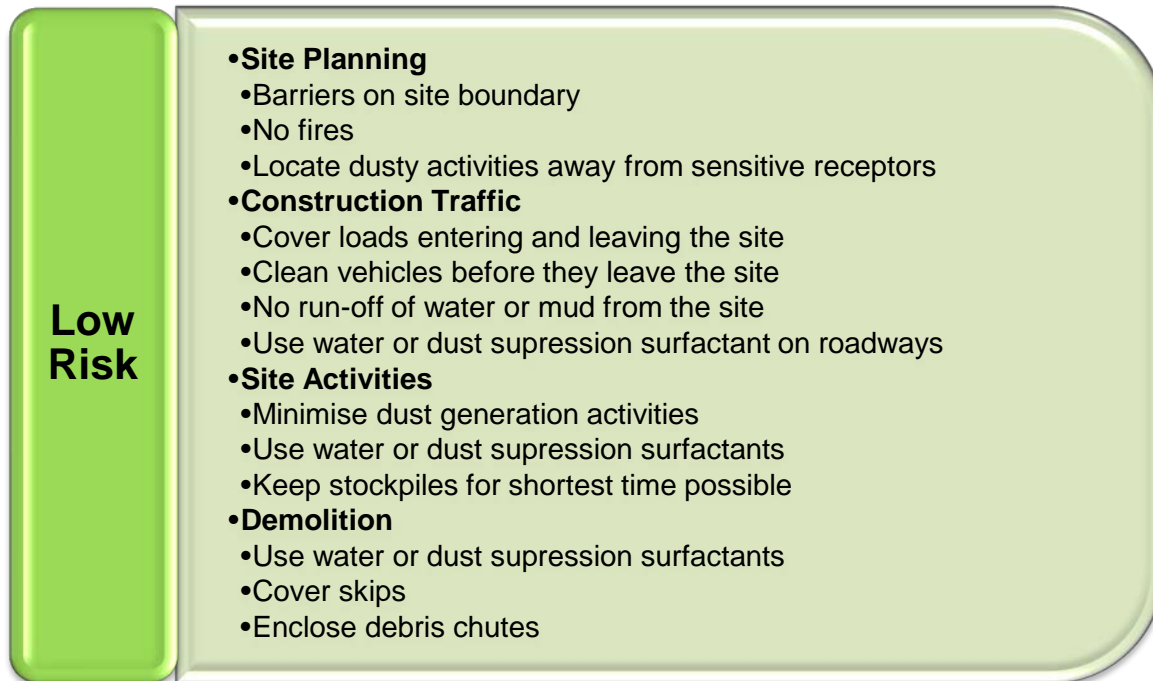
### High Risk

- Development of over 15,000m<sup>2</sup> of land; OR
- Development of over 50 properties; OR
- Creation of residential estates; OR
- Creation of commercial / industrial lots >2,000m<sup>2</sup>; AND
- Potential for emissions & dust to have significant impact on sensitive receptors

## Phase 2. Site Control Methods

Listed below are the minimum site controls for the different sites according to their risk (low, medium or high). Each risk type has been provided with a list of best practice measures which can be used to minimise dust emissions from the site. A summary table can be found in Appendix 3 – Site Control Method Table.

### Low Risk Site Planning Control Methods



**Low Risk**

- **Site Planning**
  - Barriers on site boundary
  - No fires
  - Locate dusty activities away from sensitive receptors
- **Construction Traffic**
  - Cover loads entering and leaving the site
  - Clean vehicles before they leave the site
  - No run-off of water or mud from the site
  - Use water or dust suppression surfactant on roadways
- **Site Activities**
  - Minimise dust generation activities
  - Use water or dust suppression surfactants
  - Keep stockpiles for shortest time possible
- **Demolition**
  - Use water or dust suppression surfactants
  - Cover skips
  - Enclose debris chutes

### Pre-site Preparation

- Machinery and dust generating activities should not be located close to boundaries and sensitive receptors.
- Erect barriers around the dusty activities or the site boundary.
- Burning of waste should not be carried out on site
- Locate plant and vehicles away from the boundary
- Keep log of all complaints

### Construction Traffic

To prevent dust being spread outside the site use the following control measures at entry and exit points:

- Wash / clean or use rumble pad to remove excessive dirt and dust from vehicle tyres.
- All loads must be covered
- Ensure that there is no water runoff from the site
- Use water or dust suppression surfactants on unpaved roadways

### Site Activities

- Use water as a dust suppressant when cutting blocks etc.
- Cover rubbish skips and ensure that they are serviced on a regular basis
- Enclose debris chutes
- Minimise debris chute heights
- Regularly damp down surfaces

- Vacuum waste dust – not sweep
- Damp down earthworks in dry weather
- Keep stockpiles for shortest time possible

### Medium Risk Site Planning Control Methods

|                    |  |
|--------------------|--|
| <b>Medium Risk</b> | <ul style="list-style-type: none"> <li>• <b>Site planning</b> <ul style="list-style-type: none"> <li>• Erect solid barriers to site boundary</li> <li>• No fires</li> <li>• Site layout</li> <li>• Create temporary roadways</li> </ul> </li> <li>• <b>Construction Traffic</b> <ul style="list-style-type: none"> <li>• Vehicle cleaning and wheel-washing</li> <li>• Covered loads</li> <li>• No site run-off</li> <li>• create temporary roadways</li> </ul> </li> <li>• <b>Site Activities</b> <ul style="list-style-type: none"> <li>• Minimise dust activities</li> <li>• Use water as a suppressant</li> <li>• Enclose or cover stockpiles</li> </ul> </li> <li>• <b>Demolition</b> <ul style="list-style-type: none"> <li>• Use water as a dust suppressant</li> <li>• Cover skips</li> <li>• Enclose debris chutes</li> </ul> </li> </ul> |
|--------------------|--|

### Pre-site Preparation

- Machinery and dust generating activities should not be located close to boundaries and sensitive receptors.
- Erect solid barriers to site boundary.
- Burning of waste should not be carried out on site
- Locate plant and vehicles away from the boundary
- Place hard surface down for major haul routes
- Large areas of land are not to be left without vegetation cover for long periods of time with at least 70% vegetation cover. This is to prevent windblown dust.
- Regularly inspect and repair haul routes
- Keep log of all complaints
- Monitor the site for dust levels following a complaint (dust deposition & Total Suspended Particulates (TSP))

### Construction Traffic

To prevent dust being spread outside the site use the following control measures at entry and exit points:

- Wash / clean or use rumble pad to remove excessive dirt and dust from vehicle tyres.
- All loads must be covered
- Ensure that there is no water runoff from the site
- Hard surface and clean the haul routes
- Have appropriate speed limit on site

### Site Activities

- Use water as a dust suppressant when cutting blocks etc.
- Cover rubbish skips and ensure that they are serviced regularly
- Enclose debris chutes
- Minimise debris chute heights
- Regularly damp down surfaces
- Vacuum waste dust – not sweep
- Damp down earthworks in dry weather
- Keep stockpiles for shortest time possible
- Cover stockpiles where practicable
- Keep stockpiles away from boundary, sensitive receptors and watercourse/easements

### High Risk Site Planning Control Methods

**High Risk**

- **Site planning**
  - Erect solid barriers
  - No bonfires
  - Site layout
  - Create hard surface roadways
  - Dust monitoring program
- **Construction Traffic**
  - Vehicle cleaning and wheel-washing
  - Covered loads
  - No site run-off
  - Create temporary roadways
  - Minimise traffic movements around site
  - Clean roadways
  - Speed limit
- **Site Activities**
  - Minimise dust activities
  - Use water as a suppressant
  - Enclose or cover stockpiles
  - Re-vegetate exposed areas or earthworks
- **Demolition**
  - Use water as a dust suppressant
  - Cover skips
  - Enclose debris chutes

### Pre-site Preparation

- Machinery and dust generating activities should not be located close to boundaries and sensitive receptors.
- Erect solid barriers to site.
- Burning of waste should not be carried out on site
- Have waste minimisation plan in place.
- Separate waste types using separate bins/skips
- Cover waste and store away from sensitive receptors
- Locate plant and vehicles away from the boundary
- Place hard surface down for major haul routes

- Camber the road to prevent water ponding
- Regularly inspect and repair haul routes
- Keep log of all complaints
- No reconfiguration of the land between January – March (minimise sediment & erosion)
- Large areas of land are not to be left without vegetation cover for long periods of time with at least 70% vegetation cover. This is to prevent windblown dust.
- Monitor the site for dust levels during the lifetime of the site (dust deposition & Total Suspended Particulates (TSP))

### **Construction Traffic**

To prevent dust being spread outside the site use the following control measures at entry and exit points:

- Wash / clean or use rumble pad to remove excessive dirt and dust from vehicle tyres.
- Place wheel wash at exit to site
- All loads securely covered
- Ensure that there is no runoff from the site
- Hard surface and clean the haul routes
- Damp down haul routes at least twice daily (more in dry weather or as monitoring dictates)
- Have appropriate speed limit on site

### **Site Activities**

- Use water as a dust suppressant when cutting blocks etc.
- Cover rubbish skips and ensure that they are serviced regularly
- Enclose debris chutes
- Minimise debris chute heights
- Regularly damp down surfaces
- Vacuum waste dust – not sweep
- Damp down earthworks in dry weather
- Keep stockpiles for shortest time possible
- Cover stockpiles where practicable
- Enclose stockpiles within bunkers
- Keep stockpiles away from boundary, sensitive receptors and watercourse/easements
- Re-vegetate earthworks or exposed areas to stabilise surfaces
- Do not reconfigure the whole site at once – do this in stages
- Use mulch or tackifiers if re-vegetation not possible
- Position the stockpiles taking into account the predominant wind direction
- Re-vegetate long term stockpiles
- Use windbreaks around stockpiles or use vegetation such as trees



### Phase 3. Site Monitoring

Monitoring of a site can determine the environmental impacts of the development as well as a tool to evaluate the effectiveness of the control methods. Site monitoring can include:

- Compliance monitoring which is the measurement against specific emission limits used as an indication for nuisance
- Monitoring the level of complaints received from the community
- Carrying out visual daily checks on the site and the level of dust being emitted or found on the site

#### Compliance Monitoring

This is the monitoring of the activity against specific emission levels that have been specified on the development approval conditions of a development. Examples of the levels that should be achieved could be:

*Dust deposition should not exceed 120 milligrams per square metre per day (averaged over one month).*

To measure compliance with dust depositions there are Australian Standards that should be followed. Some of the relevant Australian Standards for dust monitoring include (but not limited to):

- AS/NZS 3580.10.1:2003 *Methods for sampling and analysis of ambient air - Determination of particulate matter - Deposited matter - Gravimetric method*
- AS/NZS 3580.9.6:2003 *Methods for sampling and analysis of ambient air - Determination of suspended particulate matter - Total suspended particulate matter (TSP) - High volume sampler gravimetric method* OR AS/NZS 3580.9.8:2008 *Methods for sampling and analysis of ambient air - Determination of suspended particulate matter - PM10 continuous direct mass method using a tapered element oscillating microbalance analyser*
- AS/NZS 3580.9.3:2003 *Methods for sampling and analysis of ambient air - Determination of suspended particulate matter - Total suspended particulate matter (TSP) - High volume sampler gravimetric method*

#### Background Monitoring

Before works start, measuring the levels of dust within the area will provide baseline data. These measurements are most effective when undertaken over a couple of years which will provide data on the seasonal variations. If the development is smaller scale, for example up to six months, the collection of four weeks' worth of data is a good indication of existing background air quality. (Department of Environment and Conservation, WA, 2011)

#### Control Site Sampling

This method involves sampling from a similar site to that which is to be developed, usually upwind of the site. This allows for a comparison or control with the development site.

#### Number and Location of Monitoring Sites

The number and location of the monitoring sites should be considered using the following factors:

- prevailing weather conditions;
- topography;
- predicted area of greatest impact;
- location of the sensitive receptors; and

- risk of dust exposure to the community

AS/NZS 3580.1.1:2007 *Methods for sampling and analysis of ambient air – Guides to Siting Air Monitoring Equipment* can provide further guidance on where to position any site monitoring stations.

## **Types of Dust Monitoring Techniques**

### **Dust Deposition**

Dust deposition is the measurement of the dust that has settled out of the air. The dust is captured within a collection jar or gauge usually over a fixed period of time. They are relatively low cost (less than \$500) but cannot be used for short term measurements of less than a month. This is usually used to determine whether a statutory nuisance is occurring.

### **Total Suspended Particulates**

Total suspended particulates or TSP are the particulates that are suspended within the air at the time of sampling. Air is sucked through a filter which catches the particulates. These samples are usually collected over 24 hours. The monitors are more expensive depending on the type of system and are usually used to determine if a statutory nuisance is occurring.

### **PM<sub>10</sub>**

PM<sub>10</sub> are the particulates within the air that are of 10 microns in diameter. These can be inhaled into the lungs and can cause issues with human health. Sampling methods include passing the air through a Tapered Element Oscillating Microbalance (TEOM) instrument.

### **Complaint Monitoring from the Community**

Consulting with the community at an early stage about the project and the potential timeframes of the work and expected operations can assist in building the relationships with the community. Providing the community with a contact number and/or person for the site also assists should there be any issues arising from the site. This will alert the person in charge of the development site of any occurring problems on site and allow them to be dealt with in a timely manner.

A dust emission control plan is recommended to include how complaints about the site will be managed. All complaints received in relation to the activities on the site should be promptly investigated. This may highlight issues where controls are failing or missing and prompt corrective action to be undertaken. The recording of any complaints, the response and actions proposed should be documented. Providing the complainant with feedback of the investigation is also recommended.

## Site Monitoring Requirements

Depending on the site impact assessment, the following methods of monitoring could be undertaken at a development/ construction site.

### Low Risk Sites

- Keep a log of all complaints
- Provide a site contact telephone number for any complaints
- Promptly investigate and respond to complaints

### Medium Risk Sites

- Keep log of all complaints
- Provide a site contact telephone number for any complaints
- Promptly investigate and respond to any complaints
- If works expected to be longer than 6 months, background dust sampling undertaken
- Monitor the site for dust levels following a complaint (dust deposition & Total Suspended Particulates (TSP))
- Any exceedances to the limit levels should be reported to Council

### High Risk Sites

- Keep log of all complaints
- Provide a site contact telephone number for any complaints
- Promptly investigate and respond to any complaints
- If works expected to be longer than 6 months, conduct background dust sampling
- Set up on-site dust monitoring stations
- Set up off-site monitoring stations
- Monitor the site for dust levels following a complaint (dust deposition & Total Suspended Particulates (TSP))
- Monitor short term dust levels on site
- Monitor off site for possible nuisance at nearby sensitive receptors

## Appendix >>

### 1. Environmental Objectives

The Environmental Protection (Air) Policy provides an air quality objective for Total Suspended Particulates (TSP) as  $90\mu\text{m}^3$  as an annual average. Trigger levels provided by the New Zealand Ministry for the Environment (NZMFE) can be used to compare short term TSP levels to help to determine whether there is a dust nuisance.

| Measure   | Averaging Time | Air Quality Objective or Trigger Value                                 | Comment  | Measurement Method                           | NZMFE Trigger Levels  |
|---|----------------|--|--|--|---|
| <b>Deposition Rate</b>                                  | Month          | $4\text{g}/\text{m}^2/30$ days<br><br>(120mg per square meter per day) | Trigger value – total including background level | AS/NZS 3580.10.1:2003                        |   |
| <b>PM<sub>10</sub> Concentration</b>                    | 24 Hours       | $50\mu\text{g}/\text{m}^3$   | Air quality objective taken from EPP (Air).      | AS/NZS 3580.9.6:2003 or AS/NZS 3580.9.8:2008 |   |
| <b>Total Suspended particulates (TSP) concentration</b> | Year           | $90\mu\text{g}/\text{m}^3$   | Air quality objective taken from EPP (Air).      | AS/NZS 3580.9.3                              | Sensitive area = $80\mu\text{g}/\text{m}^3$ (24hr average)<br>Moderate sensitive area = $100\mu\text{g}/\text{m}^3$ (24hr average)<br>insensitive area = $120\mu\text{g}/\text{m}^3$ (24hr average) |

## 2. Suggested Dust Conditions on Development Approvals

- The development is not permitted to release dust and/or particulate matter beyond the boundary of the development approval site.
- Undertake meteorological monitoring in accordance with AS3580.14-2011: Methods for sampling and analysis of ambient air. Part 14: Meteorological monitoring for ambient air quality monitoring applications.
- Dust deposition should not exceed 120 milligrams per square metre per day (averaged over one month).
- The mitigation methods and controls detailed within the dust emission control plan dated xxxx will be implemented during the life of the development site.
- Any complaints concerning dust received by the developer should be recorded. Details of the date, time and location of the complaint, weather conditions (wind speed and direction), any identified cause and the corrective action taken.
- A copy of the adopted dust emission control plan must be kept on the work site at all times so that it can be viewed by an employee or Council Officer.

### 3. Site Control Method Table

#### Low Risk

- Pre-site Preparation
  - Machinery and dust generating activities should not be located close to boundaries and sensitive receptors.
  - Erect barriers around the dusty activities or the site boundary.
  - No burning of waste should be carried out on site
  - Locate plant and vehicles away from the boundary
  - Keep log of all complaints
- Construction Traffic
  - Wash / clean or use rumble pad to remove excessive dirt and dust from vehicle tyres.
  - All loads securely covered
  - Ensure that there is no runoff from the site
  - Use water or dust suppression surfactants on unpaved roadways
- Site Activities
  - Use water as a dust suppressant when cutting blocks etc.
  - Cover rubbish skips
  - Enclose debris chutes
  - Minimise debris chute heights
  - Regularly damp down surfaces
  - Vacuum waste dust – not sweep
  - Damp down earthworks in dry weather
  - Keep stockpiles for shortest time possible



#### Medium Risk

- **AS LOW RISK PLUS:**
- Pre-site Preparation
  - Place hard surface down for major haul routes
  - No large areas of land to be left without vegetation cover (to prevent windblown dust) at least 70% vegetation cover
  - Regularly inspect and repair haul routes
  - Monitor the site for dust levels following a complaint (dust deposition & Total Suspended Particulates (TSP))
- Construction Traffic
  - Hard surface and clean the haul routes
  - Have appropriate speed limit on site
- Site Activities
  - Cover stockpiles where practicable
  - Keep stockpiles away from boundary, sensitive receptors and watercourse/easements



#### High Risk

- **AS LOW AND MEDIUM RISK, PLUS:**
- Pre-site Preparation
  - Have waste minimisation plan in place.
  - Separate waste types using separate bins/skips
  - Cover waste and store away from sensitive receptors
  - Camber the road to prevent water ponding
- Construction Traffic
  - Place wheel wash at exit to site
  - Ensure that there is no runoff from the site
  - Damp down haul routes at least twice daily (more in dry weather or as monitoring dictates)
- Site Activities
  - Enclose stockpiles within bunkers
  - Keep stockpiles away from boundary, sensitive receptors and watercourse/easements
  - Re-vegetate earthworks or exposed areas to stabilise surfaces
  - Do not reconfigure the whole site at once – do this in stages
  - Use mulch or tackifiers if re-vegetation not possible
  - Position the stockpiles taking into account the predominant wind direction
  - Re-vegetate long term stockpiles
  - Use windbreaks around stockpiles or use vegetation such as trees

#### 4. Dust Emission Control Plan Template

| <b>Dust Emission Control Plan Template</b> |                           |
|--|---------------------------|
| Project Name                               |                           |
|  |                           |
| Details of the Site                        |                           |
| Street Address:                            |                           |
|  |                           |
| Lot of Plan Description:                   |                           |
|  |                           |
| Project Time                               |                           |
| Start Date                                 | End Date                  |
|  |                           |
| Developer/Project Manager                  | Developer Contact Details |
| Name:                                      | Name:                     |
|  |                           |
| Address:                                   | Address:                  |
|  |                           |
| Email:                                     | Email:                    |
|  |                           |
| Phone:                                     | Phone:                    |
|  |                           |
| Responsible Person for the Works           | Dust plan prepared by     |
| Name:                                      | Name:                     |
|  |                           |
| Address:                                   | Address:                  |
|  |                           |
| Email                                      | Email:                    |
|  |                           |
| Phone:                                     | Phone:                    |
|  |                           |
| Summary of Work to be Carried out:         |                           |
|  |                           |

Site Description Including Layout map:

Please include a map to scale showing project boundary, topography etc.

Include:

- Bulk Material Storage Areas
- Roads/haulage Routes and whether paved or unpaved
- Exit / Entry points
- Water Supply positions (for use as dust control)

Site Impact Assessment:

Include:

- Area of the development
- Number of properties to be developed
- Details of nearest sensitive receptors (residential, schools, day care, churches, hospitals etc.)
- Sources of Dust (e.g. demolition, grading, vehicle movements, stockpiles)
- Prevailing weather conditions



|   |  |  |
|---|--|--|
|   |  |  |
| <b>Site Impact Assessment</b>   |  |  |
| <b>Low</b> <input type="checkbox"/>   | <b>Medium</b> <input type="checkbox"/> | <b>High</b> <input type="checkbox"/>               |
| <b>Timetable for Dust Generating Activities</b>   |  | <b>Dust controls/mitigation methods to be used</b> |
|   |  |  |
| <b>Sampling Methods to be Used (if applicable):</b>   |  |  |
| <input type="checkbox"/> Details of any background monitoring to be undertaken<br><input type="checkbox"/> Details of compliance monitoring to be undertaken<br><input type="checkbox"/> Types of Dust monitoring techniques to be used |  |  |
|   |  |  |
| <b>Complaint Procedure:</b>   |  |  |
| Insert details of the complaints procedure including how the complaints will be recorded and actioned.  |  |  |
|   |  |  |

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