Air Quality Management Sub-Plan

Cross River Rail – Rail, Integration and Systems Alliance

Project number:	Q01080
Document number:	RIS-UNA-000-001-MPL-000269
Revision date:	11 October 2021
Revision number:	05

Document Approval

Rev	Date	Prepared By	Reviewed By	Approved By	Remarks
A	28/06/19	UNITY – Environment Manager	UNITY – Delivery Manager		IFR
B	08/09/19	UNITY – Environment Manager	UNITY – Delivery Manager		IFR
C	17/10/19	UNITY – Environment Manager	UNITY – Delivery Manager		IFR
D	26/11/19	UNITY – Environment Manager	UNITY – Delivery Manager		IFR
00	24/01/20	UNITY – Environment Manager	UNITY – Delivery Manager	UNITY – Environment Manager	IFU
01	20/07/20	UNITY – Senior Environmental Advisor	UNITY – Environment Manager		IFR
02	07/09/20			UNITY – Environment Manager	IFR
03	01/10/20			UNITY – Environment Manager	IFU
04	26/08/21	UNITY – Senior Environmental Advisor	UNITY – Environment Manager		IFR
05	11/10/21			UNITY – Environment Manager	IFU
Signature:				[redacted]	

Assured Integration for a New Era

Table of Contents

Plan Control

This Air Quality Management Sub-Plan (the plan) has been developed for the Cross River Rail – Rail, Integration and Systems Project.

Approvals, Revisions and Amendments

Plan approval is in accordance with Section 4.1.2 of the Construction Environmental Management Plan (C-EMP).

Plan reviews and updates are in accordance with Section 7 and Section 8.1 of the C-EMP.

Revision Details

Revision	Remarks
A	Final C-EMP for Review and endorsement by the Environmental Monitor
B	Incorporation of IEM review comments from 20 August 2019
C	Incorporation of IEM review comments from 16 September 2019
D	Incorporation of IEM review comments from 04 November 2019
00	Plan updated to include internal Hold Point process for unrestricted endorsement
01	6 monthly review and updated to incorporate changes linked to RfPC-7 and Updated O-EMP The update does not include new or additional Relevant Project Works
02	Issued for review to IEM
03	Issued for Use – no further comments to be addressed
04	Issued for review to the IEM 6 monthly review and update to incorporate • changes linked to RfPC-11 • addition of the Southern Area Scope of Works (Dutton Park and Buranda)
05	Issued for Use

1 Purpose of this Plan

This sub-plan has been prepared to comply with:

- Coordinator-General's Imposed Conditions of Approval – Appendix 1 – Part C –
  - Condition 2
  - Condition 4c(ii)
  - Conditions 13(a) and 13(b)
- Final Outline-Environmental (O-EMP) – Appendix E - Air Quality Management Plan.

Component	Details
Environmental Outcome(s)	• Throughout construction, the following Imposed Condition/s, nominated in the CGCR (the latest version is available on the Department of State Development, Tourism and Innovation website) must be achieved: Condition 13 Air Quality • Nuisance from dust, odour and emissions arising from construction activities is minimised at nearby sensitive places.
Relevant Area	• Site wide with key areas being: – Southern Area (Dutton Park) with the Proximity of the PA Hospital and the Leukemia Foundation – Clapham Yard (and the residents located on the eastern boundary of the Yard), – RNA, and – Mayne Yard.
Relevant Works/ Activities	• General construction activities with a focus on: – Earthworks involving the excavation and storage of spoil material – Rock demolition – Import and placement of fill material (excluding ballast) – Demolition of existing buildings – Concrete cutting/sawing activities – Spoil haulage to offsite location.
Performance Criteria	• Construction emissions are within the construction air quality objectives for total suspended particulates (TSP), particulate matter (PM) and deposited dust, as set out in Imposed Condition 13 in the CGCR - the latest version is available on the Department of State Development, Tourism and Innovation website. • Where construction emissions are predicted to exceed the construction air quality goals, mitigation measures are designed and implemented to mitigate the impacts for nearby occupied Sensitive Places.
Sustainability	Ene-1, Ene-2, Dis-4; Hea-1 and Sta-4
Mitigation Measure	• Undertake risk/predictive assessment in accordance with Attachment 1 • Undertake predictive modelling prior to relevant construction activities commencing to ascertain locations where exceedances of air quality goals may occur. • The details of the modelling are documented in a supplementary Air Quality Modelling and Assessment Report • The results from predictive modelling are incorporated into both design (i.e. operational emissions, etc.) as well as construction planning (i.e. site-specific mitigation measures for construction activities included in in Work Packs and SEPs) • The results from predictive modelling are be used to identify Directly Affected Person/s and enable consultation to occur via processes outlined within the Community Engagement Plan. • Predictive modelling is be updated to incorporate significant changes to detailed design and/or construction methodologies, unless the change involves a reduction in potential air quality risk to sensitive receivers • Prior to the Relevant Project Works commencing the supplementary Air Quality Modelling and Assessment Report (or equivalent) prepared by a Suitably Qualified Person is provided

Component	Details
	to the Environmental Monitor with sufficient notice to demonstrate compliance with Condition 13 and Condition 4c(ii). • Air quality monitoring locations and type are designated based on the advice from a Suitably Qualified Person and are detailed in the relevant SEPs. • The Relevant Project Works will not be authorised to commence until the relevant information required under Condition 4c(ii), that is the Air Quality Modelling and Assessment Report (or equivalent) has been provided to the Environmental Monitor • Implement appropriate dust control measures which may include: – minimising the amount of exposed areas where possible, – implementing dust suppression (e.g. water carts) at a suitable frequency to prevent migration of visible dust outside project boundaries – ensuring heavy vehicles carting loose bulk material (e.g. fill) are adequately restrained in accordance with the National Transport Commission Requirements – determining and enforcing speed limits to minimise dust generation, and – fast-tracking stabilising / rehabilitation in exposed areas where possible. • Maintain the main access road within Victoria Park in accordance with the BCC requirements when in use by the RIS Traffic • Comply with the Haulage Management Plan and associated nominated Haulage Routes • Comply with the Vehicle management Plans included in the Workpacks • Traffic Areas within RIS worksites that have a dust risk will be the rail formation areas. Given these areas are narrow / restricted access, and therefore does not afford the ability to construct dedicated long-term haul roads, management of these areas will include: – Use of established QR access roads and RMAR's (compacted gravel maintenance access tracks) as primary access – Maintain and repair any damage to the RMAR caused by the Project Works in accordance with QR's track formation standards – Enforcing the QR speed limits (Typically 10km /hr when passing a work crew / Typically max 20 km/hr any other time) – Conduct routine inspections of the work areas to identify whether above controls are effective are mitigating dust and implement adaptive management were the mitigation measures be found to ineffective – Traffic routes within worksites over the formation that is being actively constructed and therefore disturbed ground, will be progressively sealed with rollers and water carts used to control dust during construction. – The formation subgrade will be capped with gravel to form the final surface in a relatively short timeframe (given shallow embankments are only required). Once compacted, the gravel capping forms a tight paved surface for any ongoing traffic movements. – Stabilise in progress traffic areas / earthworks formations in accordance with the Site-Specific ESC-P and / or the Shutdown Procedure during extended periods of inactivity (e.g Christmas Shutdown). • Internal primary traffic within the Stabling Yards to follow the existing paved access road networks to access active work areas • Implement appropriate odour control measures which may include: – using existing land use data as well as contaminated land and acid sulfate soil investigation results to identify areas of potential odour based on proximity to sensitive receivers, – should odorous materials be identified, where possible, conduct works when prevailing wind directions are unlikely to affect sensitive receivers, and – as needed, cover odorous spoil materials including stockpiles that may result in off-site impacts or expedite the disposal of said material. • Monitor predicted meteorological conditions to provide an early warning system to the construction team on upcoming adverse conditions • Mitigate the migration of fine soil particles on open roads that may become remobilised via means of stable internal access roads

Component	Details
	• Enforce requirements for haulage trucks travelling on public roads to comply with the load restraints legislative requirements (refer Load restraint guide as amended from time to time) • Stabilise stockpiles of material that may be subject to wind dispersion, such as lime used for the treatment of ASS • Undertake regular plant and equipment inspections to ensure they are in good working order • Monitor, record and report on energy and resource use in line with the *National Greenhouse and Energy Reporting Act 2007* (NGER).
Monitoring	• Monitoring is to be undertaken consistent with Attachment 1at a sufficient frequency to confirm the mitigation measures are suitable to manage air quality to the acceptable standard. • Where site specific particulate monitoring is triggered based on the outcomes of the Air Quality Modelling and Assessment, the details of the monitoring will be included in the relevant SEPs. • Air quality monitoring devices, including weather stations, will be calibrated in accordance with manufacturer's requirements. • For deposited dust monitoring, installation of the deposition gauges shall be in accordance with the most recent version of AS/NZS 3580.10.1 • For PM10 monitoring, the monitoring must be in accordance with the most recent version of AS3580.9.6 (high volume sampling) or AS/NZS 3580.9.9 (low volume sampling) • For TSP monitoring, the monitoring must be in accordance with the most recent version of AS/NZS 3580.9.3 (high or low volume sampling) • Monitoring will be undertaken by trained and competent persons with records retained to demonstrate competencies.
Reporting	Reporting is undertaken in accordance with Section 8.2 of the C-EMP.
Corrective Action	• Management of corrective actions is undertaken as per Section 6 of the C-EMP. • Complaints will be addressed as outlined within the Community Engagement Plan. Where necessary, complaint investigations will review the need to implement additional air quality monitoring, as well as visual inspections, with the findings reported to the Independent Environment Monitoring and the complainant.
Auditing	As per Section 7 of the C-EMP.

2 Other Considerations

The WHSMP will address the following CG recommendation of Appendix 2 of the Change Report:

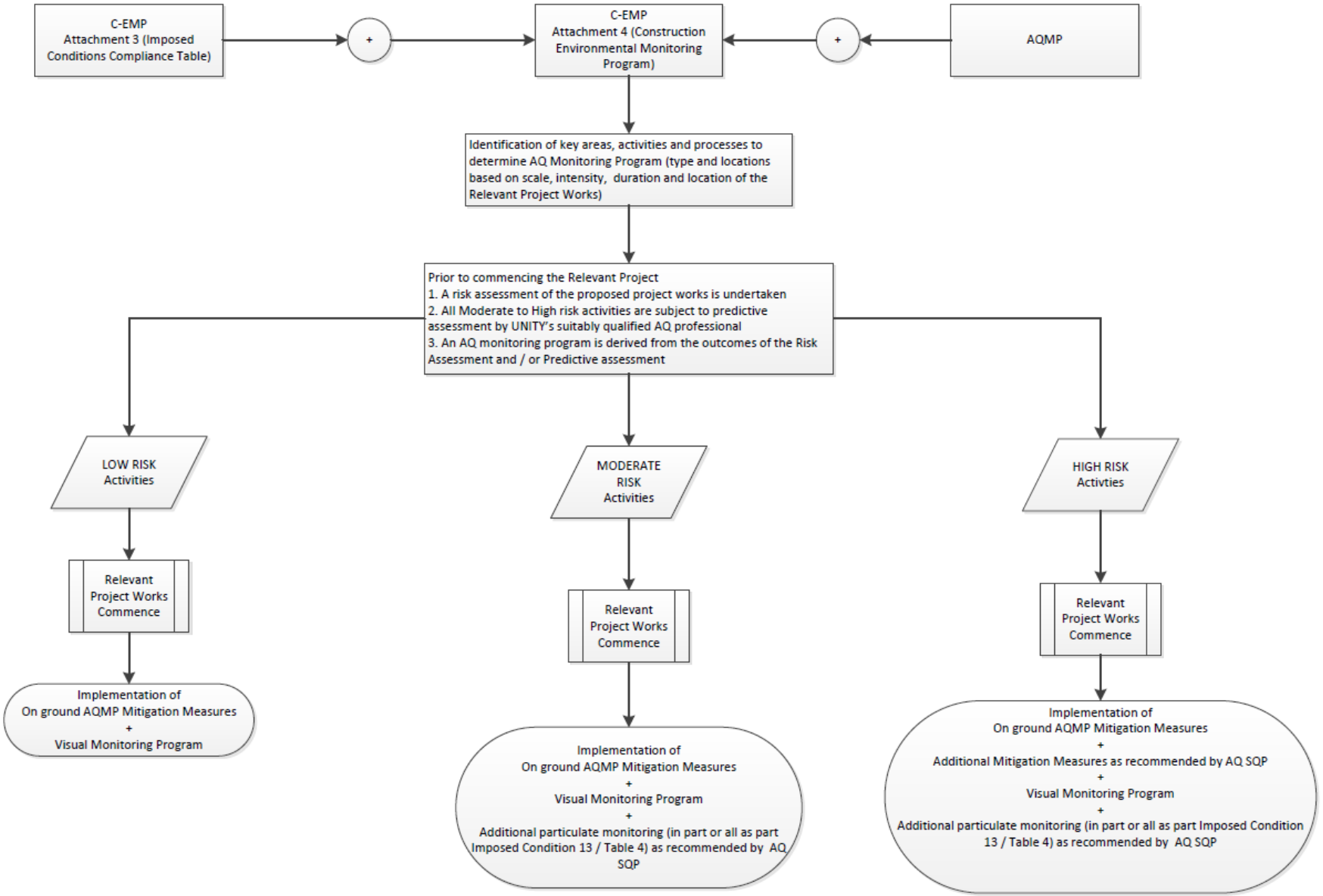
Recommendation 3. Silicosis The proponent should consider the findings from the Coal Workers' Pneumoconiosis Select Committee final report, Black Lung White Lies – Inquiry into the re-identification of Coal Workers' Pneumoconiosis in Queensland. Implement relevant recommendations regarding the potential impacts from silica to underground workers involved in tunnelling construction (silicosis) and include in:

- *Hazard and Risk sub-plan and/or*
- *Air Quality sub-plan.*

The WHSMP will include the following content:

- Key risks associated with Respirable Crystalline Silica (RCS):
  - Brick, concrete/stone cutting or drilling
  - Labouring tasks involving use of RCS-containing material
  - Demolition work on RCS containing materials
  - Mobile plant operating with open cabins on RCS-containing materials
  - Using handheld plant such as Wakka Packas and jackhammering on RCS-containing materials
  - In- ground construction such as trenching in modified fine crushed rock
- Mitigations Measures:
  - RCS will be managed in accordance with the Manage Occupational Health Procedure and Knowledge: Respirable Crystalline Silica. RCS will be managed through the hierarchy of controls including:
    - Where possible, procuring and using products that do not contain crystalline silica/quartz, based on the product's Safety Data Sheet (SDS)
    - Where possible, designing out or otherwise eliminating materials, processes and tasks that can generate RCS
    - Substituting a substance with another substance with a lower RCS content
    - Where practicable, fully sealing cabins for operators of earthmoving plant
    - Establishing a physical barrier that contains the RCS dust to a single location and prevents or restricts access to the area
    - Establishing exclusion zones/barriers around high dust areas to prevent workers and other persons in the vicinity from exposure to hazardous dust
    - Where possible, using local exhaust ventilation (e.g. on-tool extraction) or water suppression at the source (i.e. wet cutting methods). If one of these engineering controls cannot be used, fit testing must be completed and respiratory protection equipment must be worn by the worker (e.g. half mask, P2 filter is the minimum standard). Half mask requires 'clean shaven' workers
    - Where possible, vacuuming (class H as per AS/NZS 60335.2.69 with a HEPA Filter Class H as per AS 4260:1997) dust rather than sweeping
    - Competent hygienist to conduct personal exposure sample monitoring for RCS dust
    - Conducting RCS awareness training
    - Conducting fit testing and respiratory protection equipment training
    - Undertaking health surveillance for any tasks exceeding 50% of the workplace exposure standard.

Attachment 1 Predictive Modelling and Determination of Monitoring Requirements


C-EMP
Attachment 3 (Imposed Conditions Compliance Table)
+
C-EMP
Attachment 4 (Construction Environmental Monitoring Program)
+
AQMP
Identification of key areas, activities and processes to determine AQ Monitoring Program (type and locations based on scale, intensity, duration and location of the Relevant Project Works)
Prior to commencing the Relevant Project
1. A risk assessment of the proposed project works is undertaken
2. All Moderate to High risk activities are subject to predictive assessment by UNITY's suitably qualified AQ professional
3. An AQ monitoring program is derived from the outcomes of the Risk Assessment and / or Predictive assessment
LOW RISK Activities
MODERATE RISK Activities
HIGH RISK Activties
Relevant Project Works Commence
Relevant Project Works Commence
Relevant Project Works Commence
Implementation of
On ground AQMP Mitigation Measures
+
Visual Monitoring Program
Implementation of
On ground AQMP Mitigation Measures
+
Visual Monitoring Program
+
Additional particulate monitoring (in part or all as part Imposed Condition 13 / Table 4) as recommended by AQ SQP
Implementation of
On ground AQMP Mitigation Measures
+
Additional Mitigation Measures as recommended by AQ SQP
+
Visual Monitoring Program
+
Additional particulate monitoring (in part or all as part Imposed Condition 13 / Table 4) as recommended by AQ SQP