

# Construction Air Quality Management Plan

## **Epping to Thornleigh Third Track Alliance**



# Construction Air Quality Management Plan

## Document Control

Title Construction Air Quality Management Plan (AQDMP)

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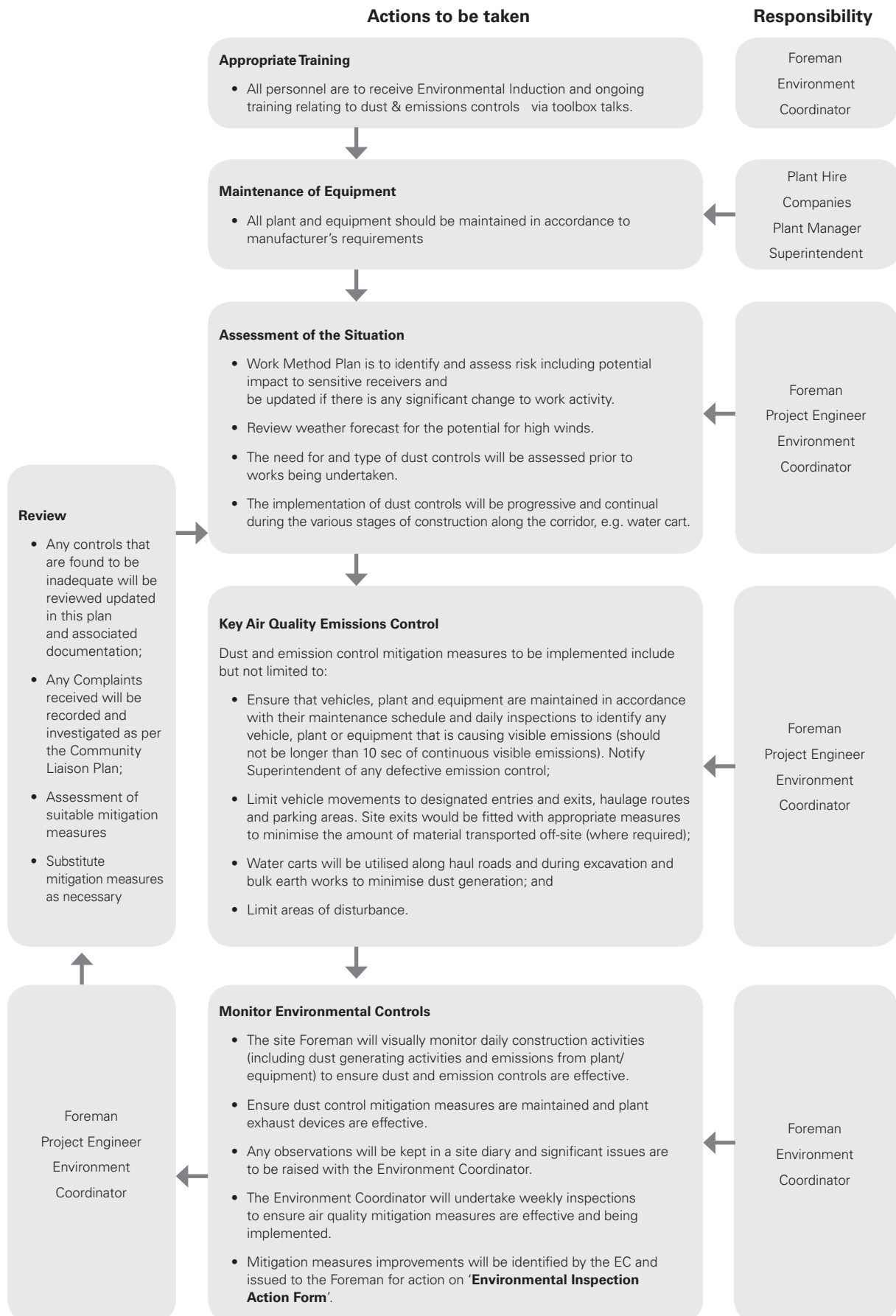
## Details of Revisions

Rev	Date	Description
0	22/05/2013	Initial document submission for TPD review
1	04/06/2013	Updated to reflect draft CoA
2	28/06/2013	Updated to reflect final draft CoA and edited following TPD / EMR review
3	23/07/2013	Updated to reflect project determination
4	21/08/2013	Updated following consultation with Council
5	04/09/2013	Compiled for DP&I Review and Approval
6	24/02/2014	Removal of procedures to central location
7	15/03/2015	Annual review, and updated of Organisation Chart. Incorporate document design changes in-line with Web Content Accessibility Guidelines (WCAG)
8	5/01/2016	Annual review and finalisation of document design changes in-line with Web Content Accessibility Guidelines (WCAG)
9	21/1/16	updated to reflect Organisation Chart, updated document reference in Guidelines and Standards. Formatted document design in-line with Web Content Accessibility Guidelines (WCAG).

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Figure 1 – Construction Air Quality Management Process



# 1 Objective

- To implement measures to ensure any impacts from dust generation and exhaust emissions are minimised during construction and comply with the **Conditions of Approval (CoA) E34 (g) - Construction Air Quality Management Plan, Environment Protection Licence (EPL)** and **TSR E1 requirements**.
- This Plan forms part of the overall Project Construction Environmental Management Plan (CEMP) and addresses the specific CoA, REMMs and other applicable conditions relating to the management of air quality related impacts during construction (refer to **Section 3.1** of the CEMP for further detail).
- The AQDMP will be developed in consultation with Hornsby Shire Council.

## 2 Legislation, Licences, Standards, Planning Instruments and Guidelines Applicable to the Project

- Table 1 below details the legislation, licences, standards, planning instruments and guidelines considered during development of this Plan.

Table 1: Legislation, Licences, Standards, Planning Instruments and Guidelines Applicable to the Project

Legislation / Licences	Standards & Guidelines	Planning Instrument
<ul style="list-style-type: none"> <li>• <i>Environmental Planning and Assessment Act 1979 (EP&amp;A Act)</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>NSW EPA Approved Methods for the Modelling and Assessment of Air Pollutants (August 2005)</i></li> </ul>	<ul style="list-style-type: none"> <li>• Project Planning Approval Dated: 17 July 2013</li> </ul>
<ul style="list-style-type: none"> <li>• <i>NSW Protection of the Environment Operations Act, 1997- Part 5.4 Air Pollution</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>NSW EPA Approved Methods for the Sampling and Analysis of Air Pollutants (January 2007)</i></li> </ul>	<ul style="list-style-type: none"> <li>• Epping to Thornleigh Environmental Impact Statement</li> </ul>
<ul style="list-style-type: none"> <li>• <i>Protection of the Environment Operations (Clean Air) Regulation 2010</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>Australian Standard 3580: Methods for Sampling and Analysis of Ambient Air</i></li> </ul>	<ul style="list-style-type: none"> <li>• Epping to Thornleigh Submission Report and Revised Environmental Mitigation Measures (REMMs)</li> </ul>
<ul style="list-style-type: none"> <li>• <i>Environmental Protection Licence No. 20287</i></li> </ul>	<ul style="list-style-type: none"> <li>• TfNSW Standard Requirements TSR E1 – Environmental Management</li> </ul>	

- Air quality and dust management compliance tracking sheet is provided in **Annexure A**.

### 3 Supporting Procedures, Forms, Checklists and Registers

- Tools that are used to support the implementation of this Plan are detailed within **Table 2** below.

Table 2: Supporting Procedures, Forms, Checklists and Registers Applicable to the Project

Procedure	Form	Checklist	Register
• Weekly Environmental Inspection Procedure	• Environmental Inspection Actions Form	• Weekly Environmental Inspection Checklist	
	• Stop Work Report Form		

- The supporting documents applicable to the management of vibration are provided separately on the TfNSW Website and on the Alliance's "Our Way" management system.

## 4 Process

- Prior to and during construction, the management of air quality and dust impacts will follow the process presented in **Figure 1**.



## 5 Management

- Project mitigation measures and responsibilities associated with air quality and dust management are outlined in **Table 4**. These mitigation measures have been developed from the REMMs, TfNSW Standard Requirements TSR E1 – Environmental Management mitigation measures and to ensure compliance with relevant CoA, legislation and best practice.
- The main potential impacts during construction would be associated with the generation of dust and emissions from the movement and use of on-site machinery and associated vehicular traffic. Anticipated sources of emissions and dust generating activities are detailed in **Table 3** below. Sensitive receivers are identified in **Figure 2**.

**Table 3: Sources of Dust Generation and Emissions during Construction**

Emissions	Potential Sources
Dust	<ul style="list-style-type: none"> <li>• Vehicle and mobile plant movement on paved and unpaved roads, haulage routes, and other work areas</li> <li>• Wind erosion of stockpiles and dried mud tracking roads and other exposed and disturbed areas</li> <li>• Handling and transfer of materials including the loading and unloading of spoil and other materials</li> <li>• Bulk earthwork operations, such as excavation, rock breaking and clearing of vegetation</li> <li>• Demolition of concrete and masonry facilities</li> </ul>
Air Pollutant Emissions	
NO <sub>2</sub> / SO <sub>2</sub> / CO / Benzene / PM <sub>10</sub> , PM <sub>2.5</sub> / TSP	<ul style="list-style-type: none"> <li>• Plant and equipment exhaust emissions generated during construction</li> </ul>

## 6 Monitoring

- Prevailing wind conditions and weather forecast information to be reviewed daily by the Environment Team from the [Bureau of Meteorology](#).
- Documented environmental inspections will be conducted and include monitoring of air quality and dust emissions. Results will be documented using the **Weekly Environmental Inspection Checklist**.
- During construction works, visual inspections will be undertaken by the foreman whom will monitor dust generating activities and / or emissions from plant / equipment and where necessary identify control measures to be implemented to mitigate potential impacts.
- Regular inspections will also be undertaken to assess environmental compliance against regulatory requirements and best practice processes and initiatives as outlined within **Section 8** of the **CEMP**.
- Plant Managers and Subcontractors to ensure that plant & equipment is serviced regularly and log books maintained.



Inspections to identify any vehicle, plant or equipment that is causing visible emissions

## 7 Reporting

- The **Weekly Environmental Inspection Checklist** will be used to ensure that all environmental aspects are reviewed during inspection of the project. Actions arising from the inspections will be recorded on the **Environmental Inspection Actions Form** and each action will be allocated to the foreman for the work area.
- Further reporting will be in line with **Sections 8.4 and 8.6** of the **CEMP**.

## 8 Incidents and Non-Conformances

- Environmental non-conformances for the project will be managed as per the process detailed within Section 8.5 of the CEMP.
- Incidents will be managed as outlined within Section 9 of the CEMP.

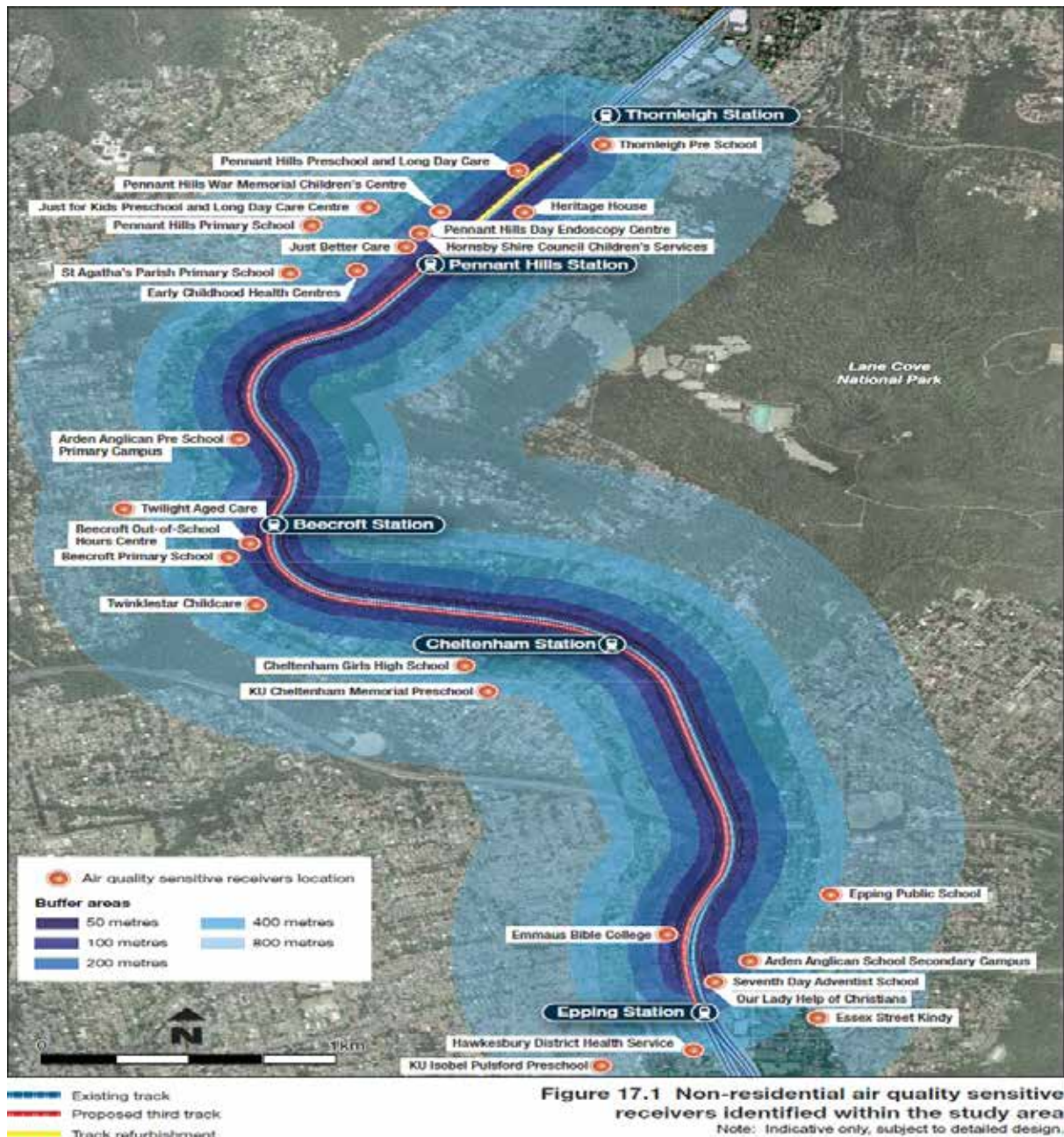


Figure 2 Mitigation Measures non- Residential Air Quality Sensitive receivers

## 9 Review

- A management review of the AQDMP will be undertaken to ensure its continuing suitability, adequacy and effectiveness. Reviews will include assessing opportunities for improvement and the need for changes to the system, including the environmental policy and environmental objectives and targets. The management reviews will occur:
  - On an annual basis to ensure its continuing effectiveness
  - Within 1 month following a major (Class 1) incident
  - Where an audit recommends a review
  - Where there are repeat non conformances and these are not closed out within the agreed timeframe
  - As otherwise determined by the Environmental Manager.



Cover loads on trucks transporting material to and from the construction site



**Table 4 Mitigation Measures**

- Where reasonable and feasible, the following measures will be implemented

No.	Requirement	Mitigation Measure	Timing	Responsibility	Tool
1.	REMMs T.2 TSR E1 8.8 (c)	Prevailing wind conditions and weather forecast information to be reviewed daily by the Environment Team from the <a href="#">Bureau of Meteorology</a> .	Construction	Environment Coordinator	BOM Website / Weekly Environmental Inspection Checklist
2.	REMMs T.2 TSR E1 8.8 (c) CoA E34 (g) (iii)	Weather warnings and strong winds prediction to be reported to the relevant Foreman and Construction Manager. Ceasing works when conditions are excessively dusty until dust suppression can be adequately carried out in accordance with relevant conditions of the project EPL	Construction	Environment Manager Environment Coordinator	BOM Website / Weekly Environmental Inspection Checklist
3.	REMMs T.3 CoA E21	Ensure that vehicles, plant and equipment are maintained in accordance with their maintenance schedule and daily inspections to identify any vehicle, plant or equipment that is causing visible emissions (should not be longer than 10 sec of continuous visible emissions). Notify Superintendent of any defective emission control.	Construction	Foreman Project Engineer Environment Coordinator	Foreman Site Diary / Pre start records / Weekly Environmental Inspection Checklist
4.	REMMs T.3	Ensure plant and equipment is operated in a competent way, turn vehicles off when not in use or idling for long periods of time.	Construction	Foreman Plant Manager Environment Coordinator	Plant maintenance log / Foreman Site Diary / Pre start records
5.	REMMs T.2 TSR E1 8.8 (d) CoA E21	Existing vegetated areas will be kept undisturbed for as long as possible to minimise the potential for dust generation.	Construction	Project Engineer Environment Coordinator	Weekly Environmental Inspection Checklist
6.	REMMs T.2 TSR E1 8.8 (f)	Apply water to exposed surfaces that are causing dust generation. Surfaces may include unpaved roads, stockpiles; hardstand areas other exposed (for example recently graded areas). Spray grass can be applied to stockpiles where reasonable and feasible.	Construction	Foreman Project Engineer	Weekly Environmental Inspection Checklist
7.	REMMs T.2 TSR E1 8.8 (e)	Limit the area and duration of exposed or unconsolidated areas. Ground stabilisation such as application of geo-fabric, sterile cover crops and dust suppressant water additives to prevent dust generation to be undertaken as required.	Construction	Project Engineer Environment Coordinator	Work Method Plan
8.	REMMs T.2 CoA E21	Limit vehicle speeds to 10km/hr along unsealed construction access routes. Prevent where possible, or remove, mud and dirt being tracked onto sealed road surfaces.	Construction	Foreman Project Engineer	Work Method Plan

No.	Requirement	Mitigation Measure	Timing	Responsibility	Tool
9.	REMMs T.2	The site Foreman will visually monitor daily construction activities (including dust generating activities and emissions from plant/equipment) to ensure dust and emission controls are effective. Plant / equipment emissions are to be visually monitored in accordance with NSW EPA Approved Methods for Modelling and Assessment of Air Pollutants. Controls are to be amended until an appropriate mix is identified and that is efficient. Environment Coordinator weekly inspection & checklist will be used to check on issues close out.	Construction	Foreman Environment Coordinator	Foreman Site Diary / Pre start records / Weekly Environmental Inspection Checklist
10.	REMMs T.1 TSR E1 8.8 (b)	Limit vehicle movements to designated entries and exists, haulage routes and parking areas. Site exits would be fitted with hardstand material or other appropriate measures to limit the amount of material transported off-site (where required).	Construction	Foreman Project Engineer	Work Method Plan
11.	CoA E21 CoA E34 (g) (iii)	Activities will be reprogrammed (where possible) during periods of strong winds if they produce excessive wind-blown dust toward sensitive receivers.	Construction	Environment Manager Project Engineer	Work Method Plan
12.	CoA E21 REMMs T.2	Minimise areas of exposed surfaces and stabilise as soon as possible.	Construction	Foreman Project Engineer	Work Method Plan
13.	REMMs T.2 TSR E1 8.8 (a)	Cover loads on trucks transporting material to and from the construction site. Securely fix tailgates of road transport trucks prior to loading and immediately after loading.	Construction	Foreman Project Engineer	Work Method Plan
14.	REMMs T.2 CoA E21	Provide a stabilised base on access points and where required shaker grids or gravel on exit points to avoid tracking dirt onto local roads.	Construction	Foreman Project Engineer	Work Method Plan
15.	CoA E34 (g) (iv)	The weekly environmental inspections will be conducted by the Environmental Co-ordinator and recorded on the <b>Weekly Environmental Inspection Checklist</b> . Any actions will be raised on the <b>Environmental Inspection Actions Form</b> and issued to the relevant Foreman for actioning within a defined period as determined by the Environmental Co-ordinator.	Weekly during Construction	Environmental Co-ordinator / Foreman	Weekly Environmental Inspection Checklist / Environmental Inspection Actions Form
16.	REMMs T.2	Relevant erosion and Sediment control plans will be prepared and will cover stockpiles and their relevant controls.	Construction	Foreman Project Engineer	ESCP

# Annexure A – Air Quality and Dust Management Plan Compliance Tracking Sheet

CoA

Area	No.	Sub	Requirement	Where Addressed?
AIR QUALITY	E21.		The SSI shall be constructed in a manner that minimises dust emissions from the site, including wind-blown and traffic-generated dust and tracking of material onto public roads. All activities on the site shall be undertaken with the objective of minimising visible emissions of dust from the site. Should such visible dust emissions occur at any time, the Proponent shall identify and implement feasible and reasonable dust mitigation measures, including cessation of relevant works, as appropriate, such that emissions of visible dust cease.	Implementation of the Construction Air Quality and Dust Management Sub Plan (This Plan)
CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN	E33.		Prior to the commencement of construction, or as otherwise agreed by the Director General, the Proponent shall prepare and implement (following approval) a Construction Environmental Management Plan for the SSI. The Plan shall outline the environmental management practices and procedures that are to be followed during construction, and shall be prepared in consultation with the relevant government agencies and Council(s) in accordance with the <i>Guideline for the Preparation of Environmental Management Plans</i> (DIPNR, 2004). The Plan shall include, but not necessarily be limited to:	ETTT CEMP
		(e)	details of how environmental performance would be managed and monitored to meet acceptable outcomes, including what actions will be taken to address identified potential adverse environmental impacts (including any impacts arising from the staging of the construction of the SSI). In particular, the following environmental performance issues shall be addressed in the Plan:	ETTT CEMP
		(viii)	air quality and dust;	Section 7.2 of the ETTT Construction Environmental Management Plan and this Construction Air Quality and Dust Management Plan (AQDMP)
CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN	E34.	(g)	a Construction Air Quality Management Plan to detail how construction impacts on air quality will be minimised and managed. The Plan shall be developed in consultation with relevant Councils and shall include, but not necessarily be limited to:	This AQDMP
		i.	the identification of potential sources of dust;	AQDMP – Table 3 Sources of Emissions and Dust Generation during Construction



Area	No.	Sub	Requirement	Where Addressed?
		ii.	dust management objectives;	AQDMP - Section 1 Objective
		iii.	management and mitigation measures to be implemented, including measures during weather conditions where high level dust episodes are probable (such as strong winds in dry weather);	AQDMP Table 4 Mitigation Measures
		iv.	a monitoring program to assess compliance with the identified objectives;	AQDMP Section 6 Monitoring AQDMP Table 4 Mitigation Measures No. 15
		v.	mechanisms for the monitoring, review and amendment of this plan.	AQDMP Section 9 Review

## REMMs

Area	No.	Sub	Requirement	Where Addressed?
Air quality	T.1		Limit vehicle movements to designated entries and exits, haulage routes and parking areas. Site exits would be fitted with hardstand material or other appropriate measures to limit the amount of material transported off-site (where required).	AQDMP Table 4 Mitigation Measures No. 10
	T.2		Visually monitor dust and where necessary implement the following measures:	AQDMP Figure 1
			- Apply water to exposed surfaces that are causing dust generation. Surfaces may include unpaved roads, stockpiles, hardstand areas and other exposed surfaces (for example recently graded areas).	AQDMP Table 4 Mitigation Measures No. 6
			- Cover loads on trucks transporting material to and from the construction site. Securely fix tailgates of road transport trucks prior to loading and immediately after unloading.	AQDMP Table 4 Mitigation Measures No. 13
			- Prevent where possible, or remove, mud and dirt being tracked onto sealed road surfaces.	AQDMP Table 4 Mitigation Measures No. 8
			- Limit vehicle speeds along unsealed construction access routes.	AQDMP Table 4 Mitigation Measures No. 8
			- Limit the area and duration of exposed or unconsolidated areas. For example, stage vegetation stripping or grading where possible, cover unconsolidated stockpiles, or apply hydro mulch or other revegetation applicant to stockpiles or surfaces left standing for extended periods.	AQDMP Table 4 Mitigation Measures No. 5, 12
			- Promote and maintain awareness of weather forecasts to support anticipation of unfavorable conditions.	AQDMP Table 4 Mitigation Measures No. 1, 2
	T.3		Ensure plant and machinery is regularly checked and maintained in a proper and efficient condition.	AQDMP Table 4 Mitigation Measures No. 3

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