

Construction Air Quality Management Plan

Moorebank Precinct East Stage 1 – RALP No. 1

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Document Control

The Project Director is responsible for ensuring that this plan is reviewed and approved. The Environment Manager is responsible for updating this plan to reflect changes to legal and other requirements, as required.

Amendments

Any revisions or amendments must be approved by the Project Director before being distributed / implemented.

Revision Details

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A	Initial draft for SIMTA review
B	Updated to address SIMTA comments
C	For SIMTA's second review
D	Update to address final CoAs and for Consultation
E	For submission to DP&E. Updated to address stakeholder consultation and ER review comments.
F	Updated in response to comments from DP&E
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Construction Air Quality Management Plan

1. Overview

1.1 Purpose

This Construction Air Quality Management Plan (CAQMP) addresses air quality management on Sydney Intermodal Terminal Alliance's (SIMTA) Moorebank Precinct East (MPE) Stage 1 – Rail Access Land Package (RALP) No. 1 (the Project, the Rail Link) and the management of impacts to the environment and community.

This CAQMP addresses the following key requirements:

- Services Agreement – Schedule 5 Principal's Project Requirements
- Conditions of Approval under SSD-6676 SIMTA Intermodal Terminal Facility – Stage 1 (NSW)
- Stage 1 EIS (including Framework CEMP)
- Stage 1 Response to Submissions Report (including Final Compilation of Mitigation Measures)
- Conditions of Approval under MP10_0193 SIMTA Moorebank Intermodal Terminal Facility – Concept Plan (NSW)
- NSW Concept Plan EIS
- NSW Concept Plan Submissions Report (including Revised Statement of Commitments)
- Conditions of Approval under EPBC 2011/6229 SIMTA Intermodal Terminal (Commonwealth)
- Commonwealth Concept Plan EIS (including Framework CEMP)
- Other applicable legislative obligations
- Address the requirements of the EPL

1.2 Project Scope

SIMTA's MPE Stage 1 Development involves the construction and operation of the necessary infrastructure to support a container freight road volume of 250,000 twenty-foot equivalent units (TEU).

CPB Contractors' scope of work specifically applies to MPE Stage 1 – RALP No. 1 which consists of a 2.8 kilometre rail line, along with its required infrastructure, to connect the Import-Export Terminal and Interstate Terminals to the Southern Sydney Freight Line (SSFL), and capable of accommodating trains up to 1,800m in length.

The SIMTA site is located in the Liverpool local government area. It is 27 kilometres south-west of the Sydney Central Business District (CBD), 26 kilometres west of Port Botany, 16 kilometres south of the Parramatta CBD, 0.6 kilometres from the M5 South-West Motorway, five kilometres east of the M5 South-West Motorway / Westlink M7 Motorway Interchange, and connecting to the main north-south rail line via the Southern Sydney Freight Line.

The RALP No. 1 is the first package of Stage 1 of the overall MPE project and its construction will include:

- A northbound connection and a southbound connection to the SSFL
- Civil and earthworks, including remediation works and benching
- A Reinforced Earth Embankment (RE-Wall) through a section of the Glenfield Waste Services landfill site
- A bridge over the Georges River
- A culvert crossing over Anzac Creek
- Installation of new Moorebank Avenue Overbridge
- Service relocation and protection
- Track work
- Signalling systems
- Security fencing

An indicative map of the Project is provided in Figure 1 below.

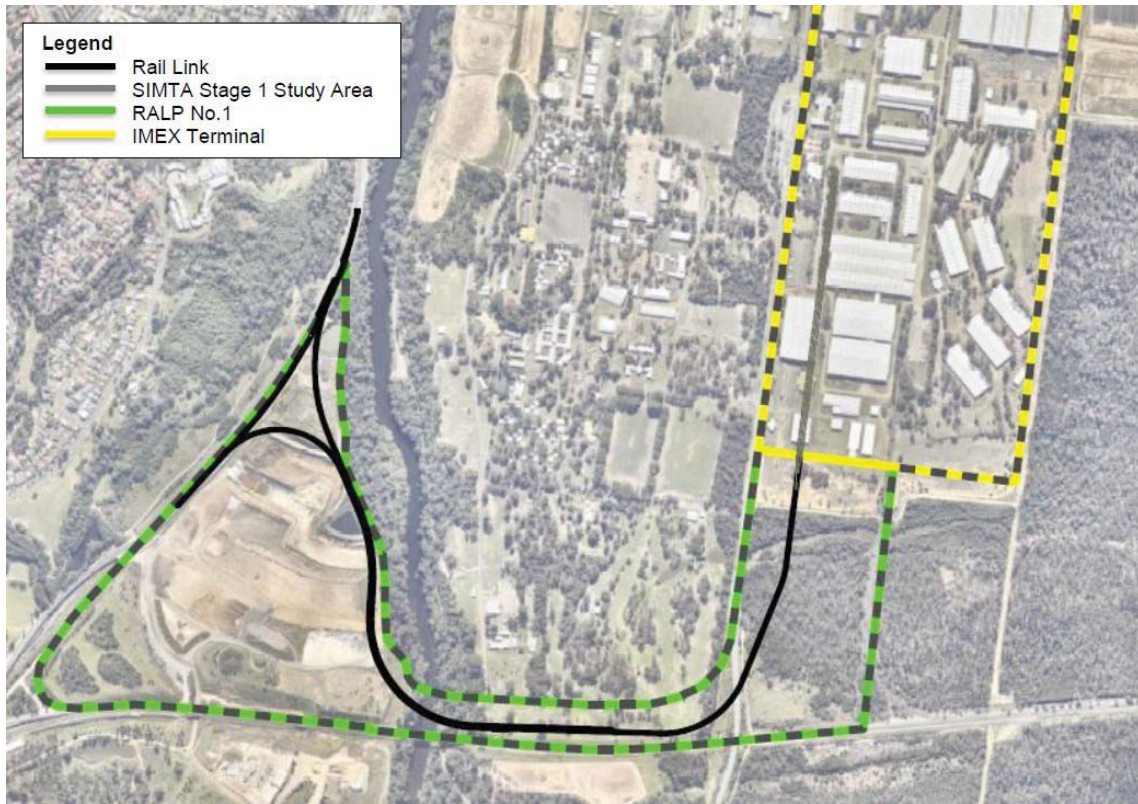


Figure 1: Indicative Project Map

1.3 Objectives & Performance Indicators

The following air quality management objectives and performance indicators will apply to the construction of the Project.

1.3.1 Objectives

- Minimise air pollution from construction activities
- Minimise the area exposed to wind erosion
- Control the generation of dust
- Avoid adverse effects of the Project on the amenity of local residents and sensitive land uses
- Completing rehabilitation progressively and as quickly as possible
- Limit community complaints and environmental impacts related to dust generation.

1.3.2 Key Performances Indicators

The following table lists the proposed KPI for the project

Table 1: Key Performance Indicators

Aspect	KPI	Documentation
Community Management	No dust related complaints (due to the project)	Complaints Database
Plant and Equipment	All plant and equipment is maintained in accordance with manufacturer's requirements	Plant and equipment log books
Exposed surface treatment	Vegetation clearing less than (or equal to) the designated footprint	Design report Survey
Monitoring	Dust monitoring (visual) performed weekly Dust deposition monitoring results below criteria (if required)	Weekly Environment Inspection Report Air Quality Monitoring Record
Vehicle movements	Spillage or tracking onto public roadways will be removed within 24hrs	Environmental Inspection Checklist Site Diary

1.4 Definitions

Definitions for terms used in this plan are contained in the Glossary in Attachment B.

1.5 Interactions with Other Management Plans

This CAQMP is part of the Construction Environmental Management Plan (CEMP). Figure 2 below sets out interactions of this CAQMP with the other management plans implemented on the Project.

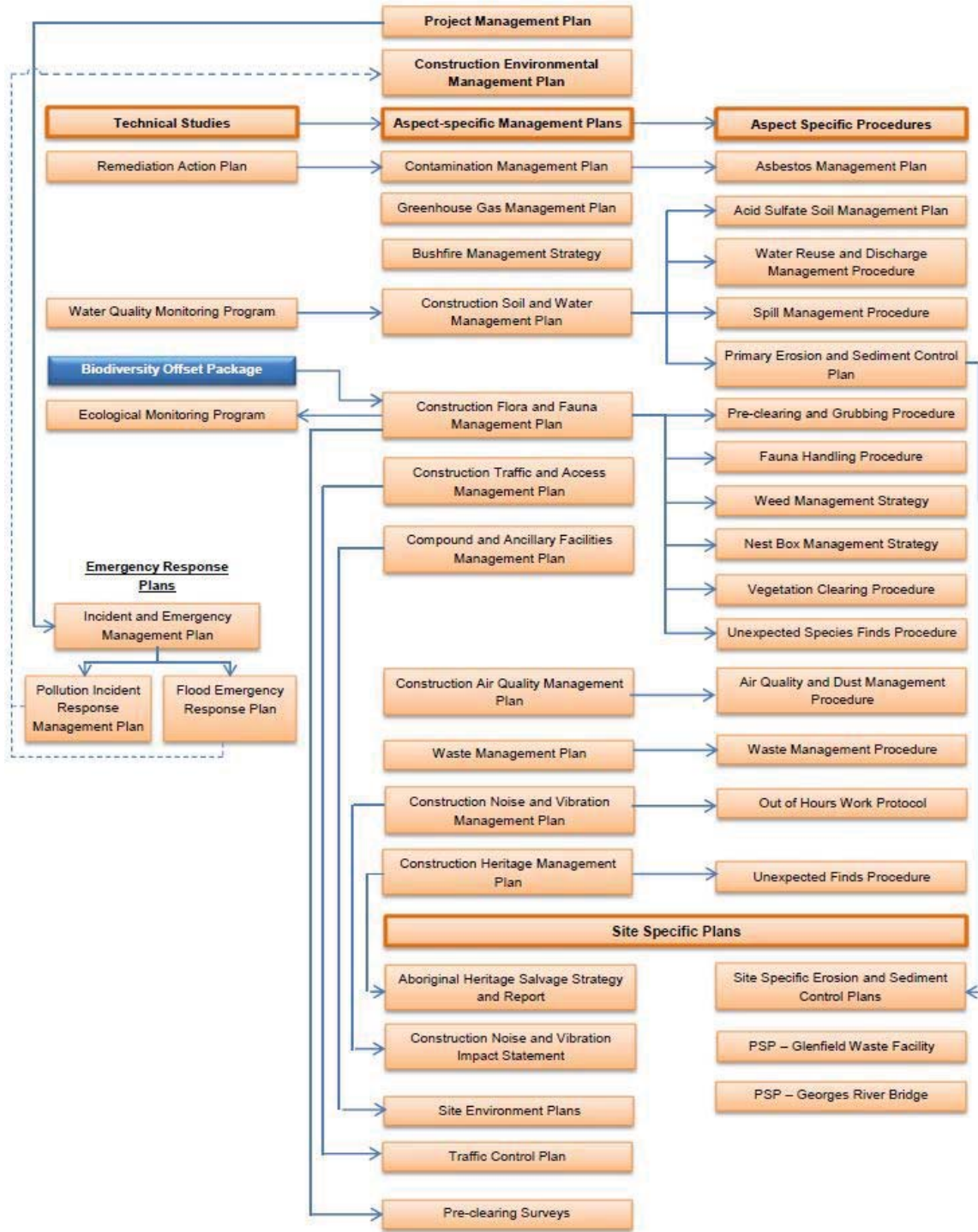


Figure 2: Environmental Documents Map

2. Legal and Other Requirements

2.1 Compliance Requirements

A compliance matrix against the relevant air quality Condition of Approvals and other project requirements is included in Attachment A.

2.2 Relevant Legislation

The *Protection of the Environment Operations Act 1997* (POEO Act) provides the statutory framework for managing air emissions in NSW and is managed by the EPA. It is supported by:

- The Protection of the Environment Operations (Clean Air) Regulation 2010, which provides regulatory measures to control emissions from wood heaters, open burning, motor vehicles and fuels and industry
- The Protection of the Environment Operations (General) Regulation 2009, which includes an outline of a Load-based licensing scheme that provides economic incentives for EPA-licensed premises to reduce air and water pollution.

The POEO Act defines air pollution to mean the emission into the air of any air impurity, which includes smoke, dust (including fly ash), cinders, solid particles of any kind, gases, fumes, mists, odours and radioactive substances.

Construction activities during the Project will be effectively managed to ensure CPB Contractors complies with the air quality goals outlined in the POEO Act and specific EPA regulations and guidelines.

The Environment Protection Licence (EPL) under the POEO Act for the construction of the Rail Link includes a number of conditions relevant to the management of air quality. These are detailed in Attachment A and are addressed throughout this Plan.

2.3 Guidelines

Additional guidelines and standards relating to the management of air quality include:

- National Environment Protection Council 2016 – Ambient Air: National Environment Protection Measure for Ambient Air Quality
- NSW EPA 2006 – Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales
- DECC June 2007 – Local Government Air Quality Toolkit, Visual Guide: Dust from urban construction sites
- AS3580.10.1 2003 Methods for sampling and analysis of ambient air – Determination of particulates – Deposited matter – Gravimetric Method
- AS3580.9.3-2015 Methods for sampling and analysis of ambient air Method 9.3: Determination of suspended particulate matter—Total suspended particulate matter (TSP)—High volume sampler gravimetric method
- National Environment Protection Measure (NEPM) (Diesel Vehicle Emissions)
- EPA's Smoky Vehicles Program under the NSW *Protection of the Environment and Operations Act 1997* and NSW Protection of the Environment and Operations Regulations 2010.

2.4 Additional Permits and Licences

Environment Protection Licence requirements are identified in Attachment A.

No additional permits or licences are expected to be required in relation to the management of air quality on the Project.

3. Consultation and Stakeholders

3.1 Consultation on this Plan

The Stage 1 Conditions of Approval (CoA) require that the CAQMP be prepared in consultation with the EPA.

Further, this CAQMP as a Sub Plan to the CEMP is required to be approved by Department of Planning and Environment (DP&E) prior to construction as required by the CoA.

Consolidated management plan consultation and approval requirements are identified in the CEMP.

This consultation is intended to assist in development and finalisation of the plan. Evidence of consultation is included in Attachment C.

Table 2 summarises relevant stakeholder comments as well as CPB Contractors' response including how we will address issues raised.

Table 2: Summary of Consultation

Agency	Status	Document Reference	Stakeholder Comments	CPB Response
EPA	Provided advice on 19/01/2017	N/A	EPA advised that they did not wish to comment	N/A

4. Roles and Responsibilities

4.1 Key Personnel

The role titles and responsibilities that are used in this plan are outlined in Table 3 below. These are designed to complement the roles and responsibilities in the CEMP.

Table 3: Roles and Responsibilities

Role	Responsibilities
Project Director	<ul style="list-style-type: none"> ■ Manage the delivery of the Project works including overseeing the implementation of environmental management plans and policies, relevant to air quality management and dust controls ■ Consider and advise senior management on compliance obligations. ■ Authority to recommend reasonable steps to manage adverse impacts. Authority to recommend cessation of activities on-site. ■ Act as Contractor's Representative and report on any environmental incidents
Environment Manager	<ul style="list-style-type: none"> ■ Responsible for managing compliance with CoA and environmental document requirements ■ Oversee the implementation of all air quality management initiatives ■ Monitor and report on air quality management during construction
Environmental Coordinator	<ul style="list-style-type: none"> ■ Monitor on site construction activities to minimise air quality impacts ■ Review weather forecast daily for potential high winds ■ Advise site personnel with regards to on-ground application of air quality management measures (e.g. dust control)
Environmental Representative	<ul style="list-style-type: none"> ■ Responsible for checking compliance with the mitigation measures and safeguards documented in CEMP, this Sub Plan and associated environmental documentation (Procedures, Work Packs, etc). ■ Oversee the environmental performance of the project, including those controls to manage air quality, for the duration of construction ■ Reports to regulators and stakeholders.
Engineering Manager	<ul style="list-style-type: none"> ■ Ensure that relevant air quality management requirements are considered in procuring materials and services
Construction Manager	<ul style="list-style-type: none"> ■ Manage the delivery of the construction process, in relation to air quality management across all sites in conjunction with the Environment Manager ■ Manage the impacts of vehicle, plant and equipment emissions ■ Coordinate work fronts to minimise extent exposed to dust erosion
Project Engineer	<ul style="list-style-type: none"> ■ Manage the delivery of the construction process, in relation to air quality management across all sites in conjunction with the Environment Manager ■ Manage the impacts of vehicle, plant and equipment emissions ■ Coordinate work fronts to minimise extent exposed to dust erosion ■ Implement air quality management activities during construction works
Supervisor	<ul style="list-style-type: none"> ■ Monitor on site construction activities to minimise air quality impacts ■ Modify construction activities according to air quality impact risks
Communications Manager	<ul style="list-style-type: none"> ■ Manage any air quality or dust complaints in association with the Environmental Manager using with the complaints handling process detailed in the Community Communication Strategy
Specialist consultants	<ul style="list-style-type: none"> ■ Specialist consultants will be engaged to undertake investigations, modelling, and specialised monitoring where required

Key environmental responsibilities are detailed throughout each Element in Part B of the CEMP.

4.2 Training

All personnel working on site will undergo site induction training relating to construction air quality management. The induction training will address elements related to air quality management including:

- Air pollution avoidance/ control measures to be implemented
- Dust monitoring
- Changes in risk due to seasonal weather
- Modification of work practices following excessive dust generation

Targeted toolbox talks or pre-starts will also be prepared as required should construction practises be generating greater volumes of dust than anticipated. This may include general reiteration of site rules such as vehicle speed limits or sequencing of works to ensure vegetation is maintained as long as practicable.

5. Existing Environment

5.1 Local Meteorological Conditions

As detailed in the Stage 1 EIS (May, 2015), the monthly mean minimum temperatures for the project area are in the range of 5°C to 18°C, with monthly mean maxima of 17°C to 28°C, based on the long-term average record from the BoM Bankstown Airport AWS. Higher temperatures are recorded between November and March, with January typically having the highest temperature. The lowest temperatures are usually experienced between May and September, while July is the coldest month with a mean maximum of 17.2°C.

Based on historical data (recorded since 1968 at Bankstown Airport), the region is characterised by moderate rainfall, with a mean annual rainfall of 870 mm, and an annual rainfall range of between 493 mm and 1,398 mm. There is significant variation throughout the year, with the summer and autumn months typically experiencing higher falls than the remainder of the year. Rainfall data show that February is typically the wettest month with a mean rainfall of 108.5 mm over 11.0 rain days.

Seasonal variation in wind speed and direction is evident with the dominant southwest to westerly component most evident in the autumn, winter and spring months, while an easterly flow is evident in summer months. Wind speed is greatest during summer and spring, with the incidence of calm periods being higher in autumn and winter. The average recorded wind speed for 2013 was 1.8 m/s, with a frequency of calm conditions (wind speeds less than 0.5 m/s) occurring approximately twelve percent of the time. Diurnal variation occurs, with wind speeds greatest during the day, with a dominant easterly flow occurring between midday and late afternoon and lower wind speeds in the evening and nights, with the south westerly component becoming the dominant wind direction.

The diurnal profile of atmospheric stability shows that instability increases during daylight hours as convective energy increases and stable atmospheric conditions prevail during the night-time. This means that the potential atmospheric dispersion of emissions is greatest during the day and lowest during the night.

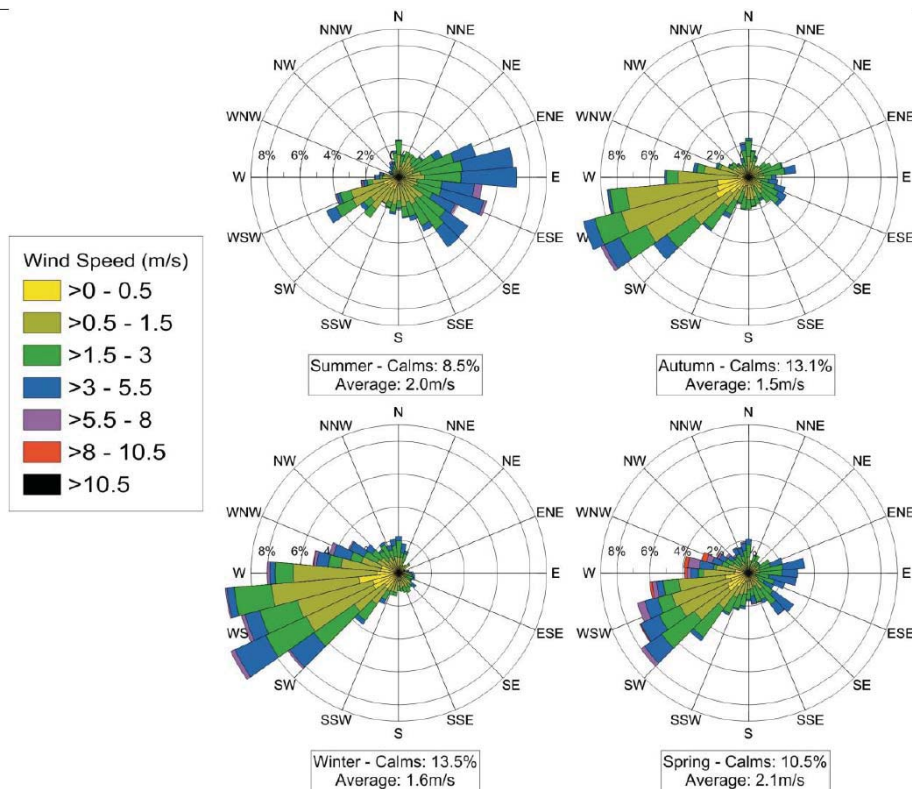


Figure 3: Seasonal Wind Rose (Source: Stage 1 EIS (Appendix M), May 2015)

5.2 Location of Sensitive Receivers

The nearby residential and sensitive receivers within close proximity to the overall Stage 1 Project are shown in Figure 4. This identified 38 receptors and those closest to the rail link works are R6 (Leacocks Lane, other side of SSFL) and R10 in Goodenough Street.

It is noted that previously identified sensitive receivers in the Commonwealth EIS, DNSDC and SME, have been relocated further away from the Stage 1 construction works. Construction air quality impacts on these locations were predicted in the EIS to be low and are now expected to be lower. The new DNSDC site can be seen in Figure 5 to the north-east of the site, while the SME has been relocated further away to the east in Holsworthy.

5.3 Existing Pollutant Sources

A number of potential air quality pollutant sources in the area will influence the local air shed to varying degrees, including, but not limited to:

- Traffic emissions from the wider road network including the South Western Motorway (M5).
- Emissions from diesel locomotives using the Southern Sydney Freight Line (SSFL) and the East Hills rail line.
- Existing commercial and industrial facilities including the Greenhills Industrial Estate and Moorebank Business Park to the north.
- The Glenfield Waste Facility to the southwest of the site.
- Emissions from aircraft at Bankstown Airport to the northeast.

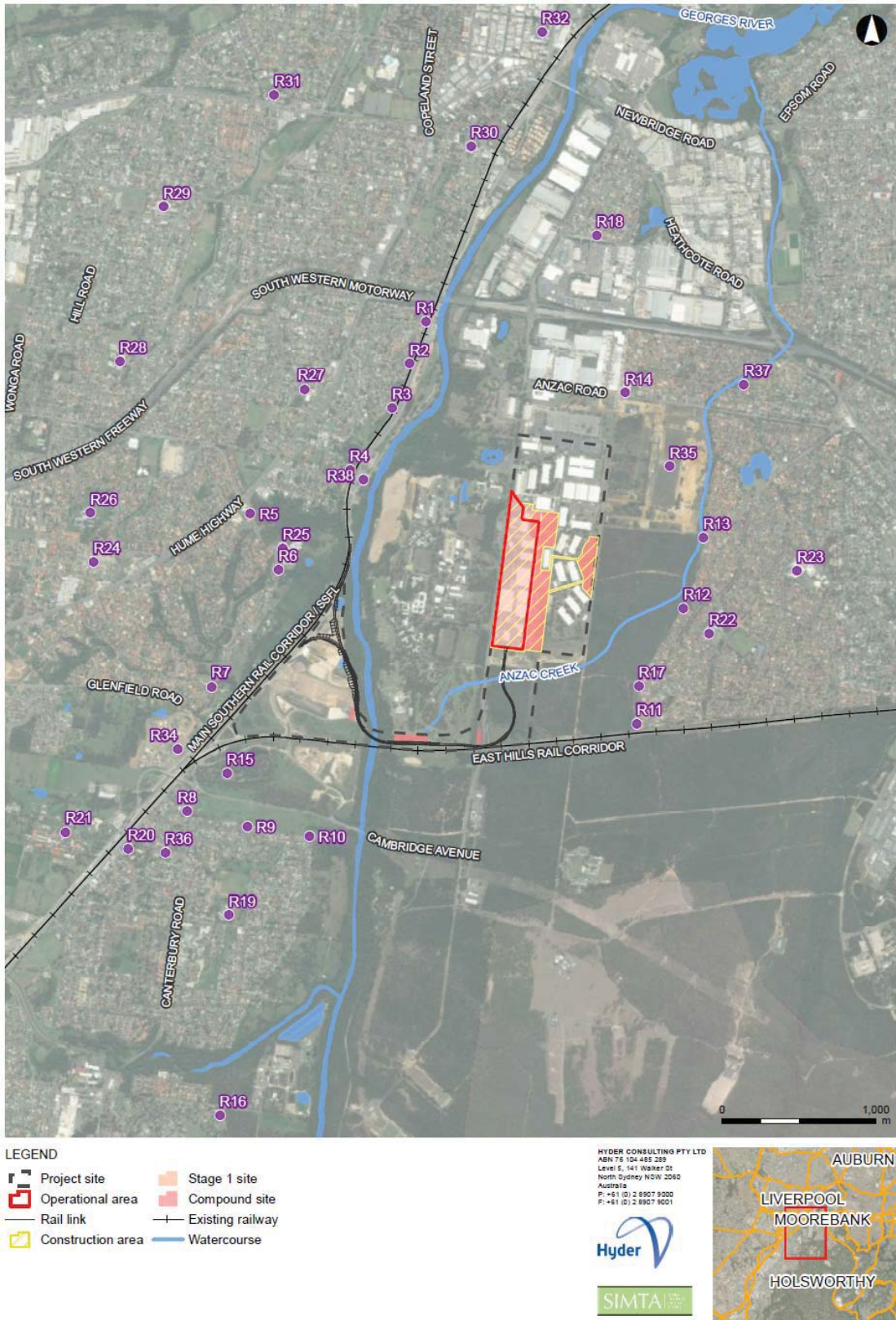


Figure 4: Sensitive Receptor Assessment Locations (Source: Stage 1 EIS)

5.4 Existing Air Quality

Data from the OEH Liverpool Station was analysed to determine the existing ambient air quality within the vicinity of the Project works. This review indicated:

- The annual average PM₁₀ concentration at the OEH Liverpool station was below the NSW EPA criterion of 30 µg/m³. Three exceedances of the NSW EPA criterion of 50 µg/m³ were experienced during 2013, most likely attributable to bushfire events in the Greater Sydney Metropolitan Region between September and November 2013.
- The annual average PM_{2.5} concentration during 2013 was 9.4 µg/m³, an exceedance of the NEPM advisory reporting goal of 8 µg/m³. Two short term exceedances of the NEPM goal were recorded during 2013, attributed to hazard reduction burns (late April 2013) and bushfire events in September and November 2013. The median PM_{2.5} concentration in 2013 (8.1 µg/m³) is less than the mean; however, remains slightly higher than the NEPM advisory reporting goal.
- Nitrogen dioxide data indicated that for the majority of the year (>95 percent) the ambient concentrations are less than 20 percent of the air quality goal.
- Carbon monoxide data indicate that ambient concentrations of CO are generally very low and for the majority of the year (>90 percent) are less than ten percent of the air quality goal.
- The maximum 1-hour average ozone concentration was 0.15 parts per million (ppm) and for the 4-hour averaging period the maximum concentration as 0.09 ppm. The ozone concentrations display seasonal variation, with the higher concentrations observed during the summer months.

Over the past 10 years, there were no exceedances of the criteria recorded for NO₂, CO or SO₂. The data indicates that the most significant air quality issues for the local region relate to particulate matter, mainly associated with PM_{2.5}, and ozone (O₃).

The existing background air quality surrounding the Project site for key pollutants is summarised in Table 4. These background levels will be the adopted background levels during construction.

Table 4: Background Air Quality

Pollutant	Averaging period	Adopted background concentration	Source / notes
TSP	Annual	42.6 µg/m ³	Derived from OEH Liverpool 5 Year Average (2009-2013) for PM ₁₀ and a PM ₁₀ /TSP ratio of 0.47
PM ₁₀	24-hour	Daily varying	OEH Liverpool 2013
PM _{2.5}	Annual	20.4 µg/m ³	OEH Liverpool 5 Year Average (2009-2013)
	24-hour	Daily varying	2013 OEH Liverpool
Dust Deposition	Annual	7.6 µg/m ³	OEH Liverpool 5 Year Average (2009-2013)
	Annual	1 g/m ² /month	Based on monitoring presented in MIC EIS
NO ₂	1-hour	Hourly varying	OEH Liverpool 2013
SO ₂	Annual	22.7 µg/m ³	
	1-hour	34.3 µg/m ³	2013 max 1 hour OEH Chullora
	24-hour	8.9 µg/m ³	2013 max 24 hour OEH Chullora
CO	Annual	1.9 µg/m ³	OEH Chullora
	1-hour	5 mg/m ³	2013 max 1 hour OEH Liverpool
	8-hour	2.25 mg/m ³	2013 max 8 hour OEH Liverpool

Note: Concentrations converted from ppb or ppm to µg/m³ assuming 0°C and 1 atmosphere

6. Aspects and Potential Impacts

6.1 Dust Generating Activities, Hazards and Risks

Activities conducted on the project that have the potential to impact air quality are listed below.

Table 5: Dust Generating Activities, Hazards and Risks

Project Activity	Environmental Hazards	Environmental Risk
Worksite establishment	<ul style="list-style-type: none"> ■ Clearing, grubbing and stropping of vegetation ■ Wind erosion of exposed surfaces and stockpiles 	<ul style="list-style-type: none"> ■ Reduced air quality in the surrounding area ■ Dust generation ■ Particulate matter generation
Earthworks	<ul style="list-style-type: none"> ■ Operation of plant on exposed surfaces ■ Loading/unloading trucks with spoil and aggregate ■ Excavation in/around Glenfield Waste Facility 	<ul style="list-style-type: none"> ■ Reduced air quality in the surrounding area ■ Wheel generated dust from vehicular traffic on unsealed roads and work site access points ■ Particulate matter generation ■ Odour generations from waste facility
Spoil handling, storage and transport	<ul style="list-style-type: none"> ■ Spoil stockpiles ■ Spoil haulage around construction site & unsealed roads 	<ul style="list-style-type: none"> ■ Reduced air quality in the surrounding area ■ Dust generation ■ Particulate matter generation
Plant and vehicle movement and emission	<ul style="list-style-type: none"> ■ Operation of construction vehicles and plant ■ Other activities set out above 	<ul style="list-style-type: none"> ■ Wheel generated dust emission from construction plant and other vehicles. ■ Vehicle emissions

These activities have the potential to produce dust impacts off-site and are to be the main aspects for control. Overall, however, it is expected that dust impacts will reduce on completion of the initial earthworks and vegetation clearing and should be substantially reduced for the remainder of the Rail Link project.

Stockpiles will be confined to the construction footprint outlined in Appendix F to the CEMP (Environmental Constraints Maps). Stockpiles will be mobile as construction progresses however will be managed as per the CSWMP and kept away from water courses and flow paths to minimise the risk to sensitive receivers. Stockpiles will be managed in accordance with the Blue Book and site specific progressive erosion and sediment control plans (PESCP), which are approved by the projects soil conservationist to ensure compliance with the Blue Book.

In addition to dust related sources, other sources of air quality impact include:

- Operation of plant and vehicles, generating exhaust emissions
- Odours and gases released during excavations of within or near the Glenfield Waste Facility.

Figure 5 below shows the indicative locations of stockpiles. These are subject to change as construction progresses.

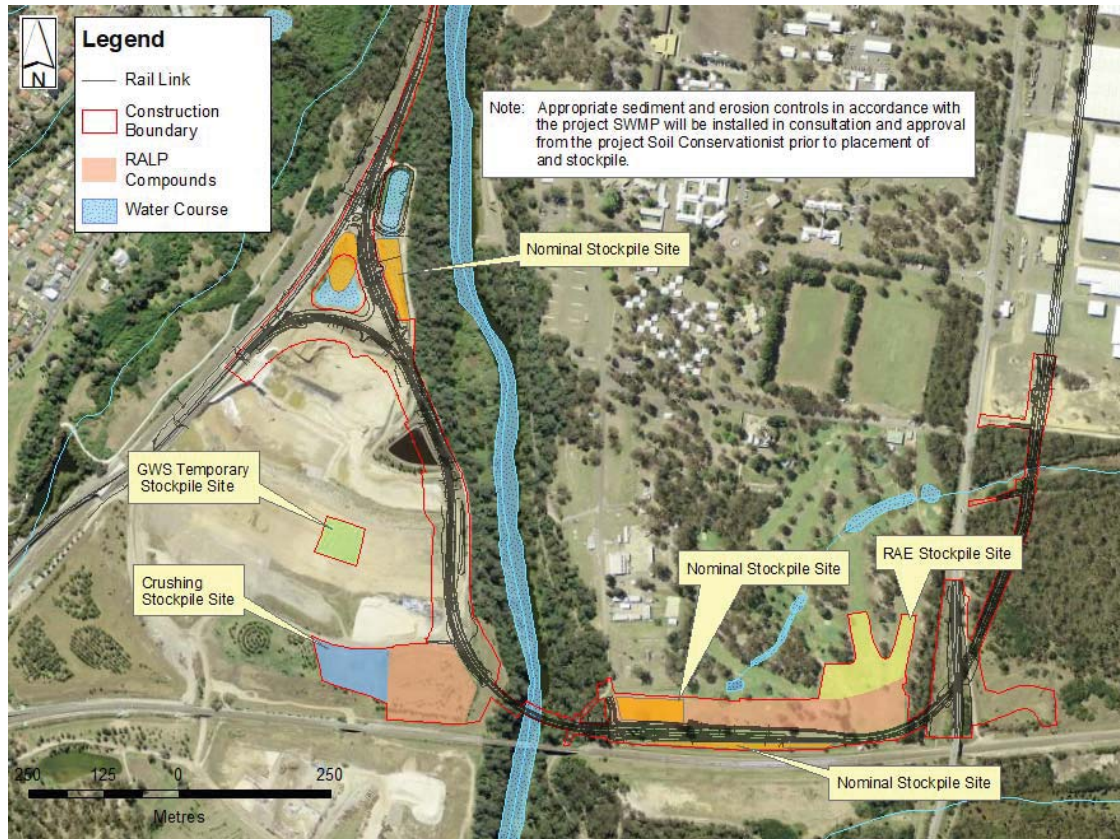


Figure 5: Indicative stockpile locations

6.2 Dust Emission Estimates

Emissions to air associated with construction of the whole Project, of which the Rail Link is a component, were estimated for the key dust generating activities as part of the Stage 1 EIS. These are summarised in Table 6.

Table 6: Construction Phase Emissions Estimate (kg/annum)

Source / Activity	TSP	PM ₁₀	PM _{2.5}
Works period 1 – Site Preparation Activities	11,260	2,597	1,293.5
Works period 2 – Earthworks, Drainage and Utilities	30,015	8,102.2	2,930.2
Works period 3 – Engineering fill	21,201.6	7,700.9	4,186.3
TOTAL	62,476	18,400	8,410

(Source: SIMTA Intermodal Terminal Facility – Stage 1 EIS, Hyder Consulting)

These dust estimates assumed that water carts would operate on unsealed travel routes and areas where scrapers and graders operate. Considering these values relate to the whole intermodal facility Project, any emissions associated with the Rail Link would be significantly less.

6.3 Dispersion Modelling

Dispersion modelling was also undertaken to determine the distribution of air quality impacts associated with the construction works within the local air shed. Dispersion modelling was undertaken using AERMOD modelling system, which is the US EPA’s recommended steady-state plume dispersion model for regulatory purposes.

Figure 6 shows the incremental ground level concentration of TSP attributable to the whole Stage 1 Project (of which Rail Link is a component).

The modelling results indicate that the construction phase of the Project complies with all relevant impact assessment criteria. Further, the predicted increase in annual average PM₁₀ (0.4 µg/m³), PM_{2.5} (0.2 µg/m³), TSP (0.5 µg/m³) and dust deposition (0.1 g/m²/month) are considered minor, when compared against existing background conditions. The highest predicted short-term impacts occur at Wattle Grove with a maximum 24-hour PM₁₀ of 2.1 µg/m³ and maximum 24-hour PM_{2.5} of 1.4 µg/m³. The cumulative impact assessment results indicate that construction of the Proposal would result in no additional days over the criteria.

Accordingly, the Preliminary Air Quality Management Plan, prepared as part of the Stage 1 EIS (Appendix M) notes that during Construction, dust monitoring would involve daily visual checks only for dust generation, water cart activity and dust leaving site.

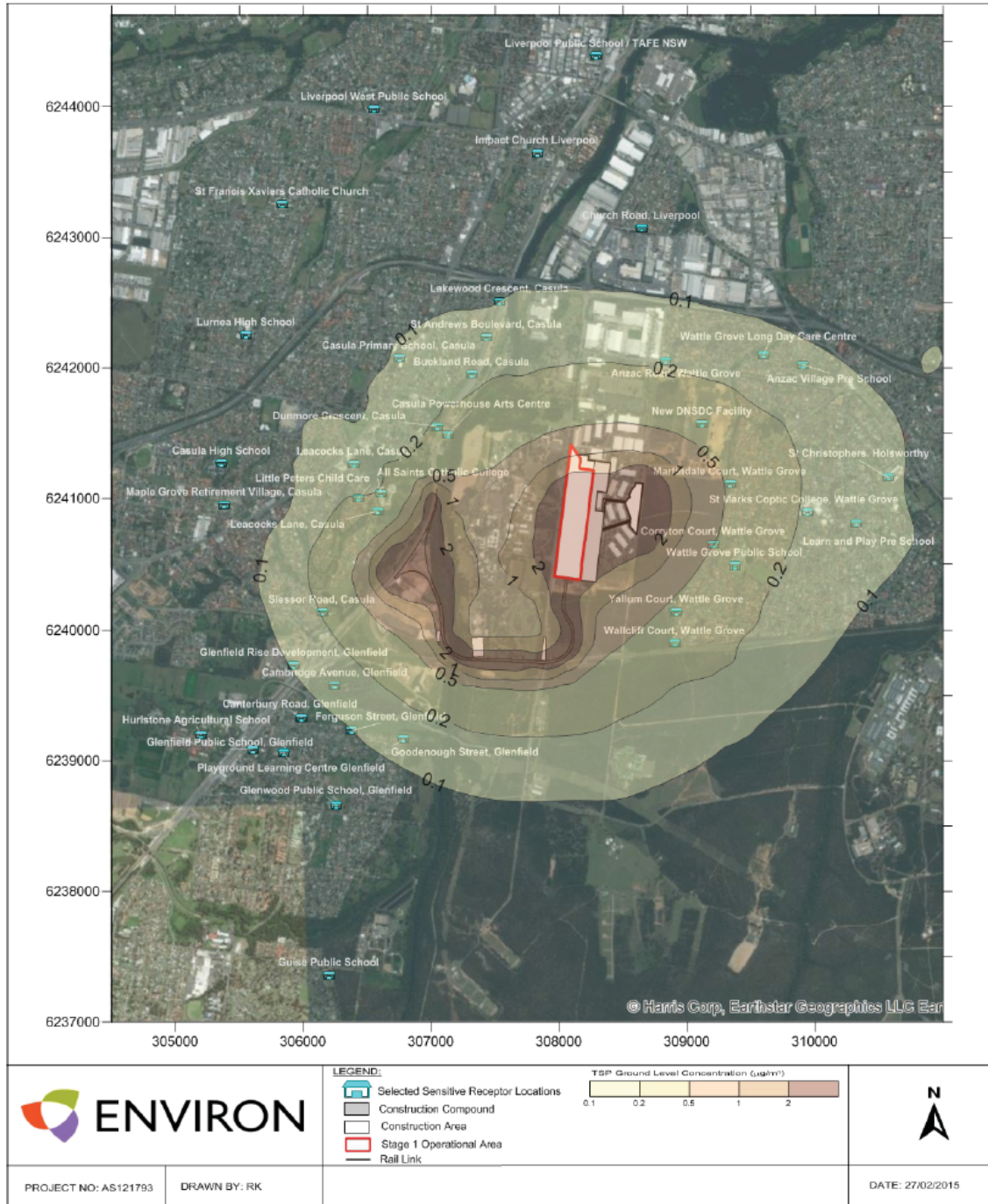


Figure 6: Dispersion Model of Construction Air Quality Impacts (Source: Stage 1 EIS)

6.4 Potential Air Quality Impacts

Dust and particulate emissions have the potential to affect amenity and, in extreme cases, health. Both fine and coarse particles can give rise to nuisance impacts. Air quality impacts may result in:

- Aesthetic effects which arise from the visible airborne dust plumes and of deposits of dust on surfaces
- Deposition on surfaces where it may cause damage and/or lead to a need for increased cleaning or repair
- Need for increased maintenance of air filtering systems (e.g. air conditioners etc.)
- Potential adverse health effects including eye, nose and throat irritation from excessive inhalation of fine particles
- Impacts on water quality from dust deposition
- Impacts on residential neighbours including impacts on living areas, swimming pools and general amenities
- Complaints from the public relating to visible dust.

While measures to manage air quality and dust will be employed, any dust generated is unlikely to cause a nuisance to residents, due to the distance of the works to receivers, existing background levels, and the effects of terrain shielding.

7. Management, Controls and Mitigation Measures

7.1 Air Quality Procedure

An Air Quality Procedure has been developed for the Project – refer to Attachment D. The procedure will be available on site during construction works at all times. The procedure outlines:

- Training via inductions and tool box talks
- Air quality and dust control implementation
- Visual assessment procedures
- Requirement to stop/modify work practices and record actions on an Environment Inspection Form if:
 - Visible dust is leaving the site
 - Winds exceed 20 km/hr (10 minute average, as recorded at Bankstown Airport)

7.2 Air Quality Management

A range of approaches to reducing the impacts associated with the generation of dust will be adopted during construction. Construction will be undertaken in a manner that minimises dust emissions from the site, including wind-blown and traffic-generated dust. All activities on site will be undertaken with the objective of preventing visible emissions of dust from leaving the site. Should such visible dust emissions occur at any time, CPB Contractors will identify and implement all feasible and reasonable dust mitigation measures, including cessation of relevant works, as appropriate, such that emissions of visible dust cease.

Elimination of the hazard is the first preference of control, followed by engineering, then administrative controls. Where required, these air quality and dust management strategies will be applied at all construction sites, particularly those affected by unsealed road usage, earthworks and stockpiling. The mitigation strategies outlined in the following sections and described in Table 7 are underpinned by site-specific air quality and dust control measures detailed in Work Packs.

These measures will ensure that adverse dust impacts associated with specific works and activities are minimised at nearby residences and surrounding environments. Consultation will be undertaken in accordance with the Community Communication Strategy.

7.2.1 Minimising Disturbance

Generally dust impacts will be reduced through the minimisation of cleared areas within the construction footprint and, where feasible, progressively staging vegetation clearing and earthworks activities. Vegetation and topsoil removal will be limited to the designated footprint required for the construction of the Rail Link.

The vegetation strata of particular importance is ground cover as it is in immediate contact with the soil and once it is disturbed, the soil is more prone to erode and generate dust.

Furthermore, measures to stabilise surfaces, such as high trafficable areas (e.g. unsealed access tracks) with compacted road base or gravel and limit the number of access tracks to the minimum required. Progressive rehabilitation will be undertaken on completion of works in disturbed areas to minimise soil exposure and dust potential.

During periods of adverse weather (hot, dry and windy conditions), work activities will be modified to limit clearing, stripping and spoil handling activities to reduce the potential for excessive dust generation.

7.2.2 Soil Management and Erosion Control

An important means of reducing the generation of dust is to ensure adequate erosion controls are in place. Refer to Construction Soil and Water Management Plan, and the Erosion and Sediment Control Plan for recommended strategies to manage erosion.

All spoil handling and stockpiling would be actively managed to reduce the generation of dust. The delivery of all raw materials would be controlled to ensure all trucks are covered and tailgates are secured to reduce the potential for spoil loss on route to or from the site resulting in dust impacts. Trip frequency and distance will be managed by coordinating delivery and removal of materials to avoid unnecessary trips, where possible.

Stockpiles will be located away from sensitive receivers and drainage lines. If stockpiles are to remain in place for longer than two weeks, wind erosion and potential for dust generation will be limited by minimising the number of work faces on stockpiles and through temporary stabilisation (compaction of surface, water sprays, cover with black plastic, seeding with a temporary crop cover, veneering).

Wheel washers, shaker grids and stabilised access points will be used to minimise the tracking of mud and silt onto public roads. Street sweepers will be provided to remove any dirt tracked onto roads.

7.2.3 Community Liaison

An effective Community Communication Strategy will be maintained throughout the project to keep the community informed of the progress of the works, and to forewarn potentially affected residents of upcoming works, which have the potential to generate excessive dust. Close liaison will be maintained with the residents situated near work sites to provide effective feedback in regard to construction issues. In this manner, equipment selections and work activities can be coordinated where necessary to minimise disturbance and to ensure prompt response to complaints and other issues of concern, should they arise.

7.2.4 Dust Suppression

Emissions from site clearing, vegetation removal, topsoil clearing and excavation, particularly during dry and windy conditions, can be effectively controlled by increasing the moisture content of the soil / surface. The management and suppression of dust on unsealed surfaces and open excavations can be controlled to a large extent by the use of water carts.

Water carts act to wet the ground surface, minimising the potential for wind or traffic generated dust. The use of water carts should be managed with regard to the use of water and erosion and water quality goals. Water re-use and recycling options shall be investigated, such as using water from sedimentation basins (if on site) or treated effluent from local Sewage Treatment Plants.

7.2.5 Consideration of Weather Conditions

Meteorological factors that need to be considered when evaluating the risk of dust generation include:

- Wind direction – determines whether dust and suspended particles are suspended and transported in the direction of the sensitive receivers
- Wind speed – governs the potential suspension and drift distance of particles
- Soil moisture – increased soil moisture reduces soil or dust erosion potential
- Rainfall or dew – rainfall or heavy dew which wets the surface of the soil.

These local meteorological factors, as detailed in Section 5.1, will significantly influence the day-to-day risk of dust generation and suspension. Accordingly, they are to be considered by the Project Engineers, in consultation with the Environment Manager, to ensure appropriate mitigation measures are adopted throughout construction.

Bankstown Airport weather monitoring station, located approximately 6km from the project site, will be used assess weather conditions (this can be accessed via www.bom.gov.au or www.weatherzone.com.au). Holsworthy weather monitoring station, located approximately 5km from the project site, can also be used to assess weather conditions (this can be accessed via www.bom.gov.au or www.weatherzone.com.au).

7.3 Mitigation Measures

Construction Air Quality Management mitigation measures are listed below in Table 7.

Table 7: Mitigation Measures

No	Mitigation Measure	Timing	Accountability	Source
Pre-construction				
AQ1	Identify sensitive land uses/sensitive receivers in the Site Environmental Plans (SEP) prior to works commencing.	Pre-construction	Project Engineer Environmental Coordinator	CPB Contractors Mandatory Minimum

No	Mitigation Measure	Timing	Accountability	Source
AQ2	Site Inductions, training and on-going Toolbox Talks shall incorporate: <ul style="list-style-type: none"> - construction dust/ air pollution sources - potential impacts - control measures 	Pre-construction	Construction Manager Environment Manager	Good practice
AQ3	Ensure all air quality risks are considered as part of the development of Construction Area Plans.	Pre-construction	Construction Manager Environment Manager	CPB Contractors Mandatory Minimum
AQ4	Plan construction activities to minimise soil exposure as far as practicable.	Pre-construction	Construction Manager Environment Manager	CPB Contractors Mandatory Minimum
Site Establishment				
AQ5	Traffic speed limit(s) are determined to minimise dust generation and must be adhered to at all times.	Pre-construction	Construction Manager Environment Manager	Commonwealth MM 7.4.2.2(j)
AQ6	Establish stabilised access, rumble grids, wash bays or similar for site exits to minimise mud on public roads. Sweepers shall be used periodically to clean public roads where mud has been deposited.	Pre-construction	Superintendent Project Engineer	Commonwealth MM 7.4.2.2(m) CoA E15
AQ7	Temporary stockpiles are to be maintained to avoid dust generation (e.g. hosed down or covered if not used for more than 2 weeks).	Pre-construction	Superintendent Project Engineer	Commonwealth MM 7.4.2.2(e)
General Construction				
AQ8	Undertake on-going monitoring for dust (e.g. site inspections) to assess the effectiveness of mitigation measures).	Construction	Superintendent Project Engineer Environmental Coordinator	E34(e)(vi)
AQ9	Water sprays and/or water carts to be used as required for dampening exposed surfaces to control dust generation.	Construction	Superintendent Project Engineer	FCMM 2A Commonwealth MM 7.4.2.2(a) & 7.4.2.2(f)
AQ10	Ensure there is no burning of any materials on site.	Construction	Superintendent Project Engineer	Good practice
AQ11	Silt accumulated in sediment control devices (e.g. silt fences and spoon drains) to be removed on a regular basis to prevent dust generation.	Construction	Superintendent Project Engineer	Good practice
AQ12	Cutting, grinding or sawing equipment must only be used in conjunction with suitable dust suppression techniques, such as water sprays or local extraction	Construction	Superintendent Project Engineer	FCMM 2A
AQ13	Dust generating activities would be assessed during periods of strong winds and rescheduled, where required.	Construction	Superintendent Project Engineer	C'th MM 7.4.2.2(f)

No	Mitigation Measure	Timing	Accountability	Source
AQ14	Exhaust systems of construction plant, vehicles, and machinery to be maintained to minimise exhaust emissions to the atmosphere. All equipment and vehicles are to be regularly maintained, monitored and records kept.	Construction	Superintendent Project Engineer	NSW Revised SoC 1.9
AQ15	Engines will be switched off when vehicles and plant are not in use, to minimise idling	Construction	Superintendent Project Engineer	NSW Revised SoC 1.9
AQ16	Low emission vehicles and plant fitted with catalysts, diesel particulate filters or similar devices would be used, where feasible and reasonable.	Construction	Superintendent Project Engineer	NSW Revised SoC 1.9
AQ17	Haul routes and plant (including generators) to be sited away from sensitive receivers, such as dwellings and schools, where feasible and reasonable.	Construction	Construction Manager Superintendent Project Engineer	Good practice
AQ18	Workers will be encouraged to use public transport, and consider other modes of transport such as car-pooling (refer to Construction Traffic and Access Management Plan)	Construction	Project Director Construction Manager Environment Manager	Good Practice
Excavation and Earthworks				
AQ19	Areas of open excavation are to be kept to a minimum.	Construction	Superintendent Project Engineer	C'th MM 7.4.2.2(c)
AQ20	Water suppression to be used for active earthwork areas, stockpiles, gravel roads to reduce wind-blown dust emissions.	Construction	Superintendent Project Engineer	C'th MM 7.4.2.2(h) FCMM 2A
AQ21	The amount of excavated material stored on site is to be minimised.	Construction	Superintendent Project Engineer	C'th MM 7.4.2.2(e)
AQ22	All vehicles carrying loose or potentially dusty material to and/or from the site must be covered.	Construction	Superintendent Project Engineer	CoA E15
AQ23	Vehicular and foot traffic would be restricted to designated areas.	Construction	Superintendent Project Engineer	C'th MM 7.4.2.2(c)
Spoil Handling, Storage and Transport				
AQ24	Site access roads will be stabilised and rumble grids and wheel washers used where appropriate, to minimise tracking of dirt.	Construction	Construction Manager Superintendent Project Engineer	CPB Contractors Mandatory Minimum
AQ25	Vehicles hauling spoil to stay on the designated roads and access tracks	Construction	Superintendent Project Engineer	C'th MM 7.4.2.2(j)
AQ26	Trucks carrying spoil onto or off site are to be covered. Tailgates, under-rigs, wheels and towing apparatus of all trucks to be checked to ensure they are clean and secure, prior to leaving the worksite	Construction	Superintendent Project Engineer	CoA E15

No	Mitigation Measure	Timing	Accountability	Source
AQ27	Stockpiles will be located away from sensitive receivers, where feasible and reasonable, and protected from the elements through barriers, covering, or establishing a cover crop.	Construction	Superintendent Project Engineer	Good Practice
AQ28	Unsealed haul roads must be regularly damped down with fixed or mobile sprinkler systems.	Construction	Superintendent Project Engineer	FCMM 2A
AQ29	Appropriate site speed limits will be imposed and signed on haul routes.	Construction	Construction Manager Superintendent Project Engineer Environmental Coordinator	C'th MM 7.4.2.2(j)
AQ30	Wheel-wash facilities or rumble grids to be provided and used near site exit points, and a street-cleaning regime would be implemented to remove any dirt tracked onto roads.	Construction	Construction Manager Superintendent Project Engineer	C'th MM 7.4.2.2(m)
AQ31	Any asbestos found would be managed under a site specific Asbestos Removal Control Plan prepared by a licenced asbestos removal contractor.	Construction	Superintendent Project Engineer Environment Manager	AMP
AQ32	All construction plant and equipment must be maintained so they do not emit visible smoke for any period greater than: <ul style="list-style-type: none"> ■ 5 consecutive seconds for plant not being registered for use on public roads; and ■ 10 consecutive seconds for plant registered for use on public roads. 	Construction	Superintendent Project Engineer	CPB Contractors Mandatory Minimum
Extreme Weather Conditions				
AQ33	Reprogramming of dust generating activities during works is to occur during periods when control of dust cannot be achieved to reduce nuisance to neighbouring properties.	Construction	Superintendent Project Engineer Environmental Coordinator	PPR 1.4(j)
AQ34	Dust generating activities would be assessed during periods of strong winds and rescheduled where required.	Construction	Superintendent Project Engineer Environmental Coordinator	C'th MM 7.4.2.2(b)
Complaints				
AQ35	Dust complaints will be handled by the Communications Manager and the Environment Manager, in accordance with the complaints handling process in the Community Communication Strategy.	Construction	Communications Manager Environment Manager	NSW CoA 2.2 e)

No	Mitigation Measure	Timing	Accountability	Source
Shutdown Periods				
AQ36	When site is to be closed for a period of longer than two days, a site inspection will be carried out to identify any additional measures be put in place to ensure the site is stable and the potential for dust generation is minimised.	Construction	Project Director Construction Manager Superintendent Project Engineer Environmental Coordinator	Good practice
Staging and Rehabilitation				
AQ37	Minimise the removal and disturbance of vegetation and undertake rehabilitation, seeding or grassing as soon as practicable (in compliance with the Blue Book)	Construction	Construction Manager Superintendent Project Engineer	CPB Contractors Mandatory Minimum
AQ38	All trucks delivering fill or leaving the site with spoil material will have their load covered.	Construction	Superintendent Project Engineer	CoA E15
AQ39	Disturbed areas and haul roads must be treated with dust suppressants (e.g. water trucks or chemical suppressants) especially in high risk areas and/or on during high risk days.	Construction	Superintendent Project Engineer Environmental Coordinator	CPB Contractors Mandatory Minimum

8. Review and Improvement

Table 8 outlines the inspection, monitoring and auditing program to evaluate the effectiveness of air quality controls to be implemented during construction.

Table 8: Air Quality Inspection Monitoring and Audit Program Summary

Monitoring Performance Criteria		
Pollutant: Dust Method: Visual Monitoring		
Pre-Construction	Responsibility	Frequency
If required by EPL, further background monitoring for dust may be undertaken prior to commencement of construction. Otherwise, refer to Stage 1 EIS background results.	Environment Manager	Pre-construction
Construction		
During the first two months of construction, air quality monitoring will be undertaken for Nuisance Dust and Air Emissions (PM ₁₀ and Nitrogen Dioxide).	Environment Manager	Nuisance dust – visual inspections daily by Site Supervisors and twice weekly by Environment Manager. PM ₁₀ and NO ₂ – weekly using special purpose equipment by appropriately qualified person
A daily visual inspection of each worksite is to be conducted to assess likelihood of dust generation, evidence of excessive vehicle exhausts (not to exceed 10 second duration), wind and weather conditions, works program for dust generation potential and effectiveness of the dust mitigation measures. Comments or corrective actions will be recorded on the site diary and/or Daily Environmental Inspection Checklist.	Project Engineer Site Supervisor Environment Manager	Daily during construction
A visual inspection of each worksite is to be conducted weekly to monitor the effectiveness of dust mitigation measures and the results entered on the Environmental Inspection Checklist.	Environment Manager	Weekly during construction
Collating of air quality dust inspections for compliance with the regulatory performance standards to be reported to the Environment Representative for each location, as required	Environment Manager	Ongoing, as required
Prior to being used on site, plant and vehicles will undergo a Plant Induction.	Health & Safety Manager	As required
All environmental inspection data is to be recorded and filed, and the data available for auditing and review on request by an authorised officer.	Environment Manager	Ongoing
If required, conduct dust monitoring as part of the investigation of complaints, where initiated through the Complaints Management System (Community Communication Strategy) and the protocol / procedure for handling dust complaints.	Environment Manager Communications Manager	As required
Audits		
Work area site inspections – weekly site walkover assessing general environmental and safety considerations.	Environment Coordinator	Weekly
Environmental compliance audits – construction site or activity specific audits against this Management Plan and relevant Work Packs.	Environment Manager	As per CEMP

8.1 Site Inspections

A daily visual inspection of each worksite is to be conducted by the Project Engineer or Site Supervisor to assess the likelihood of dust generation, evidence of excessive vehicle exhausts (not to exceed 10 second duration), wind and weather conditions, works program for dust generation potential and effectiveness of the dust mitigation measures. Comments or corrective actions will be recorded in site diaries.

The Environment Manager is to conduct weekly site inspections and record findings on the Weekly Environmental Checklist. These will involve undertaking visual inspections for dust impacts associated with construction works and determining if dust suppression actions are sufficient or if further management action is required. The weekly environmental inspection form will also be used as an instrument to record the weather conditions, the construction activities and comments about air-quality impacts. The visual checks will:

- Checking stockpiles have appropriate controls to reduce dust
- Ensuring movement of spoil is being undertaken with the appropriate controls
- Ensuring truck and vehicle movements are not tracking mud, dirt or dust onto public roads
- Inspect and report on excessive dust being generated at source (wheel generated dust, scrapers/graders, dozers, excavators, wind erosion).
- Inspect and report on dust leaving the site.
- Monitoring of works such as saw-cutting, grinding, drilling and ensuring appropriate controls are being applied.
- Inspect and report on water cart activity and effectiveness.

If dust is being produced and is leaving site, the works generating this will be suspended or controlled/modified so that no further dust is leaving site. Mitigation measures may include;

- Increased use of water carts
- Review of construction methodology
- Ceasing works temporarily
- Early permanent stabilisation or temporary stabilisation measures implemented.

8.2 Monitoring Programs

As identified in the Stage 1 EIS (Hyder, 2015) the expected impacts from the construction of Stage 1 is low. The recommended monitoring is regular visual monitoring of dust impacts undertaken by the Environment Manager, Site Engineers and Site Supervisor as detailed in Section 4.1.

Further Section 10.3 of Appendix M to the Stage 1 EIS (Hyder, 2015) and Section D 3.3 of the Air Quality Management Plan prepared for the Stage 1 EIS (Appendix D to Appendix M, Hyder 2015) notes *“The modelling predictions presented in the report indicate that the risk of adverse air quality impacts from the Stage 1 Proposal are low. The incremental increase in key pollutants at the surrounding residential areas would be largely indistinguishable from the existing background and project specific air quality monitoring is therefore not considered necessary.”*

The Preliminary Air Quality Management Plan in the Stage 1 EIS requires that visual dust monitoring occur on a regular basis. This is summarised in Table 8.

The project Environment Protection Licence (EPL) #20966 requires gas accumulation monitoring be carried out monthly following construction of service pits for the Rail Link and at any other time pit(s) are accessed by service personnel. Specific requirements of this program is detailed in Attachment A of this plan.

Where monitoring determines non-compliance to be a risk or to have occurred, an incident report and corrective actions are to be raised in the Synergy.

8.2.1 Initial Construction Air Quality Monitoring

In accordance with FCMM #2C, an air quality monitoring programme will be undertaken during the initial phases of construction for nuisance dust and Air emissions (PM₁₀ and Nitrogen Dioxide). The initial phases, according to Section 4.4.2 of the EIS are Site preparation activities (Works period 1 – months 1 to 2) and Earthworks, drainage and utilities (Works period 2 – months 1 to 5). Therefore, for

the first two months of construction, to coincide for the start of the first two construction phases, a monitoring program will be undertaken for the following:

- Nuisance dust (construction dust)
- PM₁₀
- Nitrogen Dioxide (NO₂)

Nuisance dust be monitored visually at the construction boundary closest to the nearest sensitive receivers. Monitoring will be undertaken daily by site supervisors, with an increased frequency of inspections by the Environmental Manager of at least twice a week (plus during high wind periods) for an extra layer of check. Refer to table 8 for the frequency and location of monitoring.

PM₁₀ and NO₂ will be monitored using specialist portable equipment under the guidance of an appropriately qualified person. Monitoring locations will be set up at the construction boundary closest to the nearest sensitive receivers, with results logged monthly or as advised by a specialist sub-consultant. PM10 is monitored using a High Volume Air Sampler or DustTrak II 8530/8533 Dust Monitor, as appropriate. NO₂ is monitored using a NOx analyser.

It is worth noting that PM₁₀ and NO₂ are not expected to be issues during construction, as they are particularly typically associated with operation (PM₁₀ comes from vehicle emissions and NO₂ from diesel emissions). This is consistent with the response to concerns raised by Liverpool Council to the EIS and addressed in Table 4-7 in the RtS (Section 4.6). Despite no predicted impacts during construction, in order to address the FCMM, monitoring will undertaken as outlined in Table 8 in Section 8 above.

8.2.2 Typical Monitoring Locations

Monitoring locations will change as the location of construction changes. The exact monitoring locations appropriate for any stage of work will be determined by the project Environment Manager, in consultation with the project Environmental Representative, and will be detailed in Site Environmental Plans for specific work packages. Unless specific locations are identified as needed by the Environment Manager or Environmental Representative, air monitoring will be undertaken at the construction boundaries closest to the sensitive receivers.

The nearest sensitive receiver to the construction boundary are residents in Leacocks Lane and the All Saints Catholic Senior College, which are both near the northern boundary of the Glenfield Waste Facility Site, where the proposed rail line joins the Southern Sydney Freight Line.

8.2.3 Monitoring Plant and Vehicle Emissions

Prior to being used on site, construction plant and vehicles will undergo a **Plant Induction** performed by the Safety team. This induction will include a mechanical inspection to ensure that the plant or vehicle is in good working order, maintenance records are current and the appropriate emission controls are in place.

Site Supervisors, Project Engineers and the Environmental Manager will undertake visual inspections of the construction activities to ensure that plant and vehicles are not producing excessive smoke or emissions during plant operation and are turned off when not in use.

Where reasonable and feasible, plant and equipment fitted with catalysts, diesel particulate filters (or similar) would be used on site.

8.2.4 Methane Gas Accumulation Monitoring

The project must undertake gas accumulation monitoring of all service pits following their construction for the Rail Link and must be done monthly and at any time prior to service personnel accessing the pit(s). Where methane is detected at a concentration greater than 1% (volume/volume) during construction works, the EPA must be notified immediately, and remedial plan submitted.

Except to the extent necessary to carry out monitoring and remedial works by a suitably qualified person, access to the pits must cease until monitoring demonstrates that the remediation measures are effective.

8.3 Auditing

This Plan will be audited as per the frequency specified in the CEMP. The Plan shall be reviewed and updated based on the findings of the audit.

Internal Audits will include an audit of the site and subcontractors to assess compliance with dust and air quality controls, reporting and incident management requirements. The Environment Manager will be responsible for managing, reviewing and reporting the audit results to the Project Director and workforce.

Dust and air quality management will also be included in environmental compliance audits undertaken by Environment Representative. The Environment Representative is responsible for managing, reviewing and reporting the audit results to the Environment Manager, client and the Department of Planning and Environment.

Typical compliance records would consist of:

- Inspections undertaken in relation to air quality management measures
- Environmental Inspection forms
- Toolbox training records
- Plant induction forms
- Records of any meteorological condition monitoring
- Records of any management measures implemented as a result of adverse, windy weather conditions.
- Records of air quality and dust inspections undertaken.

8.4 Reporting

Results and outcomes of KPIs, inspections, monitoring and auditing will be reported internally on a monthly basis as per CEMP (Part B, Element 12).

Six-monthly construction compliance documentation will be prepared by the Environmental Manager to report on compliance with the Project Approvals. This document would populate SIMTA's overall Compliance Report to be submitted to the DP&E.

Results of monthly monitoring of methane gas showing a concentration greater than 1% must be notified to the EPA immediately and remedial plan submitted.

8.5 Implementation of Corrective Actions

Corrective actions will be implemented when inspections or audits indicate a non-compliance with the objectives of this Plan. A non-compliance is an action, incident or omission that does not conform to the requirements of this Plan or any legal and other requirements.

The specific type of action undertaken will relate to the issue causing non-compliance with respect to the desired management outcomes. Non-compliances may include evidence of excessive dust emissions, dust complaints, environmental incident or non-compliance with regulatory criteria.

Examples of corrective actions may include:

- Immediate action near disturbed areas to limit the potential for dust
- Increasing the usage of the water cart to reduce dust
- Limiting activities in excessively windy conditions
- Increasing the frequency and extent of education and training of staff and subcontractors about controlling dust impacts
- Undertake targeted community consultation to reach practical solutions regarding dust management and disseminate relevant information.

An Environmental Site Inspection Record will be completed in the event of any visible dust leaving site, detailing the extent of the exceedance and the corrective action implemented. Additional monitoring may be required, particularly in the case of any community complaints.

8.6 Continuous Improvement

Where deficiencies are identified in dust management, this Management Plan or relevant Work Pack may be reviewed. In particular, this review will address:

- Changes in the environment
- Changes in generally accepted environmental management practices
- New risks to the environment
- Any pollution or changes in law
- Requests or directions from the client, Environment Representative, Department of Planning and Environment, EPA or any other relevant authority.

Any member of the project team can identify a non-compliance or opportunity for improvement. The CEMP identifies the process for identifying, reporting, recoding and reviewing non-compliances to ensure continual improvement.

9. Incident Response

Incident management and classification will be managed in accordance with the process described within the CEMP. Air quality incidents may include:

- Sudden release of a significant quantity of air pollutants or odour generating substance
- Dust storm
- Fire or explosion

9.1 Community Complaints

The Community Communication Strategy defines the policies, protocols, procedures and processes for identifying and managing community specific issues arising from construction activities, including complaints relating to dust generated from work sites.

The Environment Manager will assist the Communications Manager in responding to environmental complaints and maintain a register of Environmental Complaints for reporting to the EPA and other relevant agencies.

In the event a complaint is received regarding air quality, the Environment Manager will conduct an investigation to determine the potential parameters of influence that could have led to the complaint and potential exceedance.

The investigation will examine amongst other aspects:

- The quantity of exposed areas, which may potentially generate dust
- The nature and volume of the materials being moved
- Whether there is potential to revegetate or cover these areas
- Whether there were any days of excessive high wind prior to the incident or complaint
- The number and effectiveness of water-trucks operating within the area
- An examination of construction activities conducted during this period
- If road sweeping was sufficient
- The potential for contaminated material to become air borne
- Recorded weather conditions reports for the day.

Corrective actions will be implemented in accordance with the process described in the CEMP.

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Attachments

Attachment A: Compliance Matrix

Contract Clauses

Specific contract clauses and references which set limits and/or govern impacts to air quality on the project include:

Table 9: Principal's Project Requirements

Contract Document Ref	Requirement	Where Addressed
1.4(j)	Minimise dust and noise nuisance to adjacent properties;	Table 7: Mitigation Measures
1.4(k)	Provision of all dust controls and external road and footpath cleaning;	Table 7: Mitigation Measures

Conditions of Project Environmental Approvals

Conditions of project environmental approvals that specifically address the management of air quality include:

Stage 1 Conditions of Approval

Table 10: Stage 1 Recommended Conditions of Approval

Stage 1 CoA Ref	Requirement	Where Addressed
C5 (h)	Prior to the commencement of construction of the rail link within the Glenfield Waste Facility licenced premises, the Applicant shall prepare an assessment report of the proposed impacts of construction on the Glenfield Waste Facility licenced premises. The assessment must address: Details of any other expected or potential impacts to the licenced area and options for management and mitigation of those impacts (i.e. leachate management and surface water runoff, potential impacts on the Georges River during works, dust etc).	Glenfield Waste Facility Construction Impact Assessment Report
E14	The Applicant shall carry out all feasible and reasonable measures to minimise dust generated by the Development.	Section 7 Table 7: Mitigation Measures
E15	During construction, the Applicant shall ensure that all loaded vehicles entering or leaving the site have their loads covered; and all loaded vehicles leaving the site are cleaned of dirt, sand and other materials before they leave the site, to avoid tracking these materials on public roads.	Section 7.2 Table 7
E33 (i)	The CEMP shall include, but not necessarily be limited to: measures to monitor and manage dust emissions including dust from stockpiles, traffic on unsealed internal roads and materials tracking from construction sites onto public roads;	This Plan
E34(e)	As part of the CEMP for the SSD, the Applicant shall prepare and implement: A Construction Air Quality Management Plan to detail how impacts on local air quality will be minimise and managed. The Plan shall be developed in consultation with the EPA, and shall include, but not necessarily be limited to:	This Plan Section 3.1
E34(e)(i)	identification of sources (including stockpiles and open work areas) and quantification of airborne pollutants;	Section 6 CSWMP (ESCP) SEPs

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Stage 1 CoA Ref	Requirement	Where Addressed
E34(e)(ii)	Key performance indicators for local air quality during construction;	Section 1.3
E34(e)(iii)	Details of monitoring methods, including location, frequency and duration of monitoring;	Section 8.2
E34(e)(iv)	Mitigation measures to minimise impacts on local air quality;	Section 7 Table 7: Mitigation Measures
E34(e)(v)	Procedures for record keeping and reporting against key performance indicators;	Section 8 CEMP (Part B, Element 11 & 12)
E34(e)(vi)	Provisions for implementation of additional mitigation measures in response to issues identified during monitoring and reporting; and	Table 7: Mitigation Measures
E34(e)(vii)	Mechanisms for the monitoring, review and amendment of this plan.	Section 8.6 CEMP (Part B, Element 12)

Stage 1 Final Compilation of Mitigation Measures

Table 11: Stage 1 Final Compilation of Mitigation Measures

Stage 1 FCMM Ref	Requirement	Where Addressed
2A	The Air Quality Management Plan (AQMP) (or equivalent) will be further progressed and incorporated into the CEMP for the Proposal. In accordance with the AQMP, the following will be addressed in the CEMP: Procedures for controlling / managing dust	This Plan Attachment D (Air Quality Procedure)
2A	Roles, responsibilities and reporting requirements	Section 4.1 Section 8.4 CEMP (Part B, Element 12)
2A	Contingency measures for dust control where standard measures are deemed ineffective.	Section 7.2 Table 7: Mitigation Measures
2A	Specifically, the AQMP (or equivalent) will prescribe the use of water carts for dust suppression on unsealed travel routes and areas where scrapers and graders are operating.	Section 7.2 Table 7: Mitigation Measures
2C	The Proponent will undertake an air quality monitoring programme during the initial phases of both construction and operation of the Proposal including: <ul style="list-style-type: none"> ■ Nuisance dust ■ Air Emissions – PM₁₀ and nitrogen dioxide 	Section 8.2

NSW Concept Plan Conditions of Approval

Table 12: NSW Concept Plan Conditions of Approval

NSW Concept Plan CoA Ref	Requirement	Where Addressed
2.2	Any future Development Application shall include a comprehensive air quality impact assessment for each stage of the proposal, including:	Stage 1 EIS

Attachments

NSW Concept Plan CoA Ref	Requirement	Where Addressed
2.2 a)	An assessment in accordance with the Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales (2005) (or its later version and updates;	Stage 1 EIS
2.2 b)	Taking into account the final project design with consideration to worst-case meteorological and operating conditions;	Stage 1 EIS
2.2 d)	Assessing cumulative air impacts at a local and regional level (including but not limited to contemporaneous operations such as those of the proposed Commonwealth Government IT; and	Stage 1 EIS
2.2 e)	A comprehensive air quality management plan that includes at least the following information: i. Explicit linkage of proposed emission controls to the site specific best practice determination assessment and assessed emissions; ii. The timeframe for implementation of all identified emission controls; iii. Proposed key performance indicator(s) for emission controls; iv. Proposed means of air quality monitoring including location (on and off-site), frequency and duration; v. Poor air quality response mechanisms; vi. Responsibilities for demonstrating and reporting achievement of key performance indicator(s); vii. Record keeping and complaints response register; and viii. Compliance reporting.	Stage 1 EIS (Appendix M)

NSW Concept Plan Revised Statement of Commitments

Table 13: NSW Concept Plan Revised Statement of Commitments

NSW Concept Plan Revised SoC Ref	Requirement	Where Addressed
1.9	The Proponent commits to undertaking a review of national and international 'best practice' for the design and operation of intermodal facilities to identify reasonable and feasible management strategies to reduce air quality and noise impacts associated with construction and operation of the intermodal terminal development stages of the proposal	Stage 1 EIS
1.9	The Proponent will undertake an air quality monitoring programme during the initial phases of both construction and operation of the SIMTA site in accordance with the Air Quality Impact Assessment and including: <ul style="list-style-type: none"> ▪ Nuisance Dust ▪ Air Emissions - PM₁₀ and Nitrogen Dioxide 	Stage 1 EIS Section 8.2
1.9	The Proponent shall consider the need to develop a vehicle efficiency and emissions reduction program for the facility to encourage good maintenance and efficient vehicle selection, taking into account the results of the air quality monitoring programme.	Section 8.2.1 Table 7: Mitigation Measures Attachment D (Air Quality Procedure)
1.9	The Proponent commits to the preparation of a Construction Environmental Management Plan prior to the construction of each stage to provide air quality and dust management/ mitigation procedures to be adopted during each of the construction phases of the development.	CEMP & This Plan
1.9	The Proponent commits to the preparation of a Greenhouse Gas Management Plan for the three major stages of the development in accordance with the provisions of the Greenhouse Gas Assessment.	GHGMP

Attachments**Commonwealth Concept Plan Approval**

Table 14: Commonwealth Concept Plan Approval

Commonwealth CoA Ref	Requirement	Where Addressed
7 (b)	<p>The CEMP must include in relation to construction of the proposed facility:</p> <p>Identification and quantification of all potential impacts associated with noise, vibration, air quality, traffic, light spill, hydrological changes, contamination, and indigenous heritage (including cumulative impacts associated with the DoFs proposed intermodal) upon Commonwealth land. Consideration must be given to people and communities at SME, DNSDC, Defence housing, and the environment more generally in neighbouring bushland areas. Of note, the air quality assessment must quantify emissions arising from air pollutant sources for which there are established national air quality standards.</p>	<p>Stage 1 EIS, Appendix M (AQMP)</p> <p>Stage 1 EIS Appendix I (CEMP)</p> <p>CEMP & This Plan</p>

Commonwealth Concept Plan Mitigation Measures

Table 15: Commonwealth Concept Plan Mitigation Measures

Commonwealth MM Ref	Requirement	Where Addressed
7.4.2.1 (a)	A Construction Environmental Management Plan will be prepared prior to construction. This document will include provisions covering air quality management and mitigation, and will be implemented through good site environmental practice.	CEMP & This Plan
7.4.2.2(a)	Increasing the moisture content of the soil/surface to reduce emissions from site clearing, particularly during dry and windy conditions.	Section 7.2 Table 7: Mitigation Measures
7.4.2.2(b)	Modifying work practices during periods of adverse weather.	Section 7.2 Table 7: Mitigation Measures Attachment D (Air Quality Procedure)
7.4.2.2(c)	Limiting and staging clearing of designated footprint required for construction.	Section 7.2 Table 7: Mitigation Measures Attachment D (Air Quality Procedure)
7.4.2.2(d)	Completing rehabilitation as quickly as possible.	Section 7.2 Table 7: Mitigation Measures Attachment D (Air Quality Procedure)
7.4.2.2(e)	Minimising the number of stockpiles on-site and number of work faces on stockpiles.	Section 7.2 Table 7: Mitigation Measures Attachment D (Air Quality Procedure)
7.4.2.2(f)	Use of water sprays for dusty activities such as ballast dumping and compacting	Section 7.2 Table 7: Mitigation Measures Attachment D (Air Quality Procedure)

Attachments

Commonwealth MM Ref	Requirement	Where Addressed
7.4.2.2(g)	Modify or cease demolition activities during periods of adverse weather (hot, dry and windy conditions).	Section 7.2 Attachment D (Air Quality Procedure)
7.4.2.2(h)	Using water sprays with earthmoving equipment during road construction	Table 7: Mitigation Measures Attachment D (Air Quality Procedure)
7.4.2.2(i)	Modifying work practices during periods of high winds and/or dry conditions by limiting scraper/grader activity.	Section 7.2 Attachment D (Air Quality Procedure)
7.4.2.2(j)	Confining all on-site vehicles to a designated route and enforcing speed limits.	Table 7: Mitigation Measures Attachment D (Air Quality Procedure)
7.4.2.2(k)	Modifying work practices during periods of high winds and/or dry conditions by engaging a water truck to spray travel routes.	Section 7.2 Attachment D (Air Quality Procedure)
7.4.2.2(l)	Controlling and reducing trip frequency and distance by coordinating delivery and removal of materials to avoid unnecessary trips, where possible.	Section 7.2 Attachment D (Air Quality Procedure)
7.4.2.2(m)	Cleaning dirt that has been tracked onto sealed roads as soon as practicable. Dirt track-out should be managed using shaker grids and/or wheel cleaning.	Table 7: Mitigation Measures Attachment D (Air Quality Procedure) CSWMP (ESCP)

Environment Protection Licence

Environment Protection Licence clauses that specifically address the management of air quality are included below.

Table 16: Environment Protection Licence

EPL Ref	Requirement	Where Addressed
O2.1	<p>Maintenance of plant and equipment</p> <p>All plant and equipment installed at the premises or used in connection with the licensed activity:</p> <p>a) must be maintained in a proper and efficient condition; and</p> <p>b) must be operated in a proper and efficient manner.</p>	S8.2.3
O3.1	<p>Dust</p> <p>The licensee must ensure that construction work is carried on by such practicable means as may be necessary to minimise dust emissions on the premises, and implement all reasonable and feasible measures to prevent the release of dust from the premises.</p>	S7
O4.4 (a)	<p>Waste Management</p> <p>The licensee must ensure that:</p> <p>(a) the body of any vehicle or trailer, used to transport waste or excavation spoil from the premises, is covered before leaving the premises to minimise any spill or escape of any dust, waste, or spoil from the vehicle or trailer; and</p>	S7.2.2 S7.3

Attachments

EPL Ref	Requirement	Where Addressed
O5.6	During construction, the Licensee must conduct gas accumulation monitoring within each constructed service pit. Gas monitoring must continue monthly during construction, plus whenever service personnel intend to access a pit.	
O5.7	If methane is detected at a concentration of greater than 1% (volume/volume) during construction works, the Licensee must immediately notify the EPA and submit a remedial plan. Except to the extent necessary to carry out monitoring and remedial works by a suitably qualified person, access to the pits must cease until monitoring demonstrates that the remediation measures are effective.	

Attachment B: Glossary

The following table outlines key terms used in this document and associated procedures:

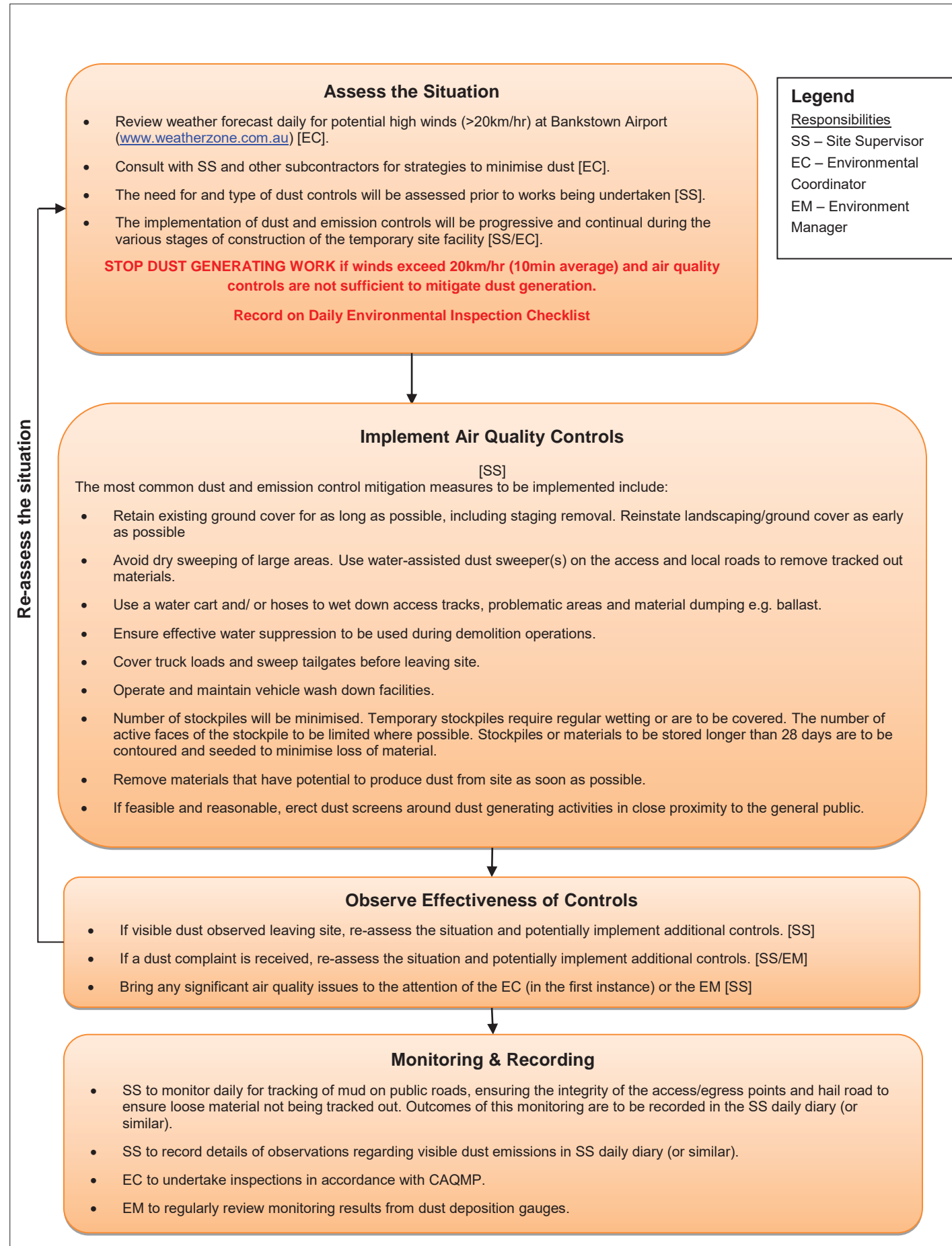
Term	Definition
ARTC	Australian Rail Track Corporation
BoM	Bureau of Meteorology
CAP	Construction Area Plan – The main document prepared during the construction planning for that work area. Includes construction methodology, risk assessment, constructability reviews and Work Pack listing.
CAQMP	Construction Air Quality Management Plan
CCC	Campbelltown City Council
CEMP	Construction Environmental Management Plan
CoA	Condition of Approval
DotE	Department of the Environment (Commonwealth)
DP&E	Department of Planning and Environment
EIS	Environmental Impact Statement
EMS	Environmental Management System
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EP&A Regulation	Environmental Planning and Assessment Regulation 2000
EPA	Environment Protection Authority
EPBC Act	<i>Environmental Protection and Biodiversity Conservation Act 1999</i> (Commonwealth)
EPBC Approval	Approval (No. 2011/6229) granted under the EPBC Act on March 2014 by the Commonwealth Department of the Environment for the development of the SIMTA IMT Facility at Moorebank.
EPL	Environment Protection Licence
ESCP	Erosion and Sediment Control Plan
FCMM	Final Compilation of Mitigation Measures
IMEX	Import / Export
LCC	Liverpool City Council
LEP	Local Environmental Plan
LGA	Local Government Area
MIC	Moorebank Intermodal Company
MIC Project	Moorebank Intermodal Terminal Project (SSD-5066) approved under Part 4, Division 4.1 of the <i>Environmental Planning and Assessment Act 1979</i>
MNES	Matters of National Environmental Significance
NEPC	National Environment Protection Council
NEPM	National Environment Protection Measure

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Term	Definition
OEH	NSW Office of Environment and Heritage
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
RailCorp Land	Lot 1 DP 825352 (part of the Rail Corridor) and owned by RailCorp
RALP No. 1	Rail Access Land Package No. 1 (this Project)
SIMTA	Sydney Intermodal Terminal Alliance – a consortium comprising Qube Holdings and Aurizon
SSD	State Significant Development
SSFL	Southern Sydney Freight Line
TEU	Twenty-foot Equivalent Unit
Work Area	A separable portion of work that is identified early in construction planning to help drive early definition of construction methodology and alignment of design activities. Work Areas should be listed in the overall construction methodology. The planning document for a work area is called a Construction Area Plan.
Work Pack	A pack of relevant construction documents that contains relevant information for Site Engineers and foremen to manage the works. There will be multiple Work Packs contained in a CAP. A Work Pack contains work method statements, risk assessments, ITPs, drawings, site instructions, environmental controls, etc.
Work Procedure	A document that provides a detailed step-by-step description for how work activities will be carried out. May document Risks & Controls associated with each step

Attachment C: Stakeholder Consultation Response

Attachment D: Air Quality Procedure



1. Introduction

Objectives

- To describe the minimum mandatory requirements for the management of air quality associated with construction activities.

Training

- All personnel are to undertake Project inductions identifying their environmental and compliance obligations under the Minister's Conditions of Approval for the Project.
- Obligations and responsibilities relevant to air quality management will also be included in daily pre-start or activity-specific pre-start briefings, toolbox talks or targeted environmental training as appropriate.

2. Standards and Guidelines

- Construction Air Quality Management Plan (CAQMP)
- NSW EPA Local Government Air Quality Toolkit, Visual Guide: Dust from urban construction sites

3. Air Quality Management

- Communicate regularly with other high risk construction sites in close proximity to the Project, to ensure plans are coordinated and cumulative dust and particulate matter emissions are minimised.
- Coordinate deliveries within project to avoid duplicating vehicle trips
- Where reasonable and feasible, plant and equipment fitted with catalysts, diesel particulate filters (or similar) would be preferably used on site
- Construction Area Plans and Work Packs to consider air quality controls to be implemented when detailing the construction methodology and planning the works. Air quality controls, in addition to those listed in the process diagram, may be sourced from the CAQMP.
- Plan site layout so that machinery and dust generating activities are located away from receptors, as far as is possible.
- Construction activities which are likely to result in dust generation include: operation of plant and vehicle movements on unsealed roads, demolition, stockpiling, earthworks and material handling.
- Refer to the Asbestos Management Plan if dealing with asbestos containing material.
- Impose and signpost a maximum-speed limit of 20 km/h on surfaced and unsurfaced haul roads.
- Exposed areas to be minimised. Rehabilitation, seeding or grassing to be undertaken as soon as practicable.
- Ensure operator's plant checklist is completed daily and all new plant / equipment being delivered to site has undergone a plant / equipment inspection.
- Soft strip the inside of buildings before demolition.
- Notify SS if material is deposited on a public road. SS to make arrangements to have the material cleared as soon as practicable.
- Burning of any materials is prohibited.

4. Complaints Management

Record all dust and air quality complaints in accordance with the Construction Complaints Management System.

5. Incident Management

Any exceptional incident which causes dust/emissions, either on-site or in close proximity to the site, is to be recorded in the Foreman's daily diary and immediately reported to the SS. The SS to report the matter to the EM and CM.