



Design and Construction of Stage AB of the Googong Water Recycling Plant (WRP)

Contract Number WRP01

Air Quality Management Plan

Rev	Date	Prepared by	Reviewed by	Approved by	Remarks
1	6/09/13	RPS Manidis Roberts			Draft CEMP issued to agencies for review.
2	18/10/13	RPS Manidis Roberts			Updated CEMP issued to DP&I for review.
3	29/11/13	RPS Manidis Roberts			Updated CEMP issued to DP&I for approval.
4	15/08/14	Cameron Newling	Steve Merange	Steve Merange	JHPL updated CEMP issued to ER for review
<u>5</u>	<u>21/08/14</u> <u>1/08/14</u>	<u>Cameron</u> <u>Newling</u>	<u>Steve</u> <u>Merange</u>	<u>Steve</u> <u>Merange</u>	<u>JHPL updated CEMP issued to ER for endorsement</u> <u>JHPL updated CEMP issued to ER for</u>



Fi

eron Newling

Merange

Merange

endorsement

Manidis Roberts

JOHN HOLLAND GROUP PTY LTD

Level 3, 65 Pirrama Road
Pyrmont NSW 2009

t (02) 9552 4288 f (02) 9660 0410

info@jhq.com.au

www.johnholland.com.au



Contents

1	Introduction	1
1.1	Context	1
1.2	Background	1
1.3	Environmental Management System overview	1
2	Purpose and objectives	2
2.1	Purpose	2
2.2	Objectives	2
3	Environmental requirements	3
3.1	Relevant legislation and guidelines	3
3.2	Minister's Conditions of Approval	4
3.3	Statement of Commitments	5
4	Environmental aspects and impacts	7
4.1	Environmental aspects	7
4.2	Air quality impacts	8
5	Environmental control measures	10
5.1	Air quality mitigation and management measures	10
6	Compliance management	14
6.1	Roles and responsibilities	14
6.2	Training	14
6.3	Inspections	14
6.4	Auditing	14
6.5	Reporting	15
7	Review and improvement	16
7.1	Non-conformity, corrective and preventative actions	16
7.2	Management plan update and amendment	16

List of tables

Table 1	Conditions of Approval relevant to air quality	4
Table 2	Statement of Commitments relevant to air quality	5
Table 3	Air quality mitigation measures	10

List of figures

Figure 1	Sensitive receivers	9
-----------------	---------------------	---

1 Introduction

1.1 Context

This Air Quality Management Plan (AQMP or Plan) forms part of the Construction Environmental Management Plan (CEMP) for Stage AB – WRP.

Refer to Section 1 and Section 2 of the CEMP for additional detail on the scope of Stage AB WRP to which this AQMP applies.

This AQMP has been prepared to address the requirements of the Minister's Conditions of Approval (CoA), the Statement of Commitments (SoC), the safeguards listed in the Googong Township water cycle project Environmental Assessment (EA), submissions report, and all applicable legislation.

1.2 Background

The Googong Township water cycle project EA assessed the impacts of construction and operation of the IWC Project on air quality.

As part of EA development, a detailed assessment was prepared to address the Director-General's Requirements issued by the Department of Planning and Infrastructure (DP&I). The air quality assessment was addressed in Section 13.3 of the EA.

The EA concluded that there were unlikely to be significant air quality impacts associated with the construction and operation of the IWC Project, following the implementation of the proposed mitigation measures identified in the EA.

1.3 Environmental Management System overview

The overall Environmental Management System for Stage AB WRP and approach to managing environmental impacts for during construction is described throughout the CEMP.

This AQMP forms part of the environmental management framework for Stage AB WRP, as described in Section 1.6 of the CEMP.

2 Purpose and objectives

2.1 Purpose

The purpose of this Plan is to describe how Googong Township Pty Ltd (GTPL) and John Holland Propriety Limited (JHPL) will manage air quality impacts during construction of Stage AB WRP.

This Plan also assists in ensuring that the construction of Stage AB WRP meets the environmental objectives and targets as defined in Section 3.5 of the CEMP.

2.2 Objectives

The key objective of the AQMP is to ensure that impacts to air quality, (ie dust and odour), are minimised. To realise this objective, the following will be undertaken:

- Ensure appropriate controls and procedures are implemented during construction activities to avoid or minimise potential adverse impacts to air quality (refer Section 5.1).
- Ensure appropriate measures are implemented to address the relevant CoA and SoC, and the safeguards detailed in the EA and submissions report (refer Section 3.2 and Section 3.3).
- Ensure appropriate measures are implemented to comply with all relevant legislation and other requirements as described in Section 3.1 of this Plan.

3 Environmental requirements

3.1 Relevant legislation and guidelines

Section 3.1 of the CEMP identifies the legal and other requirements applicable to the IWC Project and construction of Stage AB WRP. This section identifies the key legislation applicable to managing air quality.

3.1.1 Legislative requirements

Environmental Planning and Assessment Act 1979 (EP&A Act)

As outlined in Section 3.1 of the CEMP, the IWC Project was assessed and approved by the Planning Assessment Commission under delegation from the Minister for Infrastructure and Planning under Part 3A (now repealed) of the EP&A Act.

Protection of the Environment Operations Act 1997 (POEO Act)

Construction of Stage AB WRP will be undertaken in accordance with POEO Act and Protection of the Environment Operations (Clean Air) Regulation 2010, which covers a range of environmental offences including the generation of dust. Specifically, Part 5.4 of the POEO Act details air pollution offences and requirements for the proper and efficient operation, maintenance and handling of plant, equipment and materials.

Under Section 47 of the POEO Act, a Scheduled Development Environment Protection Licence (EPL) is required for the construction of Stage AB WRP for works that will enable a scheduled activity (Sewage Treatment – as listed in Schedule 1 of the POEO Act). GTPL has obtained an EPL (No. 20188) and the conditions of the licence must be adhered to during the construction of Stage AB WRP (refer AQ4).

3.1.2 Relevant guidelines

- *Managing Urban Stormwater: Soils and Construction 'The Blue Book'* (Landcom, 2004).
- *National Environment Protection Measure for Ambient Air Quality* (Environment Protection Heritage Council, 1998)

3.2 Minister's Conditions of Approval

The CoA relevant to this Plan are listed in Table 1. A cross reference is also included to indicate where the condition is addressed in this Plan or other management documents.

Table 1 Conditions of Approval relevant to air quality

CoA No.	Condition requirements	Document reference
B1	The Proponent shall ensure that all the plant and equipment used on site is: (a) maintained in a proper and efficient condition; and (b) operated in a proper and efficient manner.	Table 3 (AQ4, AQ18, AQ19)
B6	The Proponent shall ensure no offensive odours are emitted from the project site, as defined under the <i>Protection of the Environment Operations Act 1997</i> .	Section 3.1.1 Table 3 (AQ24) Note there is limited opportunity for the emission of offensive odours during construction. This condition will be addressed in more detail as part of the Operation Environmental Management Plan, for potential odour emissions relating Stage AB WRP.
C16	The Proponent shall: (a) implement best practice air quality management on site, including all reasonable and feasible measures to minimise off-site odour, fume and dust emissions generated by the project; (b) minimise any visible air pollution generated by the project; and (c) regularly assess the meteorological forecasting data, and relocate, modify and/or stop activities on site to ensure compliance with the relevant conditions of this approval.	Table 3 (AQ1, AQ2, AQ3, AQ6, AQ7, AQ8, AQ9, AQ11, AQ12, AQ13, AQ14, AQ15, AQ16, AQ17, AQ18, AQ19, AQ20, AQ21, AQ22, AQ23) Section 6.3 Section 6.4
C19	(g) measures to monitor and manage dust emissions, including dust generated by traffic on unsealed public roads and unsealed internal access tracks.	Table 3 (AQ4, AQ8, AQ9, AQ10, AQ12, AQ13, AQ14, AQ16, AQ17, AQ20, AQ21, AQ25) Section 6.3 Section 6.4

3.3 Statement of Commitments

The SoC relevant to this Plan are listed in Table 2. A cross reference is also included to indicate where the commitment is addressed in this Plan or other management documents.

Table 2 Statement of Commitments relevant to air quality

Objective	Ref. No.	Commitment	Timing	Document reference
Ensure detailed design and urban layout of the Googong township meet air quality requirements for odour.	AQ1	The dispersion modelling undertaken as part of the Googong New Town ERP Odour Impact Assessment will be validated at a later stage in the design, for the ultimate development. This will include consideration of <ul style="list-style-type: none"> Site-specific meteorological data, collected at the WRP site for a least 12 months prior to commissioning. Site specific odour data collected during and following commissioning, prior to the residential development of the immediate area west of the WRP. 	Prior to and during construction,	Table 3 (AQ5)
Minimise odour impacts of WRP and SPS at nearby receivers	AQ2	Odour control facilities at the SPSs and the WRP will be installed as detailed in the EA (refer to Sections 5.3.4 and 6.11 of Appendix B).	Construction	Table 3 (AQ23)
Minimise the impact of construction activities on dust generation	AQ4	The CEMP will include typical dust suppression measures. Nuisance dust will be minimised by: <ul style="list-style-type: none"> Reducing speed limits during high dust conditions. Clearing vegetation and topsoil only within the designated footprint. Progressive reinstatement of disturbed areas. Employment of water trucks to reduce dust in dry, windy conditions. 	Construction	Table 3 (AQ6, AQ7, AQ8, AQ13, AQ14, AQ20, AQ21) Section 6.3
Minimise dust generated by construction activities such as blasting	AQ5	Blasting will be conducted at appropriate times, with consideration of site conditions and sensitive receivers.	Construction	Table 3 (AQ22)

Objective	Ref. No.	Commitment	Timing	Document reference
Manage construction activities according to weather conditions to minimise the potential for dust storms	AQ6	Working practices will be modified during periods of high winds by limiting the use of some machinery, particularly when in close proximity to dwellings, and reducing vehicle travel speeds.	Construction	Table 3 (AQ12, AQ21, AQ25) Section 6.3 Section 6.4
Avoid adverse impacts on air quality due to smoke	AQ7	The burning of material on site will be prohibited, except under the instruction of fire services.	Construction	Table 3 (AQ11)
Minimise emissions from vehicle use	AQ8	Vehicles will be well maintained to ensure emissions are kept to the minimum practicable.	Construction	Table 3 (AQ17, AQ19)

4 Environmental aspects and impacts

The following sections summarise existing environment. Identified impacts are then reviewed. The key reference document is Section 13.3 of the EA.

4.1 Environmental aspects

4.1.1 Existing environment

The Googong area is located within a rural landscape characterised by large rural landholdings, State forests and small townships. The area is predominantly surrounded by low-intensity grazing, bushland and rural residential land uses. No intensive agricultural activities are known to occur.

The ambient air quality of the local area is affected by the predominantly agricultural use of the surrounding area, and is relatively clean and fresh. There are minimal odour impacts from the agricultural uses due to the low-intensity farming.

Various external factors occasionally have impacts on air quality in the local area. These include:

- Operations of the quarry located on Old Cooma Road. Blasting, crushing and other quarrying activities, vehicle movements on unsealed surfaces and windborne particles picked up from exposed surfaces, may generate dust pollution. The environmental management plan for the quarry includes several measures to manage dust, however impacts are to some extent variable, subject to weather conditions.
- Seasonal bushfires, burn-offs and hazard reduction burning, which produce smoke and ash.

4.1.2 Identification of potentially sensitive receivers

The construction of the Stage AB WRP will interact with a number of sensitive receivers and natural environments. The lands surrounding the Stage AB WRP have been considered for potential sensitivity to dust and air quality impacts. The potential sensitive receivers or landscapes include:

- Residences: north and west of the Stage AB WRP on Googong Dam Road, Old Cooma Road and in Neighbourhood 1A (NH1A) (refer Figure 1).
- Non-residential receivers: Park ranger station on Googong Dam Road and ACTEW water treatment plant.
- Native vegetation.
- Road users: Googong Dam Road and Old Cooma Road.
- Watercourses: Googong Creek and Montgomery Creek (and tributaries).

4.1.3 Construction activities

Key aspects of Stage AB WRP that could result in adverse impacts to air quality include:

- Vegetation clearing.
- Trenching and earthworks.
- Material handling including stockpiling, loading and haulage.
- Vehicular movements over unsealed access roads.
- Wind erosion of exposed areas and temporary stockpiles.
- Tracking of dirt onto roads.
- Blasting.
- Vehicle and plant exhaust emissions.

4.2 Air quality impacts

4.2.1 Construction impacts

Potential air quality impacts from construction activities may include:

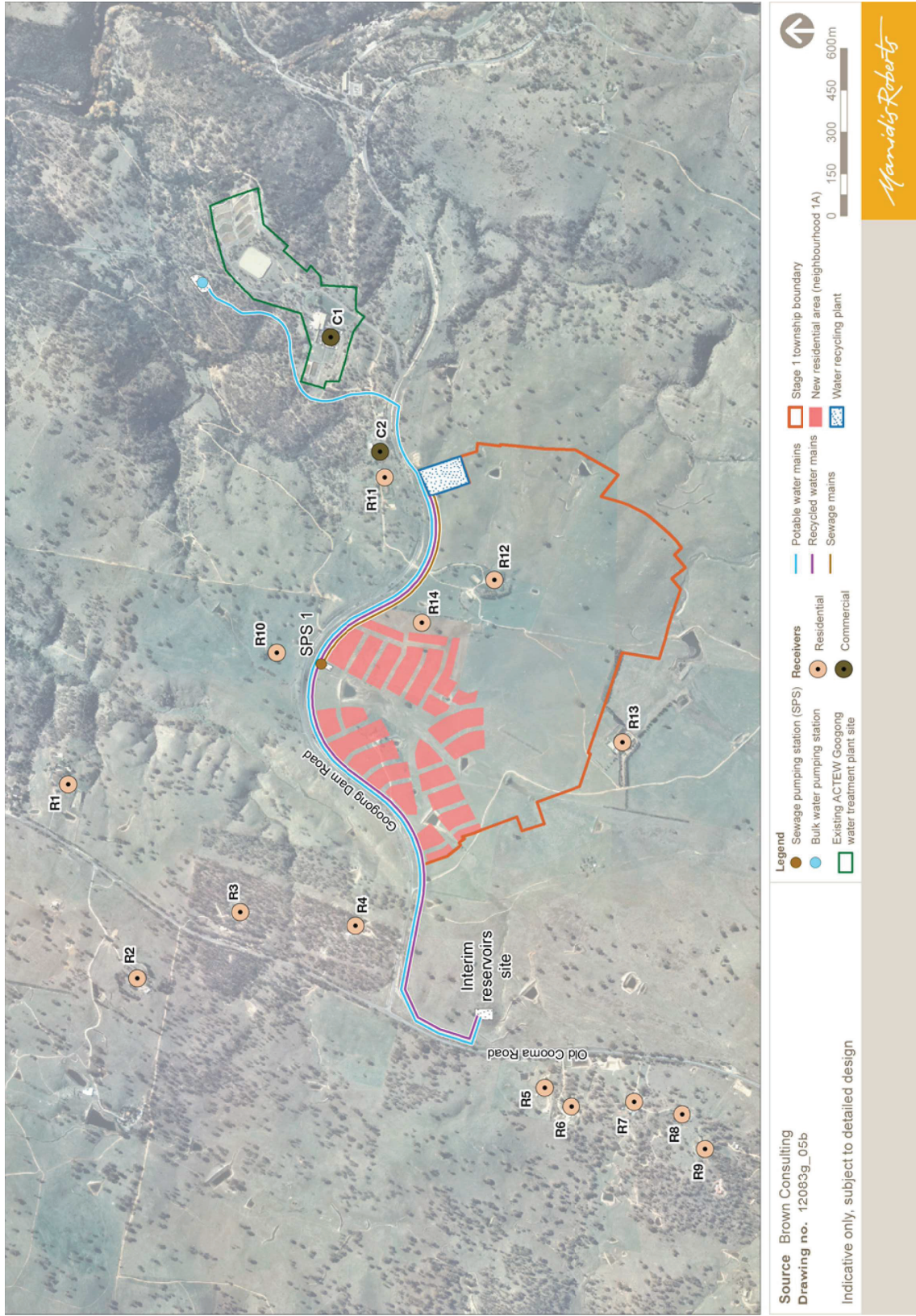
- Deposition of dust on surfaces where it may cause damage and/or lead to a need for increased cleaning or repair.
- Aesthetic effects arising from visible airborne dust plumes and from deposits of dust on surfaces.
- Potential adverse health effects including eye, nose and throat irritation from excessive inhalation of fine particles.
- Impacts on water quality and/or vegetation from dust deposition.
- Impacts on residential and non-residential sensitive receivers, including impacts on living areas and general amenity.
- Complaints from the public relating to dust or odours.

4.2.2 Cumulative impacts

GTPL and their contractors will be carrying out other construction work packages including for the Googong Township subdivision (approved under Part 4 of the EP&A Act by Queanbeyan City Council) and the Stage B - Network. These works, when occurring at the same time in proximity to sensitive receivers, may increase the predicted construction air quality impacts.

Each work package will be managed through a separate CEMP. GTPL, as the proponent of each package of work, will ensure that the separate projects liaise with one another to ensure that high dust generating activities are scheduled to minimise cumulative air quality impacts at sensitive receivers as far as practical (refer AQ25).

Figure 1 Sensitive receivers



Manville's Roberts

5 Environmental control measures

5.1 Air quality mitigation and management measures

A range of environmental requirements and control measures are identified in the various environmental documents, including the CoA, SoC and the EA. Specific measures and requirements to address impacts on air quality are outlined in Table 3.

Table 3 Air quality mitigation measures

ID	Measure	When to implement	Reference	Responsibility
AQ1	Consultation with the community will be undertaken in accordance with Section 6.3 of the CEMP. Consultation will be undertaken regarding construction activities likely to generate dust.	Prior to construction; construction	CoA C16	GTPL Assistant Project Director
AQ2	Complaints will be handled in accordance with the Complaints Management Procedure appended to the Community Engagement and Stakeholder Management Plan. The Project Manager will forward all air quality related complaints to the GTPL Assistant Project Director.	Construction	CoA C16	Project Manager GTPL Assistant Project Director
AQ3	All project personnel will be provided training on the requirements of this Plan, through site inductions, toolbox talks or specific training.	Prior to construction; construction	CoA A8 CoA C16	Environment Manager
AQ4	JHPL will adhere to and implement the conditions of any Environment Protection Licences (EPLs) held for the IWC Project. The EPL will be made available for inspection by all personnel and will be kept on site at all times. The EPL will be produced to any authorised officer of the EPA who asks to see it.	Prior to construction; construction	CoA A7 CoA B1 CoA C19(g)	Project Manager
AQ5	Undertake site-specific meteorological data at the Stage AB WRP site for at least 12 months prior to commissioning. (Note a meteorological station was established in July 2013. The location is shown in the Environmental Constraints Map (refer Appendix I of the CEMP)).	Prior to commissioning	SoC AQ1	GTPL Assistant Project Director.

ID	Measure	When to implement	Reference	Responsibility
AQ6	Clearing of vegetation will be limited to the area required for construction, site compounds and temporary lay down areas (refer Appendix I of CEMP).	Construction	CoA C16 SoC AQ4	Project Manager Environment Manager
AQ7	Disturbed areas will be progressively stabilised as soon as practicable. Rehabilitation will be undertaken in accordance with the Landscape Management Plan and/or Soil and Water Management Plan (refer Appendix A of CEMP), as relevant.	Construction	CoA C16 SoC AQ4	Project Manager Environment Manager
AQ8	Erosion and sedimentation management measures will be installed as per the 'Blue Book' (Landcom, 2004)	Construction	CoA C16 CoA C19(g) SoC AQ4	Project Manager Environment Manager
AQ9	Temporary spoil stockpiles will be managed (dampened or covered) to minimise dust generation.	Construction	CoA C16 CoA C19(g)	Project Manager Environment Manager
AQ10	Stockpiles will be stabilised or covered if they are to remain in place for a period of greater than two weeks.	Construction	CoA C16 CoA C19(g)	Project Manager Environment Manager
AQ11	No burning or incineration of any waste (including green waste) will be permitted, except under the instruction of emergency services.	Construction	CoA C16 SoC AQ7	Project Manager Environment Manager
AQ12	Dust generation will be monitored visually during construction. If excessive dust is identified, the mitigation measures contained in AQ13 (water spraying) will be implemented where reasonable and feasible.	Construction	CoA C16 CoA C19(g) SoC AQ6	Environment Manager
AQ13	Water sprays and/or water carts will be used as required for dampening stockpiles, cleared areas and other exposed surfaces to control dust generation. Dust suppression will be targeted to protect sensitive receivers (residents, road users, fauna habitat etc).	Construction	CoA C16 CoA C19(g) SoC AQ4	Project Manager Environment Manager
AQ14	Construction speed limits will be established and enforced to ensure dust generation from vehicle movements are minimised. Speed limits would be reduced during high dust/windy conditions. Refer to Traffic Management Protocol (refer Appendix C of CEMP).	Construction	CoA C16 CoA C19(g) SoC AQ4	Project Manager

ID	Measure	When to implement	Reference	Responsibility
AQ15	Measures to ensure limited tracking of dirt off site will be implemented at access points. The controls will include exit rumble grids at all points of egress onto public (sealed) roads, sweeping of sealed roads to remove deposited material where applicable, and/or stabilisation of site roads/tracks with aggregate where appropriate.	Construction	CoA C16 CoA C19(g)	Project Manager
AQ16	All vehicles used for material and waste haulage will have covers and all loads will be covered on public roads.	Construction	CoA C16 CoA C19(g) SoC AQ8	Project Manager
AQ17	Tailgates, under-rigs and towing apparatus of trucks will be checked to ensure they are free of loose material, prior to trucks leaving the construction site. Where loose material is present, this will be swept prior to the truck leaving the site.	Construction	CoA C16 CoA C19(g)	Project Manager
AQ18	Construction plant, vehicles and machinery will be operated in a proper and efficient manner.	Construction	CoA C16 CoA B1	Project Manager
AQ19	Construction plant, vehicles and machinery will be maintained to minimise exhaust emissions. Records of maintenance will be kept for all plant, vehicles and machinery used for Stage AB WRP. These records will be maintained by the owners of the plant and subject to random auditing by the Environment Manager.	Construction	CoA B1 SoC AQ8	Project Manager Environment Manager
AQ20	As a minimum, all site accesses will be stabilised with gravel to minimise dust generation and tracking of sediments.	Prior to construction; construction	CoA C16 CoA C19(g) SoC AQ4	Project Manager
AQ21	Meteorological forecast data will be reviewed daily and where prevailing weather conditions are likely to generate high dust impacts, the Environment Manager will: <ul style="list-style-type: none"> Review dust generating activities for the day and order work to cease (or to not to commence) if it is determined that activities are likely generate excessive dust. Direct that dust control such as water sprays be used for dust generating activities, if appropriate. Refer also to AQ10.	Construction	CoA C16 CoA C19(g) SoC AQ4 SoC AQ6	Environment Manager

ID	Measure	When to implement	Reference	Responsibility
AQ22	Any blasting will be conducted at appropriate times (ie avoid high wind periods), and in accordance with Condition of Approval C10 - with consideration of site conditions, other construction works and sensitive receivers. Specific measures to limit air quality impacts will be detailed in the Blast Management Plan to be prepared (refer to Noise and Vibration Management Plan - Appendix D of CEMP).	Construction	CoA C16 SoC AQ5	Project Manager Environment Manager
AQ23	Odour control facilities at Stage AB WRP will be designed and then installed during construction for use in operation phase.	Construction	SoC AQ2	Design Manager Project Manager
AQ24	Any complaints of offensive odours (as defined under the <i>Protection of the Environment Operations Act 1997</i>) will be investigated and the source of the odour will be controlled/contained while alternative work methods are developed.	Construction	CoA B6	Project Manager Environment Manager
AQ25	GTPL will oversee the scheduling of high dust generating activities for Stage AB works and other Googong works (such as the Part 4 subdivision works). Cumulative air quality impacts will be minimised as far as practical.	Construction	CoA C26 CoA C19(g) SoC AQ6	GTPL Assistant Project Director

6 Compliance management

6.1 Roles and responsibilities

The project team's roles and responsibilities are outlined in Section 4.1 of the CEMP. Specific responsibilities for the implementation of environmental controls are detailed in Section 5 of this Plan.

6.2 Training

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

- Use of water sprays and carts as required during works.
- Covering of all loads on public roads.
- Actions to take in the event that dust is unduly impacting on sensitive receivers.
- Review of dust generating activities in high wind conditions.

Further details regarding staff induction and training are outlined in Section 5 of the CEMP.

6.3 Inspections

Inspections of the amount and distribution of dust generated on site and of activities with the potential to generate dust will occur as required for the duration of construction. Daily visual inspections of the construction site will be undertaken by the Environment Manager and personnel to identify prevailing weather conditions, excessive dust generation and any additional management measures required.

The Environment Manager will undertake weekly environmental inspections including of air quality (dust) management and mitigation measures. This will include auditing of construction activities to ensure efficient and correct operation of plant, use of water carts, management of stockpiles etc. These inspections will be documented on the weekly checklist.

The Environmental Representative will inspect the site regularly to assess air quality controls.

Requirements and responsibilities in relation to inspections are documented in Section 8.1 of the CEMP.

6.4 Auditing

Audits (both internal and external) will be undertaken to assess the effectiveness of environmental controls, compliance with this Plan, CoA and other relevant approvals, licenses and guidelines.

Audit requirements are detailed in Section 8.4 of the CEMP.



6.5 Reporting

Results and outcomes of inspections, monitoring and auditing will be reported internally on a monthly basis. Six-monthly construction compliance reports will be prepared to report on compliance with the IWC Project Approval. Reporting requirements and responsibilities are documented in Section 8.5 of the CEMP.



7 Review and improvement

7.1 Non-conformity, corrective and preventative actions

A non-conformance is an action or omission that does not conform with the requirements of this Plan or any legal and other requirements. Any member of the project team or the Environmental Representative can identify a non-conformance or opportunity for improvement. Section 8.3 of the CEMP identifies the process for identifying, reporting, recoding and reviewing non-conformances. This will ensure continual improvement.

7.2 Management plan update and amendment

The processes described in Section 7 and Section 8 of the CEMP may result in the need to update or revise this Plan. This will occur as needed.