

Cross River Rail Project

Monthly Environmental Report

February 2021

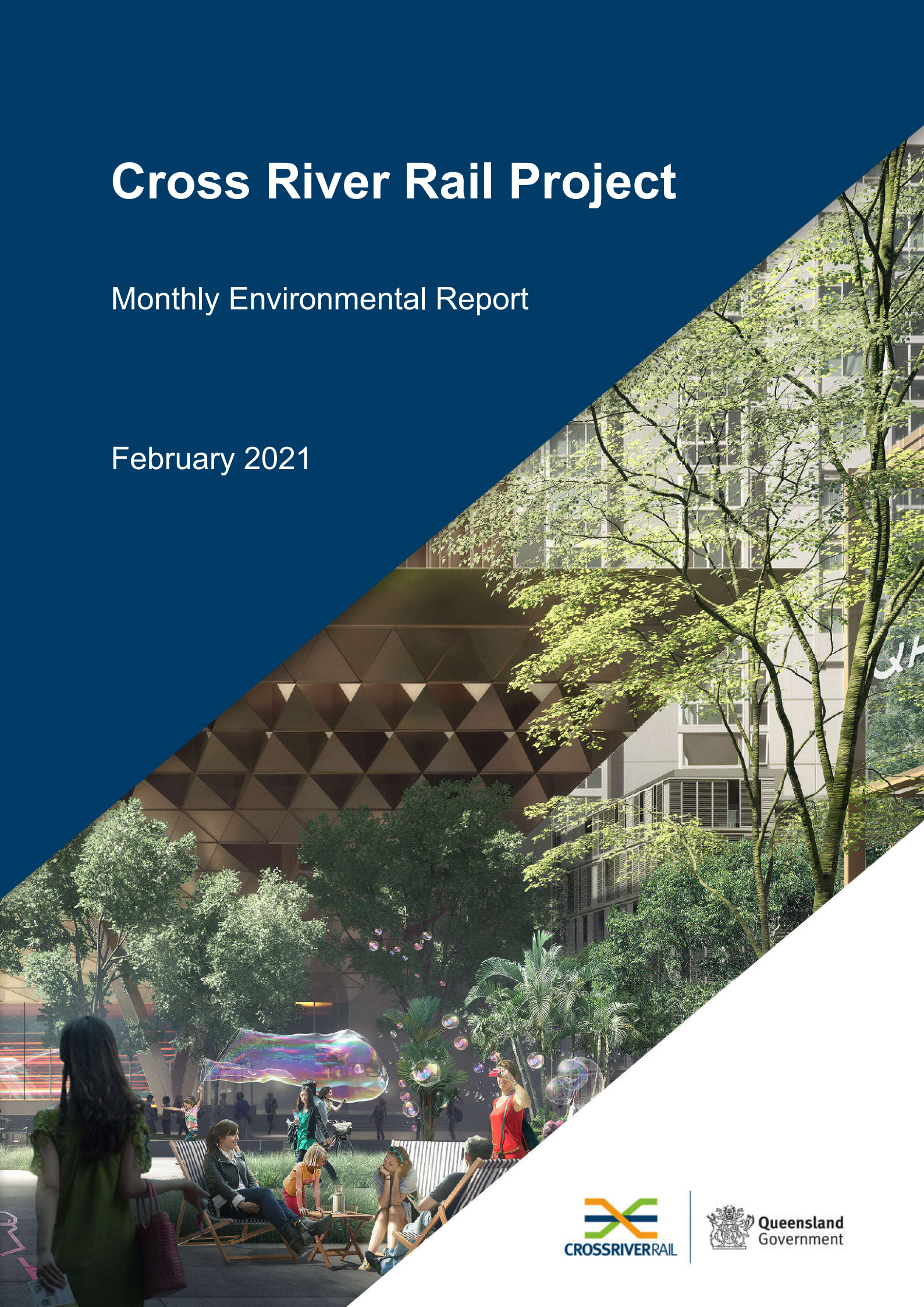


Table of Contents

EXECUTIVE SUMMARY	3
Non-Compliance Events	7
DEFINITIONS	8
1. INTRODUCTION.....	9
1.1. BACKGROUND.....	9
1.2. PROJECT DELIVERY.....	9
1.3. REPORTING FRAMEWORK.....	11
1.4. MONTHLY ENVIRONMENT REPORT ENDORSEMENT	11
2. COMPLIANCE REVIEW	11
2.1. RELEVANT PROJECT WORKS.....	11
2.2. KEY ENVIRONMENTAL ELEMENTS.....	12
2.2.1. Noise	12
2.2.2. Vibration	13
2.2.3. Air Quality	13
2.2.4. Water Quality	15
2.2.5. Erosion and Sediment Control.....	17
2.3. COMPLAINTS MANAGEMENT	17
2.4. NEW UPCOMING PROJECT WORKS	19
2.5. NON-COMPLIANCE EVENTS	19
APPENDIX A – RIS MONTHLY REPORT	
APPENDIX B – TSD MONTHLY REPORT	

Executive Summary

This Monthly Environmental Report (MER) has been produced for Project Works undertaken on site for February 2021 for the Rail, Integration and Systems (RIS), and Tunnel, Stations and Development (TSD) packages. The report addresses the obligations outlined in the Coordinator-General's change report – *Coordinator-General's change report – design refinements and condition changes 2020 (July 2020)* and the individual contractor's Construction Environmental Management Plans (CEMPs) which have been developed generally in accordance with the Project's Outline Environmental Management Plan (OEMP). The Cross River Rail Delivery Authority (Delivery Authority), as the Proponent of the Cross River Rail Project, is required to submit a monthly report to the Coordinator-General to demonstrate compliance with the imposed conditions.

Section 1 of this report provides a background to the project and the Coordinator-General's conditions. Section 2 provides a review of the contractor's reports contained in **Appendix A** (RIS Monthly Report) and **Appendix B** (TSD Monthly Report).

The Environmental Monitor (EM) has reviewed and endorsed this MER. This endorsement follows ongoing and new document reviews, and surveillance across the relevant project worksites.

The CEMPs prepared by both Unity Alliance (RIS Contractor) and CBUG JV on behalf of Pulse (TSD Contractor) for their Relevant Project Works were endorsed by the EM and submitted to the Coordinator-General in accordance with Condition 4 (a) and 4 (b) respectively.

The table below presents a summary of compliance status against each condition with a short comment against each condition:

Imposed Condition	Requirement Summary	Compliance Met (Yes/No/NA)	Comment
1.	General conditions – compliance with the Project Changes relevant to the contractor's scope	Yes	The CEMP and site management plans are in accordance with the Project Changes.
2.	Outline Environmental Management Plan – timely submission to the Coordinator-General including required sub-plans	Yes	OEMP dated June 2020 is effective for the reporting period.
3.	Design – achievement of the Environmental Design Requirements	NA	RIS – Design packages continue to be reviewed for compliance with the environmental design requirements. TSD – Ongoing progress with design packages relating to tunnel and station work.
4.	Construction Environmental Management Plan – all relating to Relevant Project Works.	Yes	RIS – CEMP Revision 9 has been updated to include all remaining additional scope of works. Revision 9 is currently being reviewed by EM and once endorsed it will be submitted to the Coordinator-General in March 2021.

Imposed Condition	Requirement Summary	Compliance Met (Yes/No/NA)	Comment
			TSD – CEMP Revision 7 for tunnelling and ongoing activities in the Central area was endorsed by the EM, submitted to the Coordinator-General in June and became effective on 5 July 2020.
5.	Compliance and Incident management – Non-compliance events, notifications and reporting.	Yes	There were no non-compliance events (NCEs) raised in February 2021. Refer to Section 2.5 of this report.
6.	Reporting – Monthly and Annual reporting.	Yes	This MER including RIS and TSD Monthly Reports have been submitted in accordance with the conditioned requirements. RIS – Refer to Appendix A TSD – Refer to Appendix B
7.	Environmental Monitor (EM) – engaged and functions resumed.	Yes	Ongoing weekly site inspections and document reviews continue to take place.
8.	Community Relations Monitor (CRM) – engaged and functions resumed	Yes	Ongoing.
9.	Community Engagement Plan – developed and endorsed by Environmental Monitor.	Yes	CEMPs endorsed with Community Engagement Plan.
10.	Hours of work – Project Works undertaken during approved hours.	Yes	Project Works have been undertaken in accordance with project requirements. This has been achieved through Standard working hours, Extended work hours and Managed Work.
11.	Noise – Project Works must aim to achieve internal noise goals for human health and well-being.	Yes	Noise monitoring following predictive modelling met project noise requirements at Sensitive Places. RIS – Refer to Appendix A (Table 2 and Section 3.1.4) . TSD – Refer to Appendix B (Table 3) .
	Vibration – Project Works must aim to achieve vibration goals for cosmetic damage, human comfort and sensitive building contents.	Yes	RIS – Vibration monitoring following predictive vibration assessments met project requirements at Sensitive Places. Refer to Appendix A (Table 3) and Section 3.1.4 . TSD – Vibration monitoring continues across the sites and results are compliant with conditioned requirements Refer to Appendix B (Table 2) .

Imposed Condition	Requirement Summary	Compliance Met (Yes/No/NA)	Comment
12.	Property damage – relating to ground movement.	Yes	<p>RIS – Predictive vibration modelling has been undertaken for Relevant Project Works and Property Damage Sub-plans have been developed and implemented. Pre-condition surveys have been completed at heritage, commercial and residential buildings at RNA, Northern Corridor and Fairfield to Salisbury stations.</p> <p>TSD – Vibration modelling has been prepared and is ongoing. Where required, building condition survey reports are completed for heritage and residential buildings.</p>
13.	Air quality – Works must aim to achieve air quality goals for human health and nuisance.	Yes	<p>Project Works met air quality goals.</p> <p>RIS – Refer to Appendix A (Table 5, Section 3.2.4, and Figures 1, 2 and 3).</p> <p>TSD – Refer to Appendix B (Table 4 and Table 5).</p>
14.	Traffic and transport – Works must minimise adverse impacts on road safety and traffic flow.	Yes	Traffic Management Plans covered in the CEMPs and Sub-plans for all active worksites have been reviewed by the EM.
15.	<p>Water quality – Works must not discharge groundwater from the construction site above the relevant environmental values and water quality objectives.</p> <p>Monitor and report on water quality in accordance with CEMP and Sub-plans.</p>	Yes	<p>Monitoring and reporting on groundwater and surface water quality was undertaken in accordance with RIS and TSD Water Quality Management Plans.</p> <p>RIS – No groundwater discharges occurred for the month. Post-rainfall monitoring was triggered at Mayne Yard. Surface water monitoring results for Breakfast Creek confirmed off-site discharges met project discharge criteria.</p> <p>Refer to Appendix A (Table 6 and Section 3.3.5) for post-rainfall monitoring results. Refer to Appendix A (Table 7 and Section 3.3.5) for routine surface water monitoring results.</p> <p>TSD – Six groundwater discharges from Albert Street, Roma Street, Boggo Road and Woolloongabba worksites were inconsistent with water quality objectives however are consistent with pre-construction water quality levels. No external influences were introduced by the construction activities.</p> <p>Refer to Appendix B (Table 6) for ground water monitoring results. Refer to Appendix</p>

Imposed Condition	Requirement Summary	Compliance Met (Yes/No/NA)	Comment
			B (Table 7 and Table 8) for surface water monitoring results.
16.	Water resources – Evaluate potential impact, plan works, implement controls and monitor inflow of groundwater associated with drawdown.	Yes	RIS – There will be no sustained groundwater extraction involved in the RIS scope of works so predictive modelling of groundwater drawdown is not required. Collection of hydrological data to model potential inflow rates into excavations during construction has been undertaken. TSD – Inflow of groundwater into the worksites is being continuously monitored to validate the predictive modelling.
17.	Surface water – Must be designed to avoid inundation from stormwater due to a 2-year (6hr) ARI rainfall event and flood waters due to a 5-year ARI rainfall event and constructed to avoid afflux or cause the redirection of uncontrolled surface water flows, including stormwater flows, outside of worksites.	Yes	Contractors continue to consider this condition in their site planning and design.
18.	Erosion and sediment control – Provisions for erosion and sediment control must be consistent with the Guidelines for Best Practice Erosion and Sediment Control (International Erosion Control Association, 2008) and the Department of Transport and Main Roads' Technical Standard MRTS52.	Yes	Site specific ESC plans for all active work sites have been reviewed by the EM and implemented on site.
19.	Acid sulfate soils – managed as per the Queensland Acid Sulfate Soil Technical Manual.	Yes	Acid Sulfate Soil Management Plans have been prepared and implemented for all active worksites.
20.	Landscape and open space – general requirement to minimise impacts on landscapes and open space values and specific requirements around Victoria Park.	Yes	Sewer relocation works in Victoria Park continued under the Site Environmental Plan and the Department of Environment and Science (DES) approved Heritage Exemption Certificates.
21.	Worksite rehabilitation – worksites rehabilitated as soon as practicable upon completion of works or commissioning, and in consultation with Brisbane City Council.	NA	N/A

Non-Compliance Events

There were no NCE's raised in February 2021.

Definitions

Acronym	Definition
ARI	Average Recurrence Interval - The average or expected value of the periods between exceedances of a given rainfall total accumulated over a given duration.
CEMP	Construction Environmental Management Plan
CGCR	Coordinator-General's Change Report
CRM	The Community Relations Monitor engaged in accordance with Imposed Condition 8
Contractor	The contractors appointed to design, construct and commission the Project
Coordinator-General	The corporation sole preserved, continued and constituted under section 8 of the SDPWO Act
CRR	Cross River Rail
DES	Department of Environment and Science
EIS	Environmental Impact Statement
EM	The Environmental Monitor engaged in accordance with Imposed Condition 7
ESC	Erosion and sediment control
IECA	International Erosion Control Association
Imposed condition/s	A condition/s imposed by the Coordinator-General under section 54B of the SDPWO Act for the Project
MER	Monthly Environment Report
MRTS52	Transport and Main Roads Specifications MRTS52 Erosion and Sediment Control
NCE	Non-Compliance Event
OEMP	Outline Environmental Management Plan
Project	The Cross River Rail Project
Project Works	As defined in the Imposed Conditions
Proponent	The Cross River Rail Delivery Authority
RfPC	Request for Project Change
RIS	Rail, Integration and Systems
SDPWO Act	<i>State Development and Public Works Organisation Act 1971</i>
Sub-plan	Any sub-plan of the CEMP
The Delivery Authority	The Cross River Rail Delivery Authority
TSD	Tunnel, Stations and Development

1. Introduction

1.1. Background

The Cross River Rail Project (the Project) is a declared coordinated project under the *State Development and Public Works Organisation Act 1971* (SDPWO Act). The CRR Environmental Impact Statement (EIS) was evaluated by the Coordinator-General who recommended the Project proceed, subject to Imposed Conditions and recommendations. Since the evaluation of the EIS, a number of Requests for Project Change (RfPC) submissions have been evaluated by the Coordinator-General. RfPC 8 is applicable for the works that took place in February 2021.

The Coordinator-General has imposed conditions on the Project that apply throughout the design, construction and commissioning phases. These are referred to as the Imposed Conditions. In addition, the Coordinator-General has approved the Project's OEMP which outlines the environmental management framework for the Project. The OEMP includes environmental outcomes and performance criteria which must be achieved for the Project.

Imposed Conditions 5 and 6 nominate the compliance and reporting requirements for the Project. This monthly report addresses these requirements.

1.2. Project Delivery

The Delivery Authority is responsible for planning and delivering the Project. The Project established environmental management plans and secured some of the secondary environmental approvals in addition to enabling works.

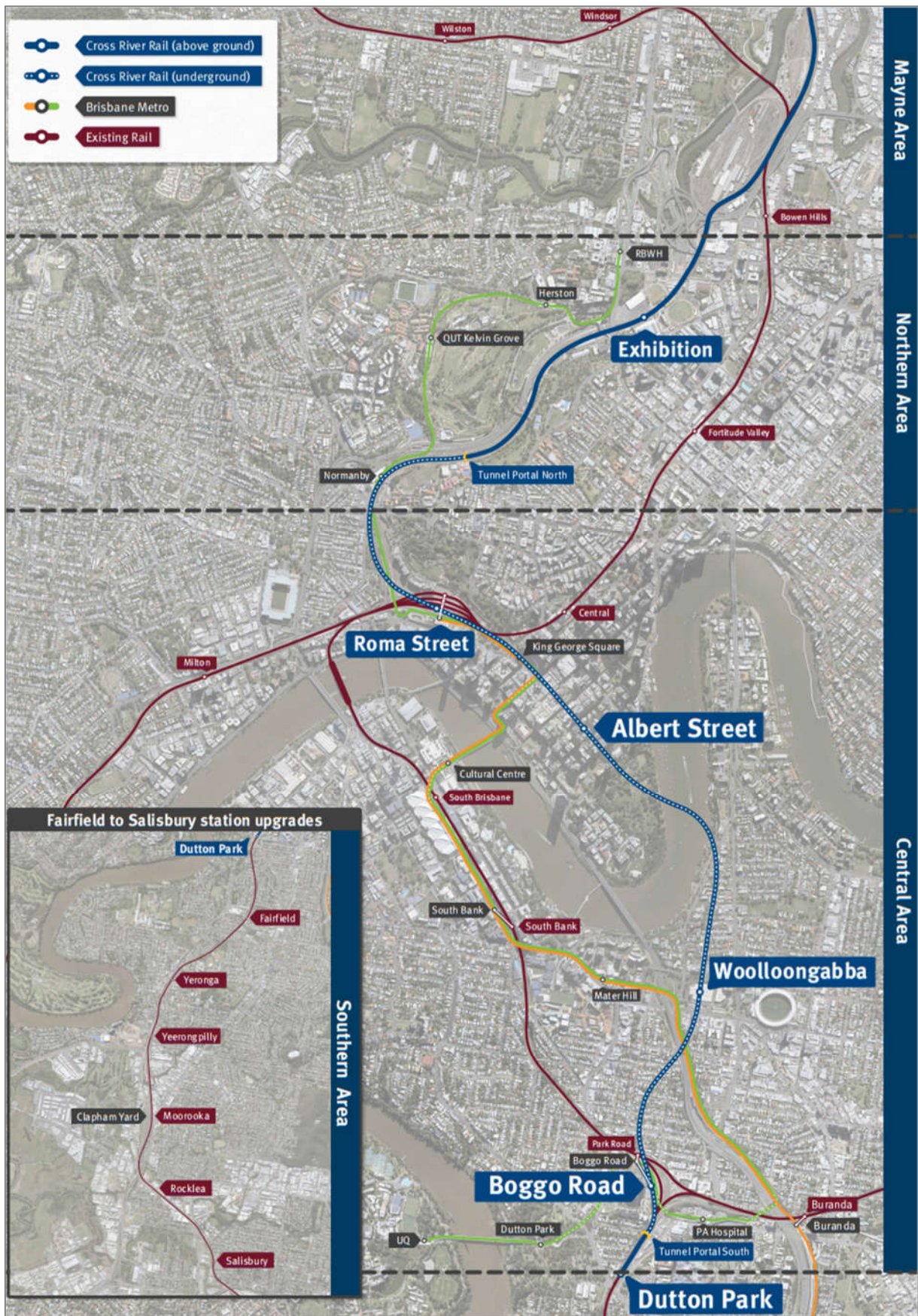
The two main delivery packages which require reporting under the Coordinator-General's imposed conditions are:

- Tunnel, Stations and Development (TSD) being delivered by CBGU JV; and
- Rail, Integration and Systems (RIS) being delivered by Unity Alliance.

The Project is geographically divided into four areas:

- Mayne Area;
- Northern Area;
- Central Area; and
- Southern Area.

These are shown in the figure over.



1.3. Reporting Framework

This MER has been prepared to comply with Imposed Conditions 6 and 7 of the Coordinator-General Change Report (CGCR) and includes:

- Monitoring data and associated interpretation of the results required by the imposed conditions and Construction Environmental Management Plan (CEMP);
- Details of any NCE's, including incidents, corrective actions and preventative actions; and
- Details of any complaints, including description, responses, and corrective actions.

Reporting on environmental elements captured in each monthly environmental report, including the annual environmental report, will be reviewed and endorsed by the EM.

1.4. Monthly Environment Report Endorsement

This MER has been endorsed by the EM and the endorsement provided to the Coordinator-General.

2. Compliance Review

This Monthly Environment Report has been reviewed and endorsed by the EM as per Imposed Condition 7 of the CGCR.

2.1. Relevant Project Works

The following Project Works were undertaken in February 2021:

Area	Project Works
Mayne Area	<ul style="list-style-type: none">• Mayne Yard North – stormwater drainage works; earthworks for new combined services route alignment; ground improvement piling and piling preparation works; and auger ground improvement piling for reinforced soil structure walls.
Northern Area	<ul style="list-style-type: none">• Northern Corridor – piling preparation for Bowen Bridge and Inner-City Bypass pier protection and billboard demolition.• RNA – line drilling and rock excavation; pier protection and soil nail installation adjacent to O'Connell Terrace; Public Utility Plant (PUP) relocations (communications, electrical); western platform demolition; and piling preparation works.• Northern Portal – permanent piling commenced; ongoing sewer main relocation; and site establishment at Northern Portal.
Central Area	<ul style="list-style-type: none">• Roma Street – lower adit blasting; cavern heading excavation continues and bench blasts and excavation has commenced; services building excavation continues; station building piling continues; and services diversion underway.• Albert Street – station box excavation continues, Mary Street toe bolts to piles complete, Mantra pile toes progressively exposed and underpinning has commenced on Lot 1; tunnel and adit excavation and ground stabilisation works continue on lot 2; prep works for ATA1 collar underway on Lot 2; and piling is ongoing on Lot 3.• Woolloongabba – TBM #1 (Else) commenced tunnel excavation; TBM #2 (Merle) delivery and assembly continues; southern cavern bench excavation complete; continuous slab pouring occurring within the station box; and the first alimak installed and commissioned.• Boggo Road – excavation and retention work in the station box continues; installation of canopy tubes complete; and formwork contractor commenced onsite with drainage and blinding concrete activities.• Southern Portal – Stage 1 of site perimeter fencing complete; commenced permanent piling for track slab and eastern dive wall; completed civil works for

Area	Project Works
	Telstra relocations and commenced cable hauling; commenced Kent Street stormwater drainage installation; and continued combined services route install in the rail corridor triangle and off Ipswich Road.
Southern Area	<ul style="list-style-type: none"> • Dutton Park – early works continuing at Cope Street, Dutton Park. • Yeronga Station – site establishment; PUP location works; tree clearing; and enabling works for track lowering. • Clapham Yard – stockpiling of imported fill; and geotechnical, contaminated land and acid sulphate soil investigations.

2.2. Key Environmental Elements

2.2.1. Noise

The Coordinator-General's conditions establish a framework for managing the impacts of noise. The Imposed Conditions do not establish noise limits. Compliance with the Imposed Conditions noise requirements involves demonstrating the implementation of the endorsed CEMP and associated Noise and Vibration Management Plan. This establishes the management measures to be applied which aims to achieve the identified noise goals as far as reasonably practicable. The CEMP also includes requirements for the provision of the required community notifications of upcoming work, potential impacts, and how the project team can be contacted in relation to any potential impacts. For Project Works where potential noise impacts are modelled to be above the noise goal but below the noise goal plus 20dBA, this work is authorised where the endorsed CEMP and associated Noise and Vibration Management Plan is being implemented. For Project Works where potential noise impacts are predicted to be more than 20dBA above the relevant noise goal, specific engagement is required with Directly Affected Persons (DAPs) for these works.

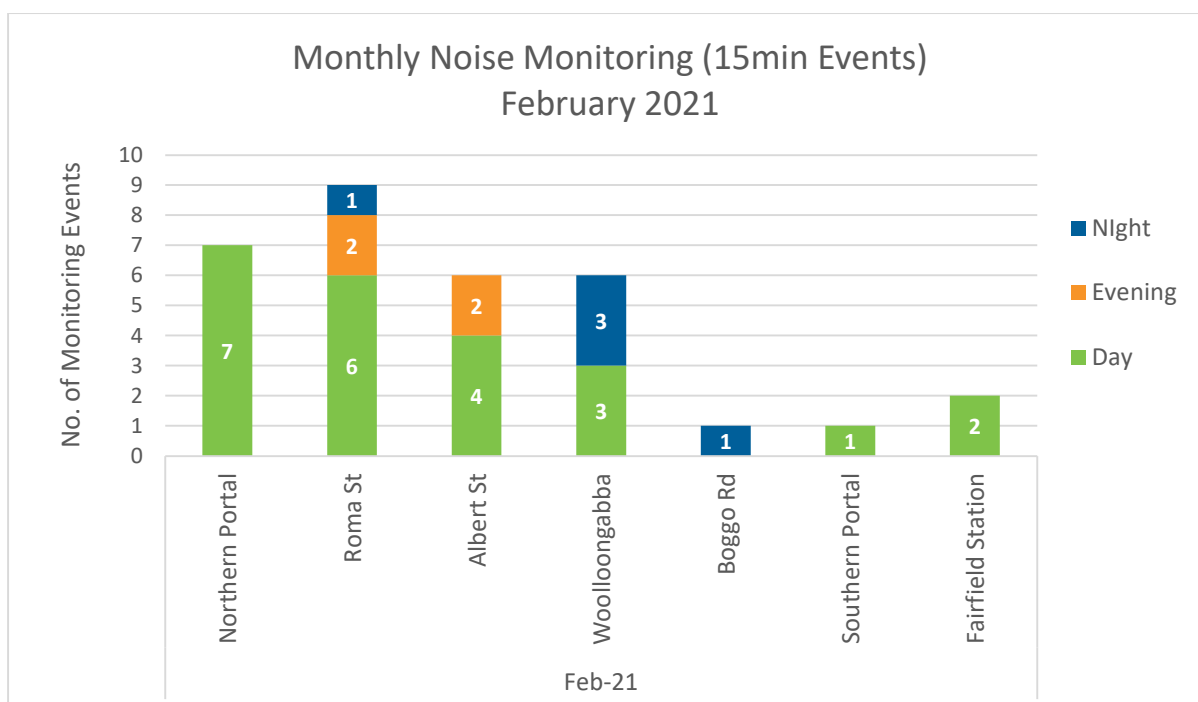
Where internal monitoring was not possible, contractors have undertaken external monitoring at nominated locations. To determine compliance with the project's noise requirements and to calibrate modelled predictions the project applies recommended façade attenuation corrections, which consider receiver property type.

In the Northern Area, noise monitoring was undertaken to validate predictive modelling at sensitive places during piling and utility works at the Northern Portal during standard hours. Results indicated that project requirements were met. Noise monitoring in response to complaints was not triggered. Monitoring results for the Northern Area are detailed in Table 3, **Appendix B**.

In the Central Area, noise monitoring was undertaken to validate predictive modelling at sensitive places close to the project worksites and in response to noise complaints. Monitoring results for the Central Area are detailed in Table 3, **Appendix B**. The TSD contractors reported that the project noise requirements have been met during this reporting month.

In the Southern Area, noise monitoring was undertaken to validate predictive modelling at Sensitive Places during overhead line equipment mast installation at Fairfield Station during and outside standard hours. Monitoring was also undertaken during tree trimming and removal at Yeronga Station outside of standard working hours. Noise levels met project requirements. Noise monitoring in response to complaints was not triggered. Monitoring results for the Southern Area are detailed in Table 2, **Appendix A**.

A summary of noise monitoring events for the month is provided in the chart below.



2.2.2. Vibration

In the Northern Area, vibration monitoring was undertaken at the John MacDonald Stand at RNA Showgrounds during western platform demolition, piling works and during line drilling south of O'Connell Terrace. Results confirmed compliance with building specific vibration limits outlined in the Property Damage Sub-plan. Vibration monitoring results at the RNA Showgrounds are detailed in **Appendix A** (Table 3).

In the Central Area, vibration monitoring took place to validate predictive modelling for piling, excavation and controlled blasting activities at Roma Street, Woolloongabba, Albert Street and the Southern Portal worksites. One vibration complaint was received from works occurring at Albert Street. The contractor reported results met the project's nominated goals. Vibration monitoring results for the Central Area are detailed in **Appendix B** (Table 2).

2.2.3. Air Quality

2.2.3.1. Dust Deposition

Dust deposition monitoring was conducted at Mayne Yard, Northern, Central and Southern worksites from mid-January to mid-February. All worksites met the project dust deposition air quality goal¹. A summary of dust deposition monitoring is provided in the table below.

Air Quality – Dust Deposition Monitoring			
Area	Active Site	Monitoring Location	Comments
Mayne Area	Mayne Yard	Mayne Yard East	- Results met air quality goal.

¹ CG air quality goal for dust deposition - 50µg/m³ (over an averaging period of 24 hours).

Air Quality – Dust Deposition Monitoring			
Area	Active Site	Monitoring Location	Comments
Northern Area	RNA / Exhibition	RNA Showgrounds	- Results met air quality goal.
	Northern Corridor	Northern Corridor (near Brisbane Girls Grammar School)	- Results met air quality goal.
Central Area	Albert Street	Mary Street	- Results met air quality goal.
		Elizabeth Street	- Results met air quality goal.
	Boggo Road	Quarry Street (north of the site)	- Results met air quality goal.
		Peter Doherty Street/Leukemia Foundation	- Results met air quality goal.
	Southern Portal	Dutton Park Station	- Results met air quality goal.
		PA Hospital - Central Energy Unit along Kent Street	- Results met air quality goal.
	Roma Street	Roma Street Station	- Results met air quality goal.
	Woolloongabba	Russian Orthodox Cathedral	- Results met air quality goal.
		Woolloongabba Busway	- Results met air quality goal.
Southern Area	Clapham Yard	Clapham Yard East	- Results met air quality goal.

2.2.3.2. Particulate Matter and Total Suspended Particulates

Monitoring for particulate matter (PM₁₀) and total suspended particulates (TSP) was conducted at Mayne Yard, Northern, Central and Southern Area worksites during the reporting period. All worksites met project air quality goals for human health and nuisance².

The Boggo Road air quality unit experienced a technical fault and stopped functioning for several days during the month, requiring specialist repairs. The nearby (Brisbane CBD) DES air quality monitoring station demonstrated that levels in February were compliant with project air quality goals. Due to ongoing compliant air quality levels and the completion of potentially high impact works (demolition) at Roma Street, the contractor relocated the air quality monitoring unit to the Northern Portal area on 12 February 2021.

A summary of particulate monitoring is provided in the table below.

Air Quality – PM ₁₀ / TSP Monitoring			
Area	Active Site	Monitoring Location	Comments
Mayne Area	Mayne Yard	Mayne Yard North	- Results met air quality goals.
Northern Area	RNA / Exhibition	Lanham Yard	- Results met air quality goals.
	Northern Corridor	Brisbane Girls Grammar School	- Results met air quality goals. - Air quality unit commenced on 12 February.

² CG air quality goal for total suspended solids (TSP) is 80µg/m³ (over an averaging period of 24 hours) and particulate matter (PM₁₀) is 50 µg/m³ (over an averaging period of 24 hours).

Air Quality – PM ₁₀ / TSP Monitoring			
Area	Active Site	Monitoring Location	Comments
Central Area	Albert St	iStay River City and Capri (Corner of Mary Street and Albert Street)	- Results met air quality goals.
	Boggo Rd / Southern Portal	North-east of Boggo Road worksite	- Results met air quality goals. - The monitoring unit experienced a technical fault and stopped functioning for several days throughout the month.
	Roma St	Roma Street Station	- Results met air quality goals. - Air quality unit was relocated on 12 February.
	Woolloongabba	Place Park, Woolloongabba	- Results met air quality goals.
Southern Area	Clapham Yard	Clapham Yard	- Results met air quality goals. - The monitoring unit experienced a power failure from 11-13 February.

2.2.4. Water Quality

Monitoring and reporting on water quality was undertaken in accordance with the Project's Water Quality Management Plans.

2.2.4.1 Surface Water

Routine monitoring was undertaken at the receiving waters of active worksites in accordance with Water Quality Management Plans.

Post-rainfall monitoring was triggered at Mayne Yard following rainfall events that exceeded 20-25mm over 24 hrs (RIS CEMP) from 2-3 February and on 25 February. Post-rainfall monitoring in receiving waters at Breakfast Creek met project water quality discharge criteria³.

Surface water discharge occurred at the Northern Portal site during the month and results met project water quality discharge criteria. Post-rainfall monitoring was not triggered at the Northern Portal site whilst the other worksites were triggered by the rainfall event on 2-3 February.

Active surface water discharge (dewatering by pumping) was undertaken in the Central Area at the Roma St and Boggo Road worksites. Surface water discharge results met project water quality discharge criteria. Post-rainfall monitoring was also triggered at Central Area worksites following a rainfall event that exceeded 44mm over 24 hrs (TSD CEMP) on 2-3 February. Post-rainfall monitoring in receiving waters at Norman Creek and the Brisbane River met project water quality discharge criteria.

Surface water quality monitoring is summarised in the table below:

Surface Water Quality Monitoring					
Area	Active Site	Discharge	Post-Rain Monitoring	Routine Monitoring	Comments
Mayne Area	Mayne Yard North	Yes	Yes	Yes	- Passive surface water discharge.

³ Guidelines for Best practice Erosion and Sediment Control (International Erosion and Sediment Control Association, 2008) and the Department of Transport and Main Roads' Technical Standard MRTS52 – Erosion and Sediment Control.

Surface Water Quality Monitoring					
Area	Active Site	Discharge	Post-Rain Monitoring	Routine Monitoring	Comments
					- Post-rainfall monitoring met project water quality discharge criteria.
Northern Area	RNA/Exhibition	No	No	No	- Post-rainfall monitoring was not triggered.
	Northern Portal	Yes	No	Yes	- Surface water discharges. - Post-rainfall monitoring was not triggered.
Central Area	Albert Street	No	Yes	Yes	- No surface water discharges.
	Boggo Road / Southern Portal	Yes	Yes	Yes	- Active surface water discharges. - Results met project water quality discharge criteria.
	Roma Street	Yes	Yes	Yes	- Active surface water discharges. - Results met project water quality discharge criteria.
	Woolloongabba	No	Yes	Yes	- No surface water discharges.
Southern Area	Clapham Yard	No	No	Yes	- Post-rainfall monitoring was not triggered.

2.2.4.1. Groundwater

There were no groundwater discharges at Mayne, Northern or Southern Area worksites.

Groundwater discharges occurred in the Central Area at Roma Street, Albert Street, Woolloongabba and Boggo Road worksites. The groundwater discharge results reported for the month exceeded the Project's Water Quality Objectives (WQO's)⁴ for total nitrogen, oxidised nitrogen, ammonia nitrogen, organic nitrogen and filterable reactive phosphorous. These results however were consistent with the receiving environments baseline monitoring pre-construction data.

Groundwater Quality Monitoring			
Area	Active Site	Discharge	Comments
Mayne Area	Mayne Yard North	No	- No groundwater discharges.
Northern Area	RNA/Exhibition	No	- No groundwater discharges.
	Northern Corridor	No	- No groundwater discharges.
Central Area	Albert Street	Yes	- Groundwater discharge (dewatering) - Discharge of groundwater did not meet Project WQO's but was generally consistent with pre-construction conditions and

⁴ The Brisbane River Estuary environmental values and water quality objectives (Basin no 143 – mid-estuary) in the Environmental Protection (Water) Policy 2009.

Groundwater Quality Monitoring			
Area	Active Site	Discharge	Comments
			no external influences were introduced by construction activity.
	Boggo Road / Southern Portal	Yes	<ul style="list-style-type: none"> - Groundwater discharge (dewatering). - Discharge of groundwater did not meet Project WQO's but was generally consistent with pre-construction conditions and no external influences were introduced by construction activity.
	Roma Street	Yes	<ul style="list-style-type: none"> - Groundwater discharge (dewatering). - Discharge of groundwater did not meet Project WQO's but was generally consistent with pre-construction conditions and no external influences were introduced by construction activity.
	Woolloongabba	Yes	<ul style="list-style-type: none"> - Groundwater discharge (dewatering). - Discharge of groundwater did not meet Project WQO's but was generally consistent with pre-construction conditions and no external influences were introduced by construction activity.
Southern Area	Clapham Yard	No	<ul style="list-style-type: none"> - No groundwater discharges.

2.2.5. Erosion and Sediment Control

Site specific Erosion and Sediment Control (ESC) Plans have been prepared, updated, and implemented at Mayne Yard, Northern Corridor, RNA Showgrounds, Roma Street, Albert Street, Woolloongabba, Boggo Road, the Southern Portal and Clapham Yard.

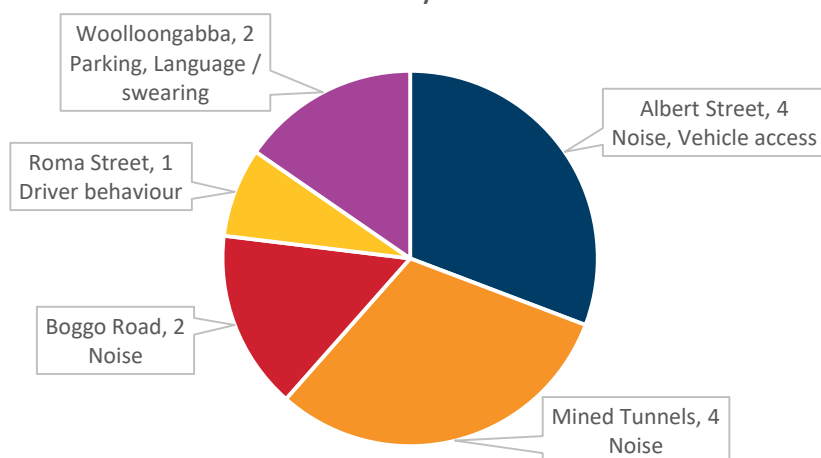
2.3. Complaints Management

A total of 14 complaints were received during the month, of which one was not related to Project Works.

RIS works received one noise related complaint from the RNA/Exhibition area, however it was determined not to be related to Project Works.

TSD activities received 13 complaints related to works at the Roma Street, Albert Street, Woolloongabba and Boggo Road worksites. The Relevant Project Works related complaints summary for the month is provided in the following chart.

Relevant Project Works Complaints Summary February 2021

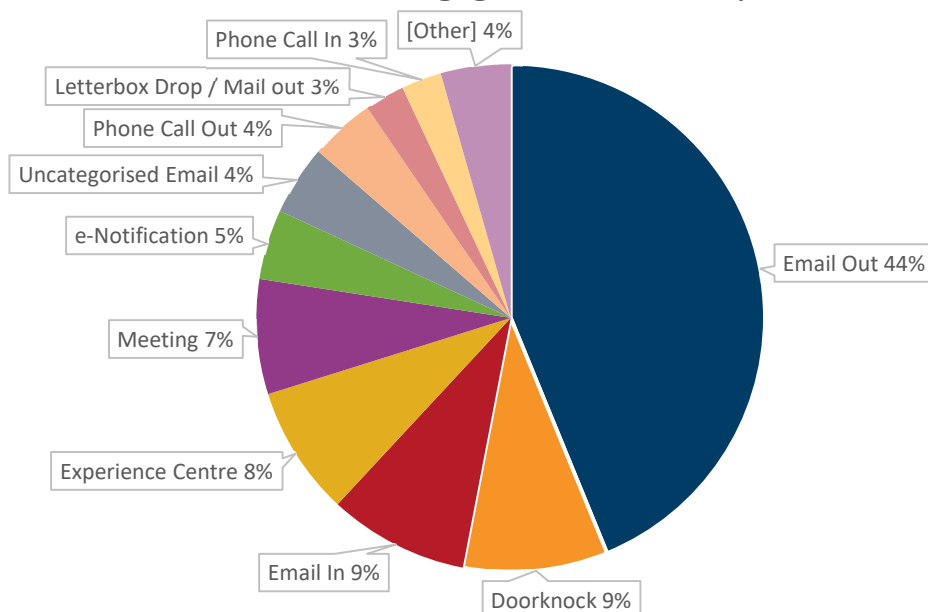


Where attended noise monitoring was undertaken in response to a complaint, the contractor confirmed on all occasions that works undertaken at the time of the complaint adhered to project requirements. In some instances, previous attended noise monitoring data, representative of the relevant construction activities was used to confirm the works adhered to the project noise requirements.

To close out a complaint the monitoring data is reviewed (where applicable), against compliance with the CEMP, site environmental management plans and permits, and checks that required community notification has taken place. Contractors have also confirmed that planned mitigation to reduce the impact was implemented. This is reviewed together to verify if project requirements have been met. For further details on close-out of complaints refer to **Appendix A**, Table 1 and **Appendix B**, Table 10.

For scheduled out of hours works, community notification was provided, as well as regular project updates. Stakeholder engagement undertaken on the project during the month is summarised in the chart below:

Stakeholder Engagement - February 2021



2.4. New Upcoming Project Works

The key new planned Project Works for the coming months include:

Area	New planned works in the coming months
Mayne Area	<ul style="list-style-type: none"> Mayne Yard North – signaling and commissioning works in Mayne Yard North; and Breakfast Creek bridge platform works.
Northern Area	<ul style="list-style-type: none"> Northern Corridor – piling for Bowen Bridge and ICB pier protection.. RNA/Exhibition – ground stabilisation for bridge BR43; and new platform retaining wall. Northern Portal – construction of permanent fencing and shotcreting to commence in March; pile anchors and ground anchors to be installed in April; and capping beam and portal beam construction to commence in April.
Central Area	<ul style="list-style-type: none"> Roma Street – Services Building tower crane construction in March; Station building capping beam construction and excavation to commence in March; and INB underpinning to commence in April. Albert Street – excavation of station box to continue to mid-2021 and installation of survey equipment to commence in March on Lot 1; 24-hour tunnelling will continue within the acoustic enclosure on Lot 2; and capping beam construction and station box excavation to commence on Lot 3 in April-May. Woolloongabba – launch TBM #2 north towards Albert Street Station, excavation of southern cavern area and blasting of southern tunnels to commence in April. Boggo Road – ongoing excavation of station box; and northern cavern beneath the canopy tubes; delivery of road header to site and fencing along Boggo Rd busway to commence in March-April. Southern Portal – continue utility relocation and Scheduled Corridor Access System (SCAS) works including Easter SCAS 2-8 April; and ongoing piling and earthworks.
Southern Area	<ul style="list-style-type: none"> Yeronga Station – retaining wall demolition; and track works (removal, reinstatement installation of dual gauge track). Clapham Yard – enabling works; ground surface treatment; and remove and replace earthworks.

2.5 Non-Compliance Events

No new NCEs have been raised this month. The summary of NCEs to date is shown in the table below.

Status	Date of event	Category	Area as on the Report	Conditions affected	Gate 1	Gate 2	Gate 3	Gate 4	Gate 5
Open									
Closed									
	11/09/19	Noise	Yeronga Station	4, 10, 11	11/10/19	14/11/19	26/11/19	18/12/19	01/10/20
	27/03/20	ESC	Woolloongabba	4, 15, 18	30/03/20	31/03/20	22/04/20	06/11/20	31/05/20
	27/03/20	ESC	Boggo Rd	4, 15, 18	30/03/20	31/03/20	22/04/20	06/11/20	31/05/20
	27/03/20	Reporting	Albert St, Boggo Rd, Roma St, Woolloongabba	4, 6, 11, 13	30/03/20	31/03/20	22/04/20	06/11/20	31/05/20
	27/03/20	Air Quality	Albert St, Boggo Rd, Roma St, Woolloongabba	13	30/03/20	31/03/20	22/04/20	06/11/20	31/05/20
	28/03/20	Traffic	Boggo Rd	4, 10, 14	30/03/20	31/03/20	22/04/20	06/11/20	31/05/20
Withdrawn									
	04/01/20	Air Quality	Mayne Yard, Victoria Park, Yeronga, Fairfield	13	28/04/20	30/04/20	Withdrawn		
	04/08/20	Working Hours	Roma Street	4, 10	28/04/20	30/04/20	Withdrawn		
Gate 1 - EM notification to contractor. NCE confirmed Gate 2 - 48 hour NCE notification submitted to CG Gate 3 - 14 day report submitted Gate 4 - 14 day report uploaded to CRR website Gate 5 - Records of mitigation / preventative measures submitted to the CG					Complete				

Throughout construction activities, events and incidents are routinely investigated to verify compliance with the Imposed Conditions and to verify that management and mitigation measures are implemented in accordance with CEMP and sub-plans.

Appendix A – RIS Monthly Report

Monthly CGCR Report – February 2021

**Cross River Rail – Rail, Integration and Systems
Alliance**

Table of Contents

1	Progress Summary.....	3
1.1	Summary of Project Works	3
2	Complaints	5
3	Environmental Monitoring Results.....	6
3.1	Acoustics.....	6
3.2	Air Quality	10
3.3	Water Quality	14
4	Compliance Review	18
4.1	Non-Compliance Events	18
4.2	CEMP Compliance.....	18
Attachment 1	CGCR Non-Compliance Event Report (if required).....	19
Attachment 2	Monitoring Locations – Noise	20
Attachment 3	Monitoring Locations – Vibration	22
Attachment 4	Monitoring Locations – Air Quality.....	24
Attachment 5	Monitoring Locations – Surface Water.....	27

1 Progress Summary

1.1 Summary of Project Works

The following *Project Works* continued in February 2021:

- Mayne Yard North
 - Stormwater drainage works
 - Mayne Yard Suburban Line Earthworks for Combined Services Route alignment
 - Ground improvement piling and piling preparation works
- Northern Corridor
 - Piling preparation works
- RNA Showgrounds
 - Line drilling, rock excavations, pier protection and soil nail installation
 - Public Utility Plant (PUP) relocations (Communications and Electrical)
 - Western Platform demolition
 - Piling preparation works
- Fairfield to Salisbury (F2S)
 - Yeronga site establishment
 - PUP location works
 - Enabling works for Yeronga track lowering
- Clapham Yard
 - Geotechnical and CLASS (Contaminated land and acid sulphate soil) investigations

The following *Project Works* started in February 2021:

- Mayne Yard North
 - Auger ground improvement piling for Reinforced Soil Structures walls
- Northern Corridor
 - Piling commenced
 - Billboard demolition
- RNA Showgrounds
 - Piling commenced
- F2S
 - Yeronga tree clearing
- Clapham Yard
 - Stockpiling of imported fill

The following *Project Works* are proposed in March 2021:

- Mayne Yard North
 - No new works proposed in March 2021
- Northern Corridor
 - No new works proposed in March 2021

- RNA
 - Ground stabilisation works
 - Sacrificial retaining wall installation
- F2S
 - Yeronga Retaining Wall demolition
 - New Platform retaining wall FRP
- Clapham Yard
 - Enabling Works

2 Complaints

The below section summarises the complaints relating to the Project Works to be reported in accordance with condition 6(b)(iii) of the CGCR.

Table 1: Summary of Complaints

Date	Location	Issue	Activity source of the concern	Period	Unity Response	Status
02/02/2021	Bowen Hills – Tufton Street	Out of Hours Works - noise	Non-Unity Works	Out of standard Working Hours	<p>The stakeholder made a complaint about extended periods of 24 hours works. Unity investigated this claim and concluded:</p> <ul style="list-style-type: none"> - Unity project works were being undertaken during standard hours for surface works (Condition 10 - 6.30 am to 6.30 pm Monday to Saturday) - There were no Project Works Carried out Monday to Friday under Extended Hours of Work or as Managed Works. - The only extended hours of works activities were two rail possessions that occurred Saturday 23 January to Sunday 24 January and Saturday 30 January to Sunday 31 January) <p>The rail possession works undertaken were consistent with the notification this stakeholder received and could be undertaken as per the extended working hours presented within Imposed condition 10, Table 1. The Unity team directed the stakeholder towards the company undertaking maintenance works on nearby infrastructure over the time period in question. It was concluded that this complaint is not related to Unity works. The project is therefore compliant with the Project's community engagement plan (Condition 9).</p>	Closed

3 Environmental Monitoring Results

The below section summarises the monitoring results to be reported in accordance with condition 6(b)(i) of the CGCR.

3.1 Acoustics

Condition 11(b) of the CGCR requires that during construction, monitoring and reporting on noise and vibration in accordance with the Noise and Vibration Management Plan, a sub-plan of the Construction Environmental Management Plan (CEMP) occurs.

3.1.1 Noise Monitoring

Attended noise monitoring was triggered based on the predictive noise assessments for;

- Overhead line equipment mast installation (Fairfield Station – Standard and Non-standard hours)
- Tree trimming and removal (Fairfield Road, Yeronga – Non-standard hours)

In accordance with the CEMP, attended outdoors monitoring was undertaken to validate the predictive assessment.

Monitoring was undertaken in order to confirm that the model was accurate and that works could continue to proceed as planned.

Noise monitoring because of complaints was not triggered. No complaints related to noise occurred during the reporting period.

3.1.2 Noise monitoring Results

The below table summarises the noise monitoring results for the reporting period.

Table 2 Summary of Noise Monitoring Data

Location and Receiver Type Details	Type of Monitoring	Working Hours	Noise Type	Purpose of Monitoring	Predictive model LA ₁₀ (dBA)	Performance Goal (dBA) (Condition 11(a), Table 2, LA ₁₀ noise goals)	Performance Goal (dBA) – (Condition 11(c), Table 2 LA ₁₀ noise goal + 20dBA)	Measured LA ₁₀ (dBA)	Measured LA _{eq} (dBA)	Is performance Goal exceeded?	Comments
Mildmay Street, Fairfield Residential	Attended – Outdoors ¹	Out of Standard Hours Saturday 27/2/21 13:36	Intermittent	Construction Monitoring at Sensitive Places - Model Verification	74	52 (Outdoors) (42dBA default goal + 10dBA façade reduction) ²	72 (Outdoors) (52+ 20dBA)	67	65	No exceedance	Overhead Line equipment mast installation For interpretation, please refer to section 3.1.4.1.1
Fairfield Road, Yeronga Commercial	Attended – Outdoors ¹	Out of Standard Hours Sunday 28/2/21 10:41	Intermittent	Construction Monitoring at Sensitive Places - Model Verification	81	62 (Outdoors) (42dBA default goal + 20dBA façade reduction – single glazed closed) ²	82 (Outdoors) (62+ 20dBA)	72	71	No exceedance	Tree trimming and removal works For interpretation, please refer to section 3.1.4.1.2

- Note (1) - Monitoring Method
 - Note 2 of Imposed Condition 11 Table 2 states *Where internal noise levels are unable to be measured or monitored, the typical noise reductions presented in Guideline Planning for Noise Control, Ecoaccess, DEHP, January 2017 (PFNC) apply.*
 - The monitoring was undertaken to validate the model therefore external noise measurements are appropriate to determine the impact of construction noise.
- Note (2) – Façade Attenuation
 - Note 2 of Imposed Condition 11 Table 2 states *Where internal noise levels are unable to be measured or monitored, the typical noise reductions presented in Guideline Planning for Noise Control, Ecoaccess, DEHP, January 2017 (PFNC) apply.*
 - The PFNC guideline can no longer be accessed. The Department of Environment and Science (DES) website still states this guideline is under review and is yet to release an alternative guideline
 - Former revisions of the PFNC, in particular Table 7 stated the following regarding typical noise reductions through the building façade:
 - 5 dB – Window wide open
 - 10 dB – Partially closed
 - 20 dB – single glazed, closed
 - 25 dB – Thermal double glazing, closed
 - The RfPC-4 Technical Report considered that all receptors had closed external single glazing for the assessment of construction noise impacts.
 - The Queensland Ombudsman assessed this assumption for the Airport Link Project and recommended that 10dB be adopted for major infrastructure projects in Queensland¹.
 - Additionally, a number of acoustic studies have shown that 10 dB is a suitable assumption for open windows. Most importantly this requirement only applies to temporary rail works within the project footprint and does not apply to long term operational rail noise exposure.
 - Accordingly, it is considered appropriate to consider a 10 dB reduction on this basis. This assumption can be used for predictive modelling and for noise measurements, where indoor noise measurements are not practicable.

¹ https://www.ombudsman.qld.gov.au/ArticleDocuments/218/Airport_Link_Ombudsman_Statement.pdf.aspx, pages 208-210, Section 9.8.6

3.1.3 Vibration Monitoring

Vibration monitoring was triggered during the reporting period based on the predictive vibration assessments for specific activities.

Table 3 Summary of Vibration Monitoring Data

Location	Date (Start and Finish)	Time of day	Closest DAP / Sensitive Place	Receiver Type (table 3 – Imposed Condition 11(e))	Purpose of Monitoring	Maximum vibration Level (mm/s)	Vibration goal for receiver (mm/s)	Exceedance of vibration limit?	Comments
John MacDonald Stand	15/02/21-21/02/21	N/A	John MacDonald Stand	Heritage - DIN4150 Group 3	Construction Monitoring at Sensitive Places - Model Verification	1.48	3mm/s (Property Damage Sub-plan)	No Exceedance	Western Platform Demolition and Piling Works For interpretation, please refer to section 3.1.4.2.1
John MacDonald Stand	24/02/21-25/02/21	N/A	John MacDonald Stand	Heritage - DIN4150 Group 3	Construction Monitoring at Sensitive Places - Model Verification	1.00	3mm/s (Property Damage Sub-plan)	No Exceedance	Line drilling For interpretation, please refer to section 3.1.4.2.2

Vibration monitoring because of complaints was not triggered. No complaints related to vibration occurred during the reporting period.

3.1.4 Interpretation

3.1.4.1 Noise Monitoring²

3.1.4.1.1 Overhead Line Equipment Mast Installation – Fairfield Station

Exceedances of the non-standard hour noise goal (+20dBA) were modelled within the predictive noise assessment. In line with imposed condition 11 (c), case by case consultation was undertaken with the identified directly affected persons (DAPs). No additional mitigation measures were developed in consultation with the DAPs.

Noise monitoring of mast installation works at Fairfield Station was undertaken externally at the nearest DAP (Mildmay Street, Fairfield - Single-storey wooden building), approximately 8m from the façade of the building. Monitoring was undertaken during standard construction hours. The measured LA₁₀ readings were compliant with the Imposed Conditions for works during standard and non-standard working hours.

There were no noise complaints received during the execution of the works.

Therefore, the RIS scope of works achieved the outcomes set out by the CGCR and OEMP.

3.1.4.1.2 Tree trimming and removal – Yeronga Station

The closure of a lane on Fairfield road was required to undertake these works safely. This could not be undertaken reasonably nor practicably during standard hours due to potential disruption to traffic flows. These works were therefore permitted to occur outside of standard hours in line with the traffic permit provided by the road authority as per imposed condition 10, Table 1.

Noise monitoring of tree clearing works was undertaken approximately 5m from the façade of the nearest DAP (Fairfield Road, commercial building). The measured LA₁₀ readings were compliant with the Imposed Conditions for works during standard and non-standard working hours.

There were no noise complaints received during the execution of the works.

Therefore, the RIS scope of works achieved the outcomes set out by the CGCR and OEMP.

3.1.4.2 Vibration Monitoring

3.1.4.2.1 Platform Demolition and Piling works – John MacDonald Stand

Monitoring was triggered due to the use of a rock breaker attachment as per the Property Damage Sub Plan (Rev 03). Vibration monitoring during station demolition and piling works was undertaken inside of the John Macdonald stand. The measured readings were compliant with the revised vibration limits presented in the endorsed Property Damage Sub-Plan rev 03.

Therefore, the RIS scope of works achieved the outcomes set out by the CGCR and OEMP.

3.1.4.2.2 Line Drilling works – John MacDonald Stand

Monitoring was triggered due to the use of potentially high-risk equipment for vibration as per the Property Damage Sub Plan (Rev 03). Vibration monitoring during line drilling works was undertaken inside of the John Macdonald stand. Piling was a concurrent activity. The measured readings were compliant with the revised vibration limits presented in the endorsed Property Damage Sub-Plan rev 03.

Therefore, the RIS scope of works achieved the outcomes set out by the CGCR and OEMP.

² All free field measurements are undertaken in accordance with the latest revision of the Noise Measurement Manual from the Department of Environment and Science (DES) reference ESR/2016/2195

3.2 Air Quality

Imposed Condition 13(b) of the CGCR requires that during construction, monitoring and reporting on air quality in accordance with the Air Quality Management Plan, a sub-plan of the CEMP occurs.

Visual monitoring was undertaken during routine environmental inspections. A total of thirteen (13) inspections were undertaken by the environment team across Mayne Yard, RNA Showgrounds, Yeronga Station, Clapham Yard and the Northern Corridor.

UNITY has installed the following air quality monitoring devices, therefore data collected from these devices, when active, is reported on in the monthly report regardless of the Project Works occurring.

Table 4 Summary of Air Quality devices

Monitoring Device Installed by UNITY	Area	Name	Date Installed	Status for the Month of February
Dust Deposition Gauge	RNA Showgrounds	AQ-01	13 December 2019	Active
Dust Deposition Gauge	Mayne Yard (Eastern Air Shed)	AQ-04	13 February 2020	Active
Dust Deposition Gauge	Clapham Yard (Eastern Air Shed)	AQ-06	01 February 2021	Active
Dust Deposition Gauge	Yeronga Station (Eastern Air Shed)	AQ-07	12 February 2021	Active (to be reported in the March CG Report)
TSP / PM ₁₀ Monitor	Mayne Yard (Eastern Air Shed)	UNI324	23 April 2020	Active
TSP / PM ₁₀ Monitor	Clapham Yard (Eastern Air Shed)	UNI327	01 February 2021	Active (Power failure 11/02/21-13/02/21)
TSP / PM ₁₀ Monitor	RNA (Western Air Shed)	UNI319	25 August 2020	Active

3.2.1 Dust results

As passive dust deposition gauges are analysed on a monthly basis, results span from 13 January 2021 to 12 February 2021.

The dust deposition gauges results for the reporting period are detailed below and complied with Imposed Condition 13(b) of the CGCR.

Table 5 Dust deposition gauge results for period 13 January 2021 to 12 February 2021

CGCR Goal (mg/m ² /day)	AQ-01 Results - RNA Showgrounds (mg/m ² /day)	AQ-04 Abbotsford Rd (E Mayne) (mg/m ² /day)	AQ-06 Clapham Yard (mg/m ² /day) (Monitoring period 01/02/2021-05/03/2021)
120	40	37	13
Total Rainfall during Period	144.2mm	144.2mm	96mm

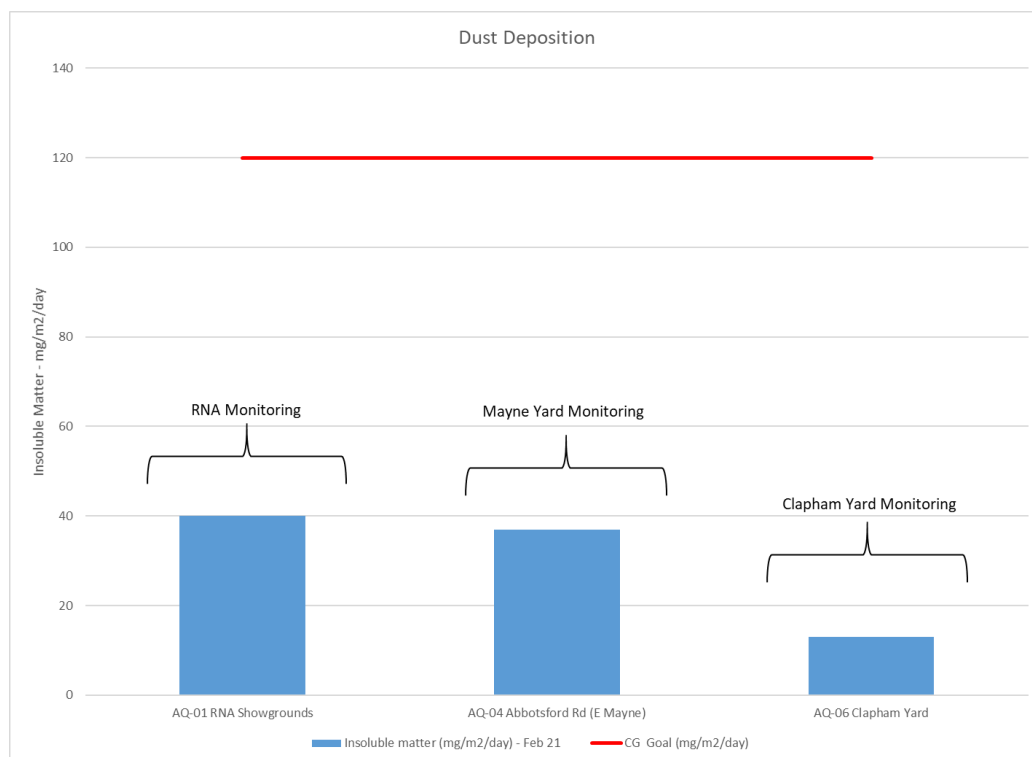


Figure 1: Air Quality Monitoring (Deposited Dust) 13 January 2021 – 12 February 2021 Results (Clapham Yard monitoring period 01/02/2021 – 05/03/2021)

3.2.2 Interpretation

3.2.3 Particulates results

3.2.3.1 UNITY Air Quality Monitoring Stations

Unity had three (3) operational air quality monitoring stations set up for the reporting period. The Clapham Yard station suffered a power failure and was out of commission for three days from 11-13 February 2021. This issue has now been rectified.

3.2.3.2 Monitoring results

External ambient air quality data was collected for total suspended particles (TSP), and particulate matter less than 10 μm (PM_{10}).

TSP is one of the indicators for which the Coordinator-General has imposed a goal of 80 $\mu\text{g}/\text{m}^3$ (over an averaging period of 24 hours) the project must aim to achieve under Imposed Condition 13(a).

PM_{10} is one of the indicators for which the Coordinator-General has imposed a goal of 50 $\mu\text{g}/\text{m}^3$ (over an averaging period of 24 hours) the project must aim to achieve under Imposed Condition 13(a).

These stations have been set up on site as per AS/NZS 3850 1.1 following consultation with UNITY air quality professionals.

The results are represented in the below figures.

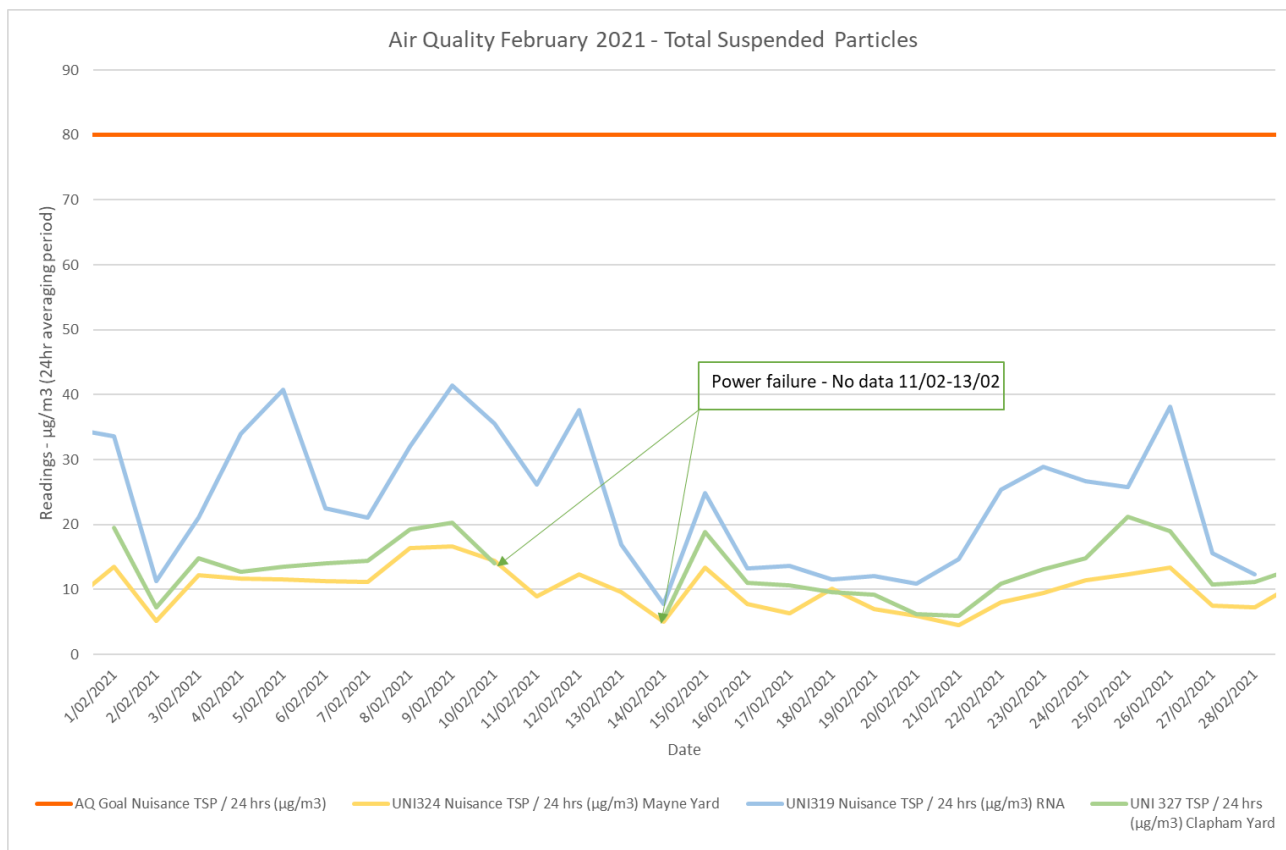


Figure 2: Air Quality Monitoring (TSP) - February 2021 Results

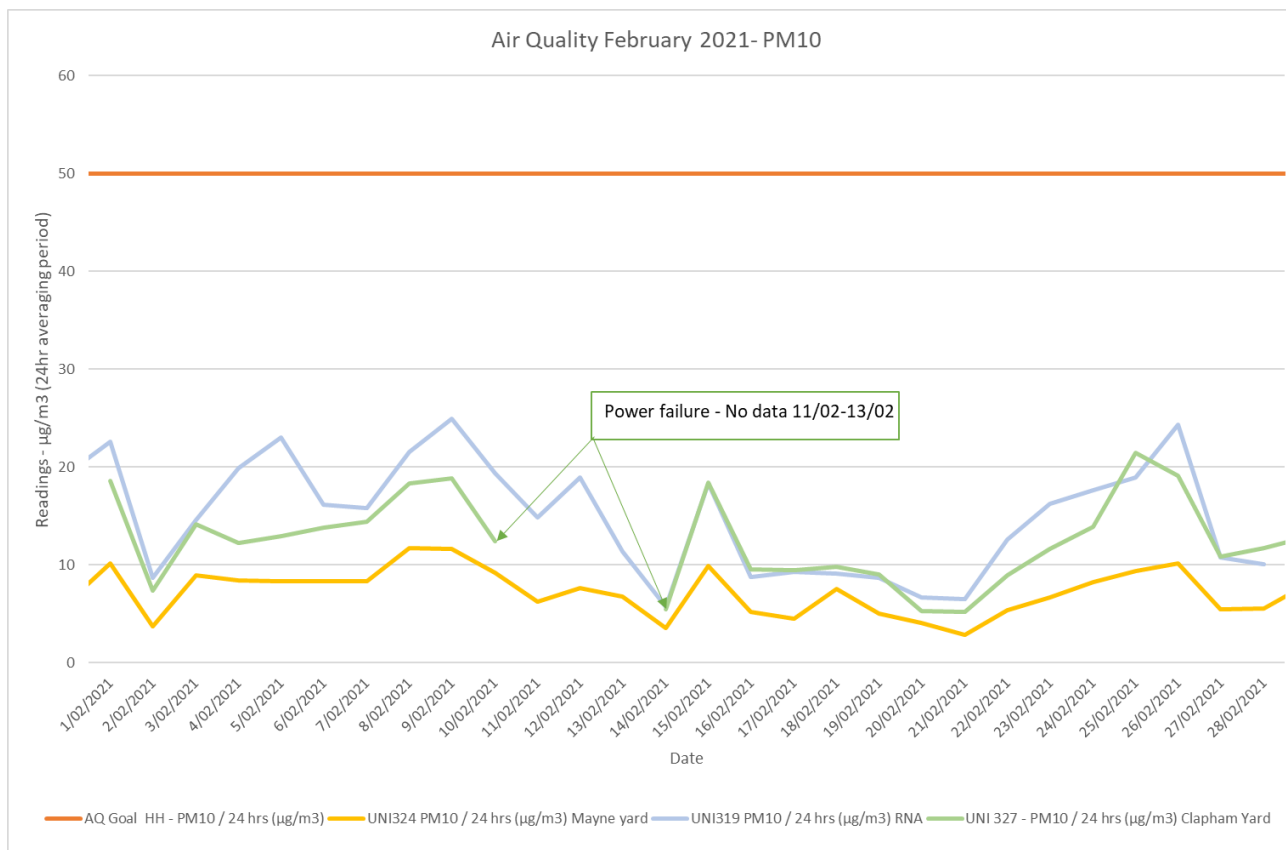


Figure 3: Air Quality Monitoring (PM_{10}) - February 2021 Results

3.2.4 Interpretation

Particulate monitoring results did not exceed the relevant air quality goals specified by Imposed Condition 13.

The CEMP and the AQMP recognise that particulate matter monitoring can be a lag indicator. Therefore, the monitoring regime detailed in the CEMP consists of a combination of surveillance regimes through inspections at the time the works are occurring and particulate matter monitoring to validate the surveillance regime findings and potential complaints.

Site inspections at Mayne Yard, RNA Showgrounds, Clapham Yard, Yeronga Station and the Northern Corridor by the environment team confirmed that:

- There was no visible dust leaving the site boundaries;
- Waters carts were on site and used for dust suppression / fill conditioning;
- During rock breaking activities at RNA, continuous dust suppression with hoses has been undertaken; and
- Stabilised egress was in place and in functioning order at each access point.

The RIS scope of works therefore achieved the outcomes set out by the CGCR and OEMP.

3.3 Water Quality

Condition 15(b) of the CGCR requires that during construction, monitoring and reporting on water quality in accordance with the Water Quality Management Plan, a sub-plan of the CEMP, occurs.

Condition 15(a) requires that discharges of groundwater from Project Works within the Breakfast Creek catchment must comply with the Brisbane River Estuary environmental values and water quality objectives (Basin no.143 – mid-estuary) in the *Environment Protection (Water) Policy 2009*.

Condition 15(a) requires that discharges of groundwater from Project Works within Moolabin Creek, Yeerongpilly – Oxley Creek catchment must comply with the Oxley Creek - Lowland freshwater environmental values and water quality objectives (Basin no.143 (part) – including all tributaries of the creek) in the *Environment Protection (Water) Policy 2009*.

Water quality monitoring to demonstrate compliance with Condition 15(a) was not triggered during the reporting period. There were no groundwater discharges.

Water quality monitoring to demonstrate compliance with Condition 15(b) and Condition 18 was triggered:

- There were passive discharges through Type 2 and 3 ESC devices during February associated with the following rain events:
 - 2-3 February 2021 - A rain event occurred which generated run-off from the active worksite of Mayne Yard and triggered a post-rain monitoring event at this location. A visual inspection was undertaken within Clapham Yard as per the C-EMP requirements. No indication of any impacts to water quality was observed.
 - 25 February 2021 - A rain event occurred which generated run-off from the active worksite of Mayne Yard and triggered a post-rain monitoring event at this location. A visual inspection was undertaken within Clapham Yard as per the C-EMP requirements. No indication of any impacts to water quality was observed.

There were no active surface water discharges during February (e.g. dewatering through pumping, sediment basin release).

Rainfall records and in-situ physico-chemical parameters results for all monitoring undertaken during the reporting period are presented below.

3.3.1 Rainfall Records

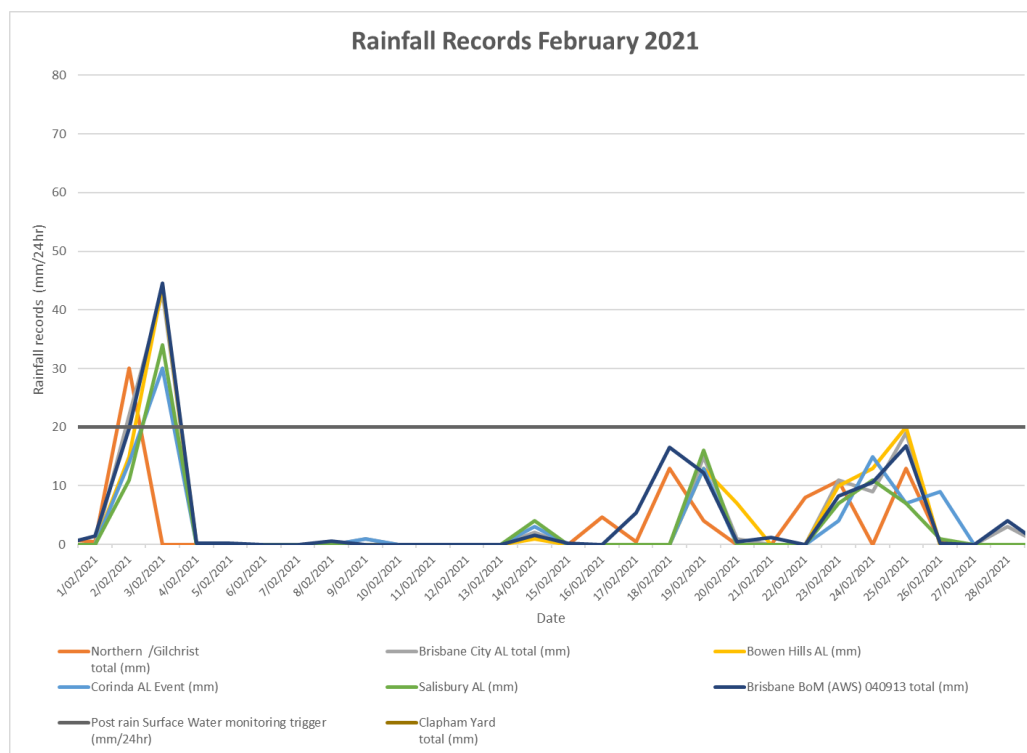


Figure 4: Rainfall – February 2021 Results

3.3.2 Surface Water Discharge Monitoring / Post Rainfall Monitoring Results

Post rainfall monitoring is triggered typically following any rainfall event exceeding 20 to 25 mm over 24 hours, however storm events during the high-risk period of the year (November to March) of lesser amounts but higher intensity may cause run-off which would also trigger post rain monitoring consistent with the C-EMP.

Post rainfall monitoring was triggered during the reporting period at the active worksite of Mayne Yard.

The result of monitoring at the relevant waterways are presented in the table below. When results are in red, they exceed / do not meet the Project discharge criteria for compliance with Imposed Conditions 15 and 18.

Table 6: Surface Water Discharge Monitoring Results

Date	Location	Waterway	Tide	Turbidity (NTU)	TSS (mg/L)	DO (%)	pH (pH Unit)
Discharge Criteria ³				Nil until Turbidity / TSS correlation achieved ⁴	50	Nil	Stable pH reading; and General sites: 6.5 – 8.5, or Wallum/Acidic Ecosystems: 5.0 – 7.0
03/02/21	SW 1 – Upstream of Mayne Yard	Breakfast Creek	Falling Brackish to Marine conditions	In field: 19 Lab: 17	<5	85	6.9
03/02/21	SW 2 – Adjacent to Mayne Yard	Breakfast Creek	Falling Brackish to Marine conditions	In field: 26 Lab: 22	30	79	7.3

³ Refer to the waterways and water quality management plan, a C-EMP sub-plan for details on derivation of the discharge criteria.

⁴ Correlations are typically run on the source water (i.e. basins) not the receiving system where there is a dilution component of potentially diffuse sources of sediments from non-Project related areas. Due to the very limited amount of discharge the RIS scope of works has experienced, there is no correlation available for Mayne Yard. Typically, a minimum of 20 data points is used to determine TSS / in-field turbidity correlation for site waters.

Date	Location	Waterway	Tide	Turbidity (NTU)	TSS (mg/L)	DO (%)	pH (pH Unit)
03/02/21	SW 3 – Downstream of Mayne Yard	Breakfast Creek	Falling Brackish to Marine conditions	In field: 23 Lab: 25	30	83	7.3
26/02/21	SW 1 – Upstream of Mayne Yard	Breakfast Creek	Falling Brackish to Marine conditions	In field: 9 Lab: 8	<5	85	6.9
26/02/21	SW 2 – Adjacent to Mayne Yard	Breakfast Creek	Falling Brackish to Marine conditions	In field: 9 Lab: 8	10	93	7.7
26/02/21	SW 3 – Downstream of Mayne Yard	Breakfast Creek	Falling Brackish to Marine conditions	In field: 8 Lab: 10	13	95	7.8

3.3.3 Groundwater Discharge Monitoring Results

Groundwater discharge monitoring was not triggered during the reporting period.

3.3.4 Routine Surface Water Monitoring Results

During the reporting period, UNITY undertook one (1) round of routine surface water monthly monitoring. This monitoring is being undertaken as it may inform the Dis-1 Credit for the ISCA 'Excellent Rating' the Project is pursuing. The results are presented in the Table

Table 7: Routine Surface Water Monitoring Results

Date	Location	Waterway	Tide	Turbidity (NTU)	TSS (mg/L)	DO (%)	pH (pH Unit)
18/02/21	SW 1 – Upstream of Mayne Yard	Breakfast Creek	Rising Brackish to marine conditions	In field: 18 Lab: 13	12	79	7.2
18/02/21	SW 2 – Adjacent to Mayne Yard	Breakfast Creek	Rising Brackish to marine conditions	In field: 27 Lab: 22	28	91	7.5
18/02/21	SW 3 – Downstream of Mayne Yard	Breakfast Creek	Rising Brackish to marine conditions	In field: 24 Lab: 22	24	94	7.7
	SW 4 – Downstream of Northern Corridor	Barrambin / York's Hollow	Reduced to monitoring every 6 months as 12 months of data has been collected and there are no works within the catchment of this waterway				
18/02/21	SW 5 – Upstream rail corridor	Moolabin Creek	Not applicable – non tidal environment	In field: 36 Lab: 28	29	85	7.4
18/02/21	SW 6 – Downstream rail corridor	Moolabin Creek	Not applicable – non tidal environment	In field: 55 Lab: 27	26	92	7.7
18/02/21	SW 7 – Upstream Rail corridor	Rocky Water Holes Creek	Not applicable – non tidal environment	In field: 15 Lab: 11	<5	72	7.3
18/02/21	SW 8 – Downstream Rail corridor	Rocky Water Holes Creek	Not applicable – non tidal environment	In field: 19 Lab: 11	9	75	7.4
18/02/21	SW 9 – Downstream Rail corridor	Stable Swamp Creek	Not applicable – non tidal environment	In field: 49 Lab: 33	27	93	7.7

3.3.5 Interpretation

3.3.5.1 3 February 2021 Post Rainfall Monitoring

Post rainfall monitoring undertaken following the 2-3 February 2021 rainfall events confirmed off-site discharges met the discharge criteria at the relevant receiving waters.

Therefore, compliance with Imposed Conditions 15 and 18 was met.

3.3.5.2 26 February 2021 Post Rainfall Monitoring

Post-rainfall monitoring undertaken following the 25 February 2021 rainfall events confirmed off-site discharges met the discharge criteria at the relevant receiving waters.

Therefore, compliance with Imposed Conditions 15 and 18 was met.

4 Compliance Review

4.1 Non-Compliance Events

The below section summarises the events to be reported in accordance with Condition 5 and Condition 6(b)(ii) of the CGCR.

A non-compliance event (NCE) is defined as Project Works that do not comply with the Imposed Conditions.

4.1.1 Non - Compliance Events Summary

Table 8: Summary of Non-Compliance Events

Event Title	Location, Date, and time of event	Date the Event was Formally Notified to CG/IEM	Conditions Affected	Date the Event Report Formally Sent to CG/IEM	Status of Event
None for this reporting period					

4.2 CEMP Compliance

The below table summarises compliance status with the CEMP and monitoring requirements of relevant sub-plans for the reporting period.

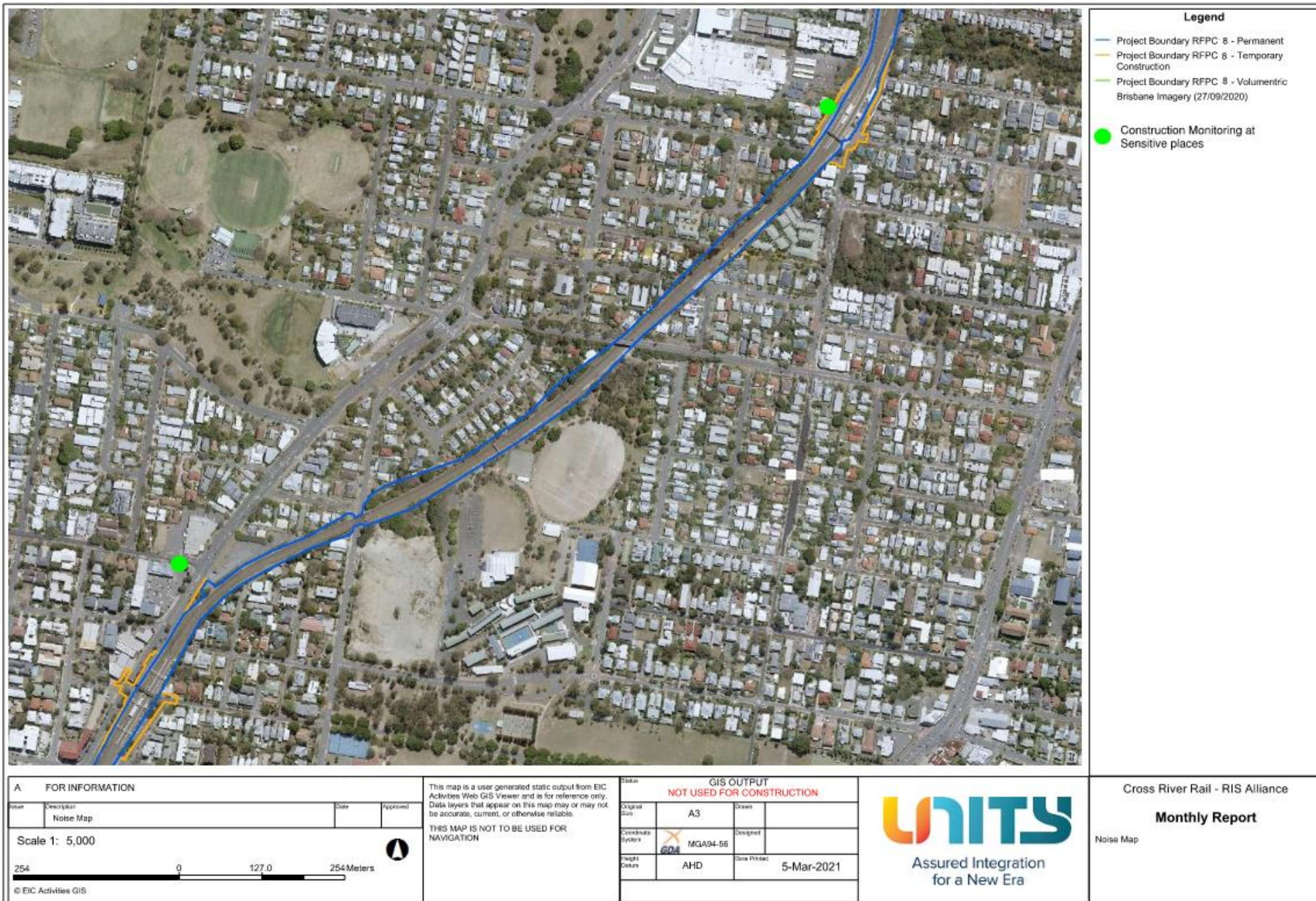
Table 9: CEMP and relevant Subplans monitoring requirements – Compliance Status for the reporting period

Aspect	Monitoring requirement	Activities risk profile	Monitoring undertaken	Compliance status with CEMP / Subplan	Effect of the non-compliance
Air Quality	Visual monitoring program + Additional particulate monitoring as required based on the outcomes of the predictive assessment / risk profile	Moderate to High	Yes – visual monitoring undertaken as part of routine inspections Monitoring for TSP, PM10 and deposited dust also undertaken	Compliant	Not Applicable
Air Quality	Complaints response	Moderate to High	Not triggered – no complaints	Compliant	Not Applicable
Noise	Buffer distance tests based on the outcomes of the predictive assessment based / risk profile of activities	Moderate to High	Yes	Compliant	Not Applicable
Noise	Plant noise audits for noisy plant to validate models input as required	Moderate to High	No	N/A	Not Applicable
Noise	Complaints response	Moderate to High	Not triggered – no complaints	Compliant	Not Applicable
Vibration	Construction Monitoring at Sensitive Places / DAPs - Model verification based on the outcomes of the predictive assessment based / risk profile of activities	Moderate to High	Yes	Compliant	Not Applicable
Vibration	Complaints response	Moderate to High	Not triggered – no complaints	Compliant	Not Applicable
Water Quality	Monthly monitoring	N/A	Yes	Compliant	Not Applicable
Water Quality	Post Rainfall	Moderate to High	Yes	Compliant	Not Applicable
Water Quality	Dewatering	Moderate to High	Not triggered – no dewatering to receiving water systems	N/A	Not Applicable

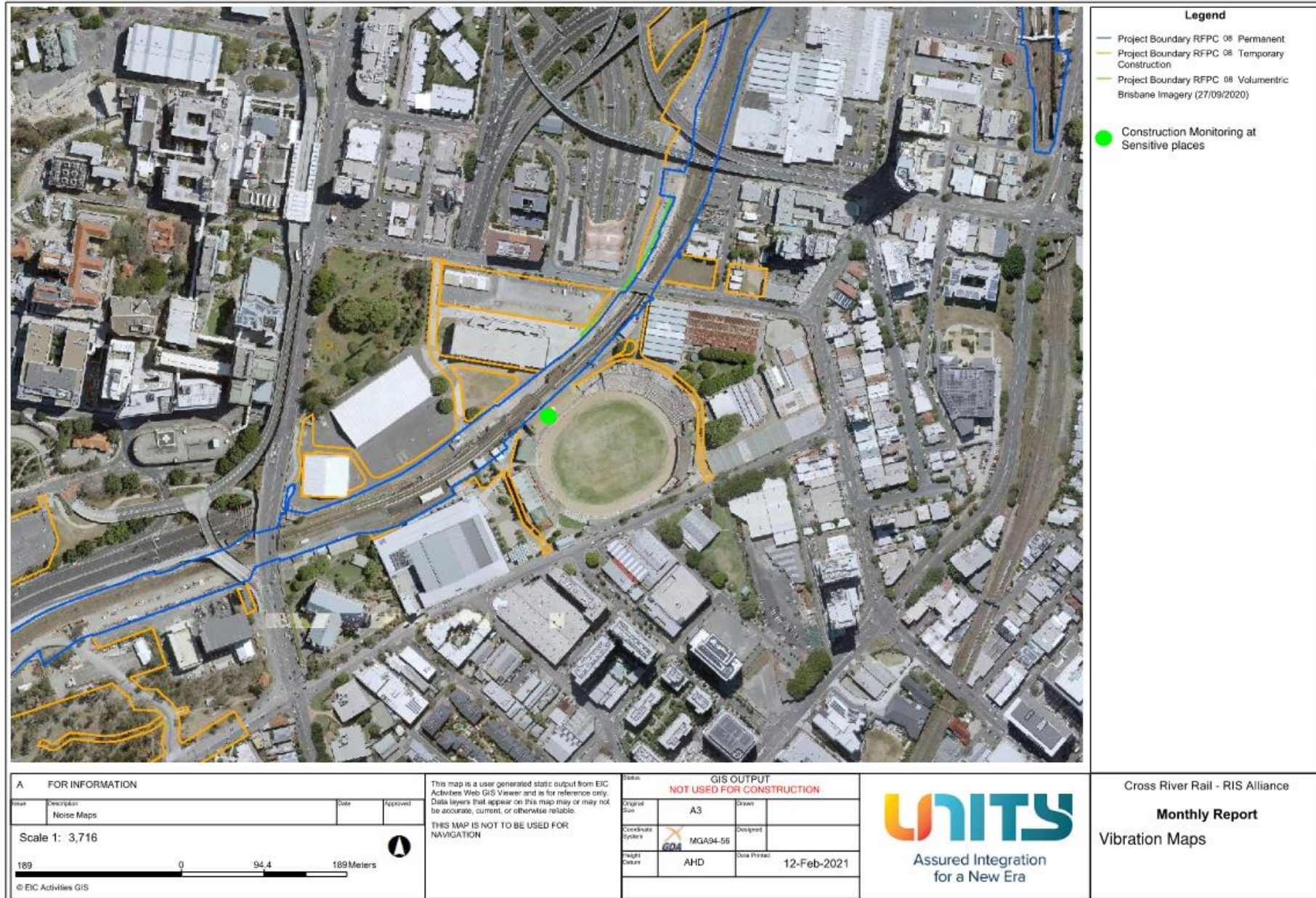
Attachment 1 CGCR Non-Compliance Event Report (if required)

None for this reporting period.

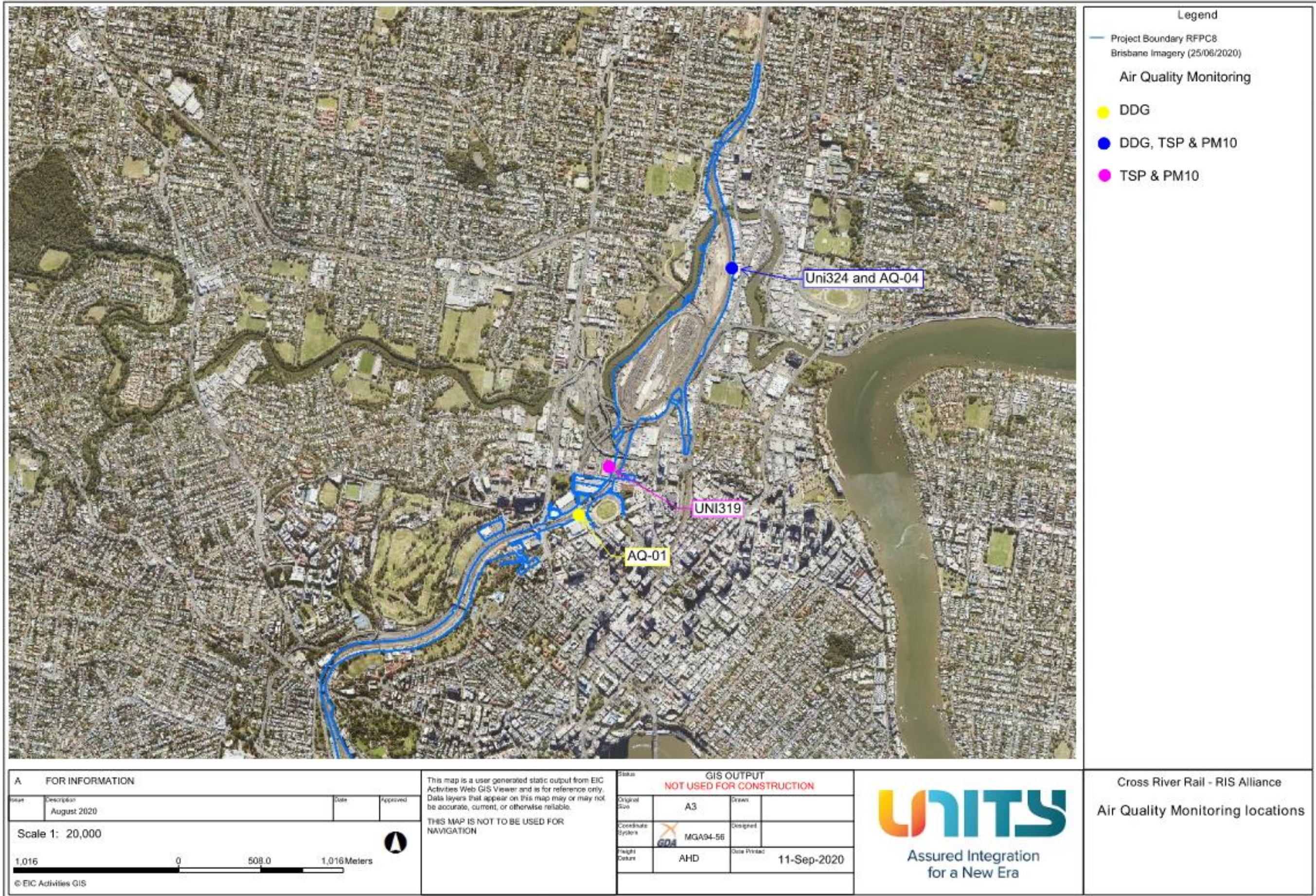
Attachment 2 Monitoring Locations – Noise

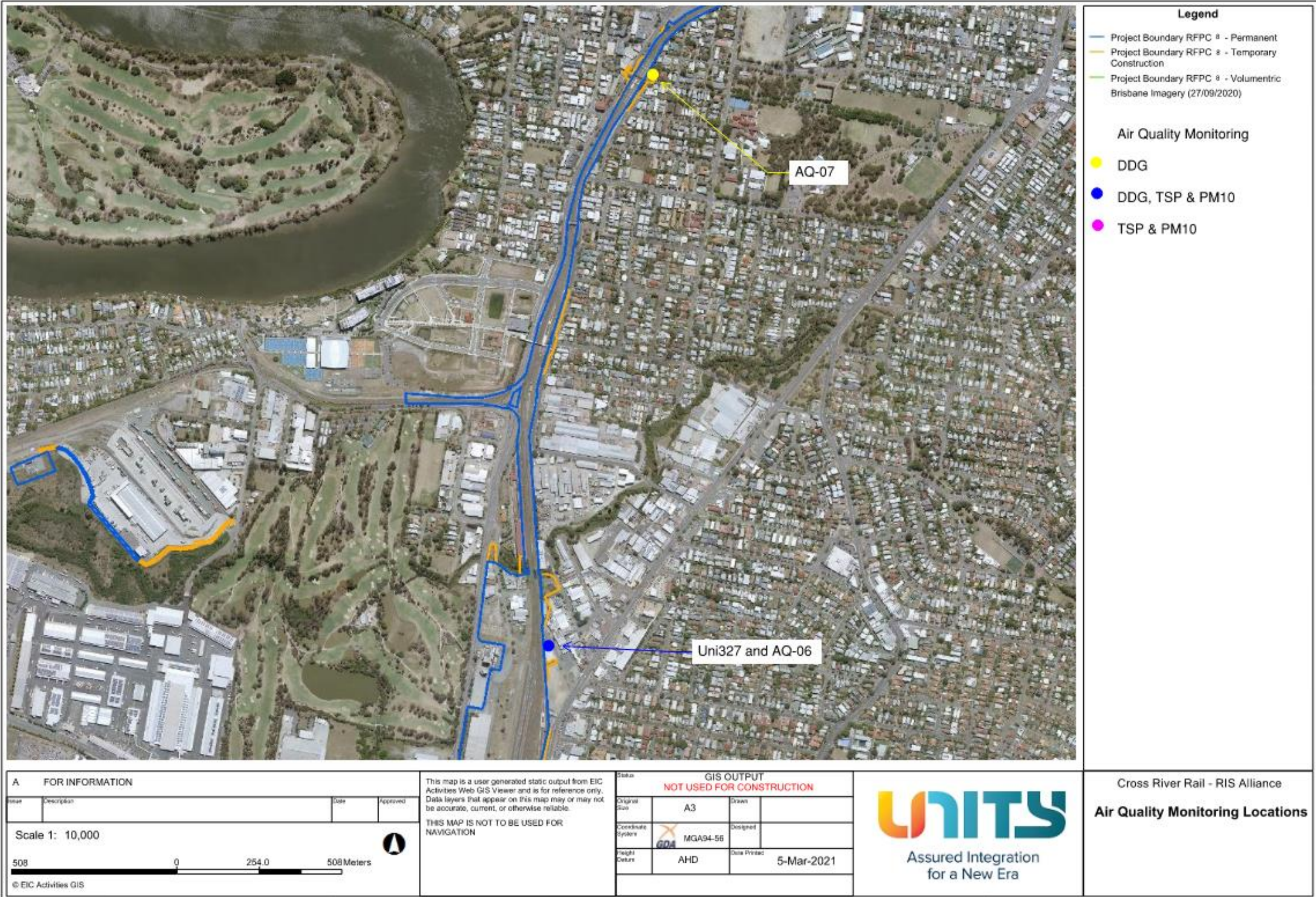


Attachment 3 Monitoring Locations – Vibration

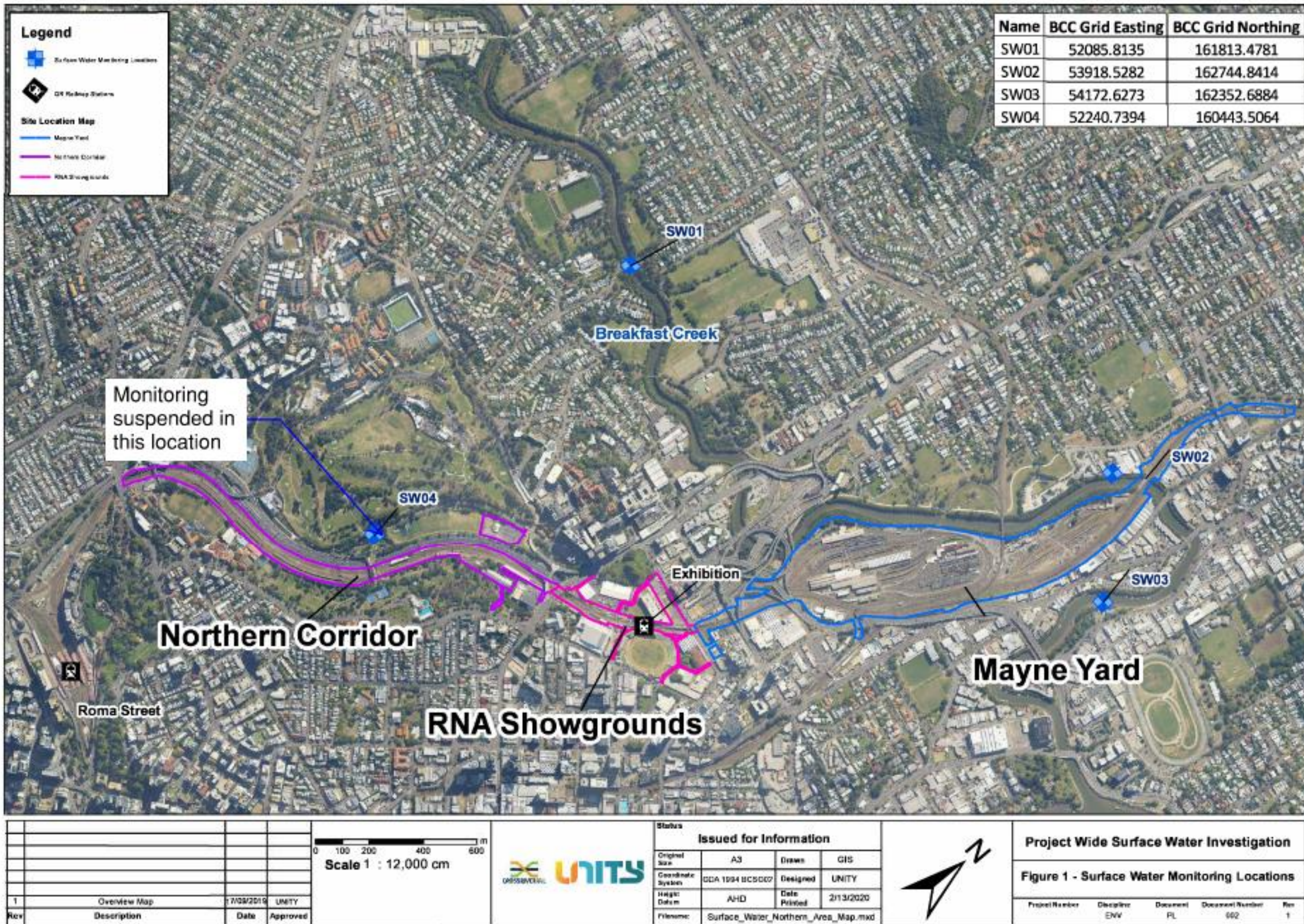


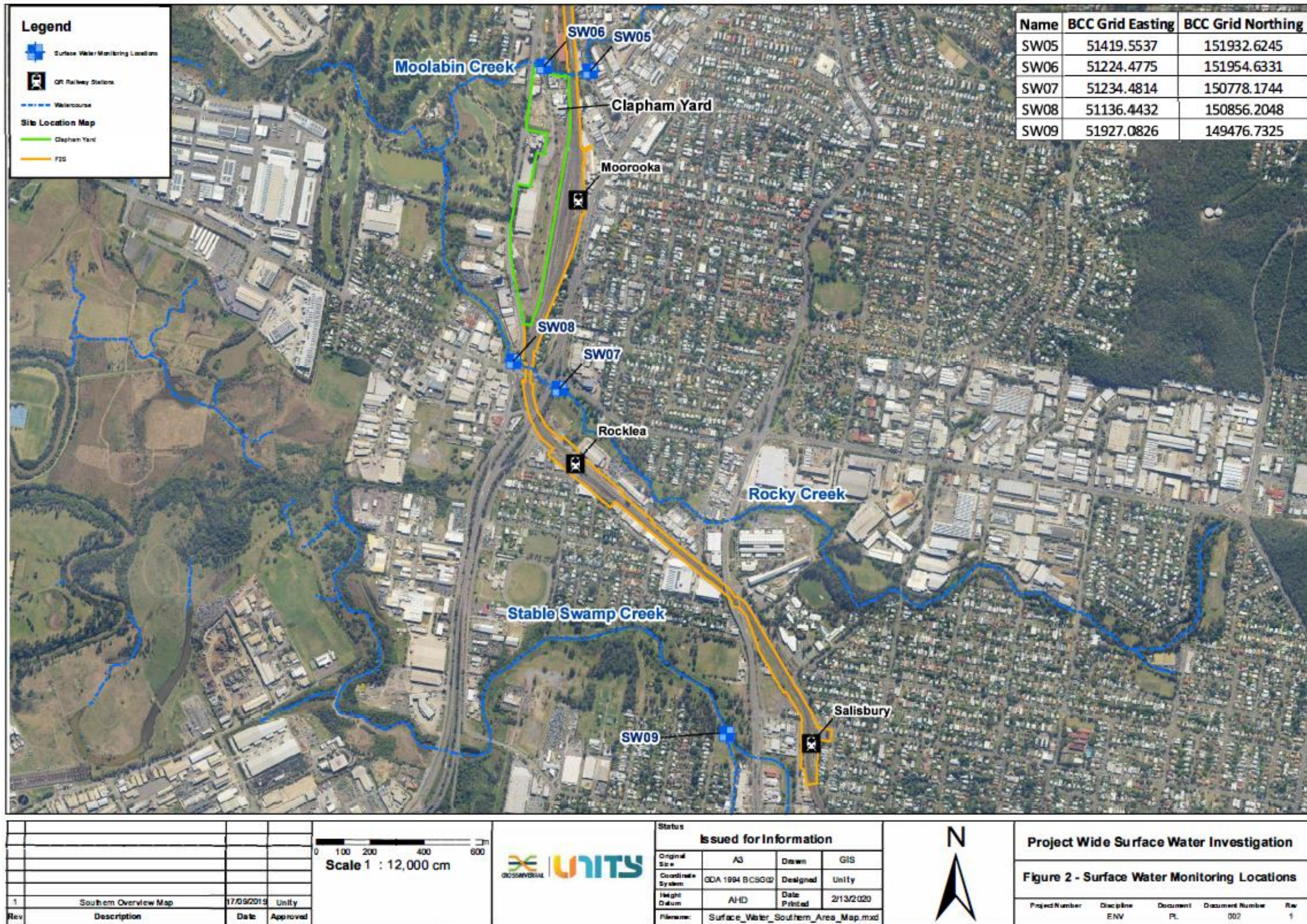
Attachment 4 Monitoring Locations – Air Quality





Attachment 5 Monitoring Locations – Surface Water





Appendix B – TSD Monthly Report

COORDINATOR-GENERAL'S MONTHLY REPORT: FEBRUARY 2021

Prepared in accordance with Coordinator-General Imposed Condition 6 - Reporting.

1. Monthly Monitoring Summary

It is CBGU Joint Venture's intent to aim for the Goals and Objectives relevant to vibration, noise, air quality and water monitoring within the practical extent of delivering the Project.

Vibration monitoring was conducted on fifteen (15) occasions, and noise monitoring was conducted on thirty (30) occasions during February 2021. Each vibration and noise monitoring event confirmed works adhered to project requirements.

Ambient air quality monitoring was conducted at the Roma Street, Albert Street, Woolloongabba, Boggo Road, Southern Portal and Northern Portal precinct sites during February 2021. Air quality monitoring confirmed works adhered to project requirements.

Water quality monitoring was conducted before the release of water from the site on seventeen (17) occasions. Each monitoring event confirmed project requirements were adhered to. Two (2) rounds of surface water quality monitoring were conducted, these monitoring events confirmed no impacts were generated by the Project.

2. CG Monthly Report – Compliance Assessment Against Imposed Conditions

Whilst not a requirement of Imposed Condition 6, CBGU offers the below Compliance Status Table as a good-will gesture to demonstrate the Project's ongoing environmental performance.

Table 1: Compliance Status – CG Imposed Conditions

CG Condition	Requirement Summary	Compliance Met (Yes/No/NA)	Comment
1.	General conditions – compliance with the Project Changes relevant to the Contractor's scope.	Yes	CBGU project works have been conducted compliant with the Imposed Conditions.
2.	Outline Environmental Management Plan – timely submission to the Coordinator-General, including required sub plans.	N/A	The OEMP is not an obligation of the CBGU Joint Venture.
3.	Design – the achievement of the Environmental Design Requirements.	Yes	Design and implementation proceeded in accordance with the Environmental Design Requirements.
4.	Construction Environmental Management Plan – all relating to Relevant Project Works.	Yes	All CBGU works were conducted in accordance with the Construction Environmental Management Plan (CEMP) (Rev 7).
5.	Compliance and Incident management – Non-compliance events, notifications and reporting.	Yes	Nil non-compliances occurred during the monitoring period (refer to Section 4).
6.	Reporting – Monthly and Annual reporting.	Yes	All reporting requirements are completed in accordance with Imposed Condition 6.
7.	Environmental Monitor – engaged and functions resumed.	Yes	An Environmental Monitor (EM) is appointed to the Project, and CBGU is committed to working collaboratively to aid the EM's functions under Imposed Condition 7.
8.	Community Relations Monitor – engaged and functions resumed.	Yes	A Community Relations Monitor (CRM) is appointed to the Project, and CBGU is committed to working collaboratively to aid the CRM's functions under Imposed Condition 8.
9.	Community engagement plan – developed and endorsed by Environmental Monitor.	Yes	A Community Engagement Plan (CEP) has been developed and implemented in accordance with Imposed Condition 9. The CEMP has been endorsed with the CEP.
10.	Hours of work – works undertaken during approved hours.	Yes	CBGU project works have been conducted in accordance with the approved hours of work.

CG Condition	Requirement Summary	Compliance Met (Yes/No/NA)	Comment
11.	Noise – Work must aim to achieve internal noise goals for human health and well-being.	Yes	CBGU project work has aimed to achieve internal noise goals for human health and well-being. Where internal noise levels have been unable to be measured, suitable noise reductions have been applied in accordance with Imposed Condition 11. Noise monitoring data is provided within Section 3.2.
	Vibration – Works must aim to achieve vibration goals for cosmetic damage, human comfort and sensitive building contents.	Yes	CBGU project work has aimed to achieve vibration goals for cosmetic damage, human comfort and sensitive buildings. Vibration monitoring data is provided within Section 3.1.
12.	Property damage relating to ground movement	Yes	The management of potential impacts relating to property damage has been completed in accordance with Imposed Condition 12.
13.	Air quality – Works must aim to achieve air quality goals for human health and nuisance.	Yes	CBGU project works have aimed to achieve air quality goals. Air quality monitoring data is provided within Section 3.3.
14.	Traffic and transport – Works must minimise adverse impacts on road safety and traffic flow.	Yes	CBGU project works have been conducted in a manner that has minimised adverse impacts on road safety and traffic flow.
15.	Water quality – Works must not discharge surface water and groundwater from the construction site above the relevant environmental values and water quality objectives.	Yes	CBGU has prepared and manages processes to ensure water quality is managed in accordance with Imposed Condition 15.
16.	Water resources – evaluate potential impact, plan works, implement controls and monitor the inflow of groundwater associated with drawdown.	Yes	CBGU project works are managed in accordance with Imposed Condition 16.
17.	Surface water – Must be designed to avoid inundation from stormwater due to a 2-year (6hr) ARI rainfall event and flood waters due to a 5-year ARI rainfall event and constructed to avoid afflux or cause the redirection of uncontrolled surface water flows, including stormwater flows, outside of worksites.	Yes	Design of the CBGU project works considers the requirements of Imposed Condition 17.
18.	Erosion and sediment control – Provisions for erosion and sediment control must be consistent with the Guidelines for Best Practice Erosion and Sediment Control (International Erosion Control Association, 2008) and the Department of Transport and Main Roads' Technical Standard MRTS52.	Yes	CBGU has prepared and manages processes to ensure erosion & sediment control is managed in accordance with Imposed Condition 18.

CG Condition	Requirement Summary	Compliance Met (Yes/No/NA)	Comment
19.	Acid Sulfate Soils managed as per the <i>Queensland Acid Sulfate Soil Technical Manual</i> .	Yes	CBGU has prepared and manages processes to ensure acid sulphate soils are managed in accordance with Imposed Condition 19.
20.	Landscape and open space – general requirement to minimise impacts on landscapes and open space values and specific requirements around Victoria park	Yes	CBGU project works are designed and implemented in accordance with Condition 20.
21.	Worksite rehabilitation – worksites rehabilitated as soon as practicable upon completion of works or commissioning, and in consultation with Brisbane City Council.	Yes	CBGU project works are designed and implemented in accordance with Condition 21.

3. Environmental Monitoring Results

Monitoring data is provided below in accordance with Imposed Condition 6(b)(i).

3.1 Vibration

Vibration requirements (levels) are defined as goals within Imposed Condition 11. The goals are to be aimed for.

The Coordinator-General Change Report acknowledges instances exist that these goals may not be achieved.

Fifteen (15) vibration monitoring sessions were conducted during February 2021.

All vibration monitoring adhered to project requirements and is detailed in the table below.

Table 2: Vibration Monitoring Data

Start Date	Time (AM/PM)	Finish Date	Location (Street Name) (Construction Precinct)	Average Vibration level (mm/s)	Max Vibration Level (mm/s)	Vibration Goal (mm/s)	Receiver / Goal Type	Adhered to Project Requirements (Yes / No)
01/02/2021	10:21:00 AM	5/02/2021	Gregory Terrace (Northern Portal)	0.09	0.31	50	Structure	Yes
08/02/2021	7:18:00 AM	10/02/2021	Roma Street (Roma Street Precinct)	0.13	0.72	50	Structure	Yes
11/02/2021	9:35:00 AM	11/02/2021	Gregory Terrace (Northern Portal)	0.09	0.23	50	Structure	Yes
11/02/2021	10:23:00 AM	19/02/2021	Stanley Street (Woolloongabba Precinct)	0.13	0.33	50	Commercial	Yes
15/02/2021	11:47:00 AM	23/02/2021	Albert Street (Albert Street Precinct)	0.13	0.32	2	Heritage Structure	Yes

Start Date	Time (AM/PM)	Finish Date	Location (Street Name) (Construction Precinct)	Average Vibration level (mm/s)	Max Vibration Level (mm/s)	Vibration Goal (mm/s)	Receiver / Goal Type	Adhered to Project Requirements (Yes / No)
17/02/2021	8:56:00 AM	17/02/2021	Ipswich Road (Southern Portal)	0.49	1.72	50	Structure	Yes
19/02/2021	7:31:00 AM	19/02/2021	Roma Street (Roma Street Precinct)	-	3.45	10	Heritage Structure (controlled Blast)	Yes
19/02/2021	7:31:00 AM	19/02/2021	Roma Street (Roma Street Precinct)	-	1.55	10	Heritage Structure (controlled Blast)	Yes
23/02/2021	12:53:00 PM	24/02/2021	Vulture Street (Woolloongabba Precinct)	0.08	0.1	2	Heritage Structure	Yes
24/02/2021	10:39:00 AM	24/02/2021	Reid Street (Woolloongabba Precinct)	0.29	0.6	50	Residential	Yes
24/02/2021	1:09:00 PM	25/02/2021	Reid Street (Woolloongabba Precinct)	0.2	0.52	50	Residential	Yes
25/02/2021	8:18:00 AM	25/02/2021	Reid Street (Woolloongabba Precinct)	0.4	0.99	50	Residential	Yes
25/02/2021	1:09:00 PM	25/02/2021	Reid Street (Woolloongabba Precinct)	0.41	0.6	50	Residential	Yes
25/02/2021	1:54:00 PM	26/02/2021	Reid Street (Woolloongabba Precinct)	0.15	0.38	50	Residential	Yes
25/02/2021	11:24:00 AM	28/02/2021	Vulture Street (Woolloongabba Precinct)	0.08	0.1	2	Heritage Structure	Yes

3.2 Noise

Noise requirements (levels) are defined as goals within Imposed Condition 11. The goals are to be aimed for.

The Coordinator-General Change Reports acknowledge instances exist that these goals may not be achieved.

Noise monitoring was conducted on thirty (30) occasions during February 2021. All noise monitoring data adhered to project requirements and is provided in the table below.

Table 3: Noise Monitoring Data

Date	Time (AM / PM)	Location (Street Name) (Construction Precinct)	Purpose of Monitoring	Internal or External ^[3] Monitoring	Activity	Dominant Noise Source	Noise Goal LA10 ^[1]	Noise level LA10 ^[1]	Noise Goal LAeq ^[2]	Noise level LAeq ^[2]	Adhered to Project Requirements (Yes / No)
1/02/2021	6:21:00 PM	Elizabeth Street (Albert Street Precinct)	Construction Monitoring at Sensitive Places	External	Material Haulage	General Public	67	65.5	57	63.2	Yes
1/02/2021	6:42:00 PM	Albert Street (Albert Street Precinct)	Construction Monitoring at Sensitive Places	External	Material Haulage	General Public and Construction	62	68	52	65.6	Yes
1/02/2021	7:17:00 PM	Albert Street (Albert Street Precinct)	Construction Monitoring at Sensitive Places	External	Material Haulage	General Public and Construction	62	68.4	52	66.6	Yes
3/02/2021	9:46:00 AM	Gregory Terrace (Northern Portal)	Construction Monitoring at Sensitive Places	External	Piling Works	Construction and Road Traffic	62	67.8	52	66.1	Yes
5/02/2021	1:56:00 PM	Gregory Terrace (Northern Portal)	Construction Monitoring at Sensitive Places	External	Piling Work and Concrete Work	Construction and Road Traffic	62	66.3	52	64.3	Yes

Date	Time (AM / PM)	Location (Street Name) (Construction Precinct)	Purpose of Monitoring	Internal or External ^[3] Monitoring	Activity	Dominant Noise Source	Noise Goal LA10 ^[1]	Noise level LA10 ^[1]	Noise Goal LAeq ^[2]	Noise level LAeq ^[2]	Adhered to Project Requirements (Yes / No)
5/02/2021	11:22:00 AM	Roma Street (Roma Street Precinct)	Construction Monitoring at Sensitive Places	External	Excavation	Construction and Road Traffic	62	74.3	52	72.3	Yes
5/02/2021	11:40:00 AM	Roma Street (Roma Street Precinct)	Construction Monitoring at Sensitive Places	Internal	Excavation	General Public	60	62.3	50	60.1	Yes
8/02/2021	8:35:00 AM	Gregory Terrace (Northern Portal)	Construction Monitoring at Sensitive Places	External	Piling Work	Construction and Fauna	62	64.6	52	63.5	Yes
8/02/2021	8:13:00 PM	Roma Street (Roma Street Precinct)	Construction Monitoring at Sensitive Places	External	Ground Stabilisation	Road Traffic	62	66.5	52	63.7	Yes
8/02/2021	9:19:00 PM	Roma Street (Roma Street Precinct)	Construction Monitoring at Sensitive Places	External	Investigation Drilling	Road Traffic	59	66.1	52	64.1	Yes
8/02/2021	9:54:00 PM	Roma Street (Roma Street Precinct)	Construction Monitoring at Sensitive Places	External	Investigation Drilling	Construction and Road Traffic	59	66.8	52	64.9	Yes
10/02/2021	10:07:00 PM	Mark Lane (Woolloongabba Precinct)	Construction Monitoring at Sensitive Places	External	Tunnelling	Road Traffic	54	54.5	47	62.5	Yes

Date	Time (AM / PM)	Location (Street Name) (Construction Precinct)	Purpose of Monitoring	Internal or External ^[3] Monitoring	Activity	Dominant Noise Source	Noise Goal LA10 ^[1]	Noise level LA10 ^[1]	Noise Goal LAeq ^[2]	Noise level LAeq ^[2]	Adhered to Project Requirements (Yes / No)
10/02/2021	10:34:00 PM	Reid Street (Woolloongabba Precinct)	Construction Monitoring at Sensitive Places	External	Tunnelling	Road Traffic	49	52.8	42	51.1	Yes
11/02/2021	11:07:00 AM	Albert Street (Albert Street Precinct)	Construction Monitoring at Sensitive Places	External	Piling Work	Construction	67	72.9	57	71.6	Yes
11/02/2021	9:41:00 AM	Gregory Terrace (Northern Portal)	Construction Monitoring at Sensitive Places	External	Piling Work and Utilities Work	Construction	62	70.7	52	68.6	Yes
11/02/2021	10:07:00 AM	Gregory Terrace (Northern Portal)	Construction Monitoring at Sensitive Places	External	Demolition	Construction	62	67.2	52	64.2	Yes
16/02/2021	11:45:00 AM	Roma Street (Roma Street Precinct)	Construction Monitoring at Sensitive Places	Internal	Demolition, Piling Works and Material Haulage	Construction and General Public / Station	60	76.5	50	72.7	Yes
16/02/2021	12:20:00 PM	Roma Street (Roma Street Precinct)	Construction Monitoring at Sensitive Places	External	Demolition, Piling Works and Material Haulage	Construction and Road Traffic	72	75.5	62	73.2	Yes
16/02/2021	12:38:00 PM	Roma Street (Roma Street Precinct)	Construction Monitoring at Sensitive Places	External	Demolition, Piling Works and Material Haulage	Construction and Road Traffic	67	73.1	57	69.6	Yes

Date	Time (AM / PM)	Location (Street Name) (Construction Precinct)	Purpose of Monitoring	Internal or External ^[3] Monitoring	Activity	Dominant Noise Source	Noise Goal LA10 ^[1]	Noise level LA10 ^[1]	Noise Goal LAeq ^[2]	Noise level LAeq ^[2]	Adhered to Project Requirements (Yes / No)
16/02/2021	2:39:00 PM	Gregory Terrace (Northern Portal)	Construction Monitoring at Sensitive Places	External	Utilities Work	Construction	62	70.8	52	67.9	Yes
17/02/2021	1:57:00 PM	Mary Street (Albert Street Precinct)	Construction Monitoring at Sensitive Places	External	Ground stabilisation and Excavation	Construction and Road Traffic	72	71.2	62	69.2	Yes
17/02/2021	2:28:00 PM	Albert Street (Albert Street Precinct)	Construction Monitoring at Sensitive Places	External	Ground stabilisation	Construction and Road Traffic	72	71	62	69	Yes
17/02/2021	9:30:00 AM	Ipswich Road (Southern Portal)	Model Verification	External	Piling and Excavation	Construction and Railway Line	72	69.1	62	65	Yes
19/02/2021	7:31:00 AM	Roma Street (Roma Street Precinct)	Supreme Court	External	Controlled Blast	Construction	-	-	130 ^[4]	118	Yes
23/02/2021	8:29:00 AM	Gregory Terrace (Northern Portal)	Construction Monitoring at Sensitive Places	External	Utilities Work	Construction	62	73	52	71.4	Yes
23/02/2021	04:13:00AM	Elliott Street (Boggo Road Precinct)	Construction Monitoring at Sensitive Places	External	Excavation	Road Traffic / General Public	49	51.7	42	50.5	Yes

Date	Time (AM / PM)	Location (Street Name) (Construction Precinct)	Purpose of Monitoring	Internal or External ^[3] Monitoring	Activity	Dominant Noise Source	Noise Goal LA10 ^[1]	Noise level LA10 ^[1]	Noise Goal LAeq ^[2]	Noise level LAeq ^[2]	Adhered to Project Requirements (Yes / No)
24/02/2021	12:24:00 PM	Reid St (Woolloongabba Precinct)	Validation	External	Tunnelling	Road Traffic	62	58.6	52	56.5	Yes
24/02/2021	10:20:00 PM	Reid St (Woolloongabba Precinct)	Validation	External	Tunnelling	Road Traffic	49	53.3	42	52.3	Yes
25/02/2021	1:16:00 PM	Reid St (Woolloongabba Precinct)	Validation	Internal	Tunnelling	Construction	42	51.5	35	47.1	Yes
25/02/2021	1:35:00 PM	Reid St (Woolloongabba Precinct)	Validation	Internal	Tunnelling	Construction	42	42.8	35	38.7	Yes

- [1] Intermittent noise goal (LA10)
- [2] Continuous noise goal (LAeq)
- [3] In accordance with Imposed Condition 11 where internal noise levels were unable to be measured, external noise goals were developed by an acoustic specialist using the following standards: ISO 140-5:1998 Acoustics – Measurement of Sound Insulation in Buildings and of Building Elements, Part 5: Field measurements of airborne sound insulation of façade elements and facades and ISO 354:1985 Acoustics – Measurement of sound absorption in a reverberation room.
- [4] Blasting is measured in dB Linear Peak.

3.3 Air Quality

3.3.1 Deposited Dust Results

Air quality requirements (levels) are defined as goals within Imposed Condition 13. The goals are to be aimed for.

The Coordinator-General Change Report acknowledges instances exist that these goals may not be achieved.

Dust deposition monitoring was performed during February 2021. The dust deposition gauges result for the reporting period are detailed below, and all monitoring data adhered to project requirements.

Table 4: Air Quality Monitoring – Deposited Dust Data

Location	Project Wide Air Quality Criteria & Goals ^[1]			Monitoring results (mg/m ² /day)	Comments
	Criterion	Air Quality Indicator	Goal (mg/m ² /day)		
Northern Portal	Nuisance	Deposited dust	120	36.67	Air quality monitoring was performed during the reporting period. All results adhered to project requirements.
Roma Street Precinct				16.67	
Albert Street Precinct (South)				21.88	
Albert Street Precinct (North)				71.88	
Woolloongabba Precinct (North)				48.39	
Woolloongabba Precinct (South)				32.26	
Boggo Road Precinct (North)				16.13	
Boggo Road Precinct (South)				45.16	
Southern Portal (South)				12.90	
Southern Portal (East)				16.13	

- [1] Project works must aim to achieve construction air quality goals. The Coordinator-General Change Report – Whole of Project Refinements 2019 acknowledges instances exist that these goals may not be achieved.

3.3.2 Particulates and Ambient Air Quality Results

Total Suspended Particules (TSP) and particulate matter less than 10µm (PM10) monitoring was conducted during February 2021.

TSP and PM10 are monitored using portable air quality units, as well as nearby Government air quality stations. Targeted monitoring of potential dust-generating activities is conducted by the mobile air quality units and was completed at the Roma Street, Albert Street, Woolloongabba, Boggo Road and Northern Portal Precincts during February 2021.

Three (3) Government air quality stations near to the Construction Precincts are also utilised.

Table 5: Targeted Air Quality Monitoring – Total Suspended Particles and PM10 Data

Date	TSP Project Goal	PM10 Project Goal	Gabba		Roma		Albert		Boggo ^[1]		Northern Portal	
			TSP	PM 10	TSP	PM 10	TSP	PM 10	TSP	PM 10	TSP	PM 10
			(µg/m ³ /24 hr)									
01-Feb-21	80	50	4.95	4.90	9.13	9.1	14.52	14.47	-	-	-	-
02-Feb-21	80	50	4.89	4.87	10.85	10	21.49	21.47	-	-	-	-
03-Feb-21	80	50	5.79	5.75	9.57	9.49	16.20	16.13	-	-	-	-
04-Feb-21	80	50	5.77	5.71	10.04	9.99	14.11	14.05	3.35	3.33	-	-
05-Feb-21	80	50	5.25	5.14	8.74	8.7	16.11	16.06	3.95	3.95	-	-
06-Feb-21	80	50	5.00	4.95	9	8.97	11.46	11.42	4.05	4.02	-	-
07-Feb-21	80	50	4.82	4.75	9.37	9.34	10.86	10.83	4.77	4.77	-	-
08-Feb-21	80	50	2.88	2.80	10.43	10.37	15.01	14.96	-	-	-	-
09-Feb-21	80	50	2.83	2.72	9.19	9.1	15.91	15.82	1.32	1.31	-	-
10-Feb-21	80	50	2.62	2.48	8.71	8.62	30.92	30.87	3.38	3.37	-	-
11-Feb-21	80	50	2.62	2.50	6.23 ^[2]	6.19 ^[2]	10.59	10.56	2.73	2.73	-	-
12-Feb-21	80	50	2.68	2.57	-	-	9.57	9.55	2.65	2.65	5.72 ^[2]	5.69 ^[2]
13-Feb-21	80	50	2.46	2.30	-	-	8.71	8.69	-	-	6.86	6.81
14-Feb-21	80	50	3.25	3.25	-	-	18.47	18.42	-	-	5.59	5.51
15-Feb-21	80	50	2.16	2.07	-	-	15.91	15.84	-	-	9.86	9.79
16-Feb-21	80	50	1.89	1.79	-	-	11.57	11.52	3.6	3.59	6.41	6.36

Date	TSP Project Goal	PM10 Project Goal	Gabba		Roma		Albert		Boggo ^[1]		Northern Portal	
			TSP	PM 10	TSP	PM 10	TSP	PM 10	TSP	PM 10	TSP	PM 10
			(µg/m3/24 hr)									
17-Feb-21	80	50	2.49	2.45	-	-	19.62	19.56	3.31	3.3	6.35	6.29
18-Feb-21	80	50	2.99	2.92	-	-	16.00	15.95	1.51	1.51	7.68	7.63
19-Feb-21	80	50	2.93	2.85	-	-	17.60	17.57	-	-	8.59	8.55
20-Feb-21	80	50	2.23	2.12	-	-	13.23	13.20	-	-	5.46	5.38
21-Feb-21	80	50	2.17	2.17	-	-	7.39	7.37	-	-	3.54	3.46
22-Feb-21	80	50	2.25	2.14	-	-	8.61	8.57	-	-	6.28	6.2
23-Feb-21	80	50	2.19	2.11	-	-	9.79	9.76	3.27	3.24	7.51	7.44
24-Feb-21	80	50	2.78	2.62	-	-	15.57	15.54	4.36	4.36	9.57	9.48
25-Feb-21	80	50	2.18	2.14	-	-	13.56	13.54	5.91	5.91	11.69	11.66
26-Feb-21	80	50	1.66	1.55	-	-	12.94	12.92	4.05	4.04	9.35	9.3
27-Feb-21	80	50	1.59	1.56	-	-	11.30	11.28	-	-	7.97	7.94
28-Feb-21	80	50	1.53	1.53	-	-	9.35	9.34	-	-	7.44	7.41

- [1] Due to a technical fault, the Boggo Road mobile air quality unit stopped functioning on several days in February 2021. The unit has required specialist repair. A nearby (Brisbane CBD) DES Air Quality Station demonstrated compliant air quality during February 2021, these results are provided below. The low levels are also consistent with levels recorded otherwise throughout the month when the unit was operating.
- [2] Ongoing levels of compliant air quality levels and the completion of potential high-impact works (demolition) at Roma St enabled the portable air quality monitoring unit to be relocated to the Northern Portal area on 12 February 2021.

CBGU also utilises three (3) Government air quality monitoring stations to monitor PM10 near to the project sites. The results during this reporting period were as follows:

- Brisbane CBD: PM₁₀ daily Maximum average: **24.1 µg/m3/24 hr** (<https://apps.des.qld.gov.au/air-quality/chart/?station=cbd¶meter=18&date=1/02/2021&timeframe=month>)
- South Brisbane: PM₁₀ daily Maximum average: **33.0 µg/m3/24 hr** (<https://apps.des.qld.gov.au/air-quality/chart/?station=sbr¶meter=18&date=1/02/2021&timeframe=month>)
- Woolloongabba: PM₁₀ daily Maximum average: **27.8 µg/m3/24 hr** (<https://apps.des.qld.gov.au/air-quality/chart/?station=woo¶meter=18&date=1/02/2021&timeframe=month>)

The graphical representation of the Government air quality data is presented in the below charts (refer to Figure 1-3).

Particle PM10 at Brisbane CBD, 1–28 February 2021 [about Particle PM10](#)

[Brisbane CBD station overview](#)

The guideline for Particle PM₁₀ is 120µg/m³ (1hr avg) and 50µg/m³ (24hr avg).

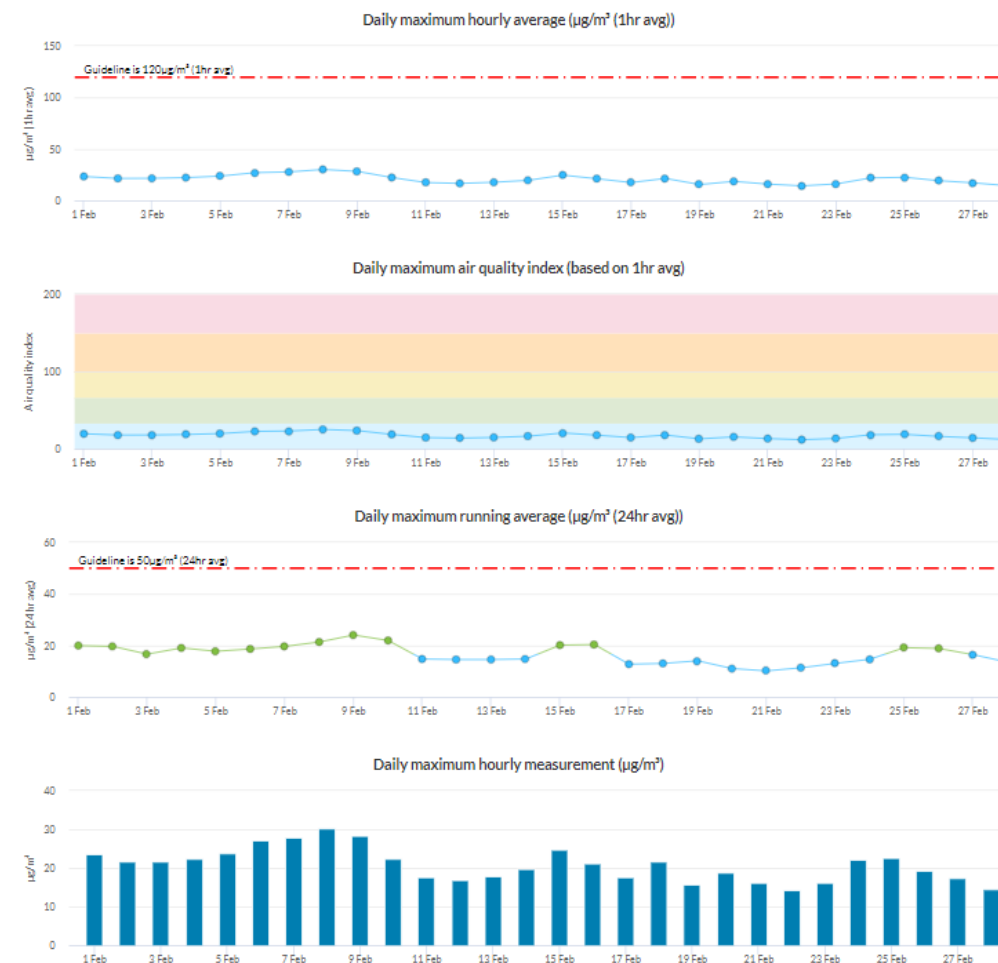


Figure 1: Brisbane CBD – DES Station - PM10 graph for February 2021 (reproduction from the DES website).

Particle PM10 at South Brisbane, 1–28 February 2021 [about Particle PM10](#)

[South Brisbane station overview](#)

The guideline for Particle PM₁₀ is 120µg/m³ (1hr avg) and 50µg/m³ (24hr avg).

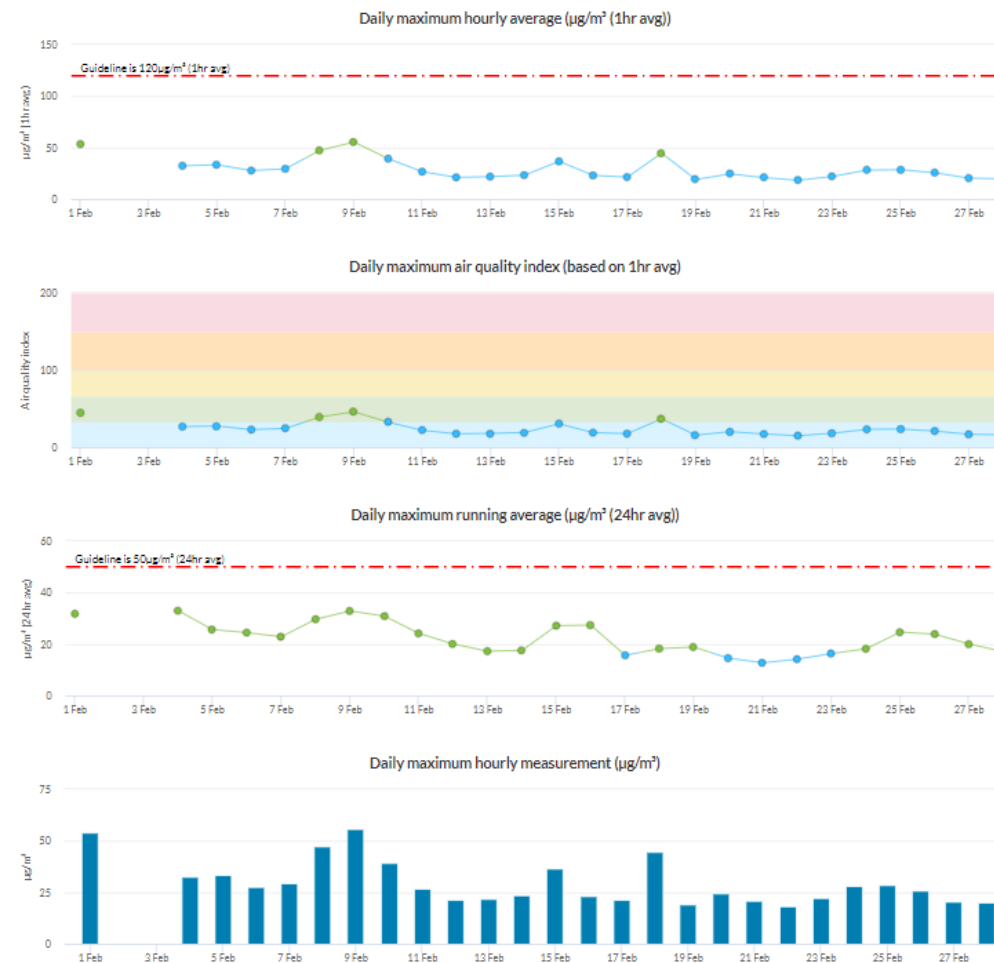


Figure 2: South Brisbane – DES Station - PM10 graph for February 2021 (reproduction from the DES website accessed).

Particle PM10 at Woolloongabba, 1–28 February 2021 [about Particle PM10](#)

[Woolloongabba station overview](#)

The guideline for Particle PM₁₀ is 120µg/m³ (1hr avg) and 50µg/m³ (24hr avg).

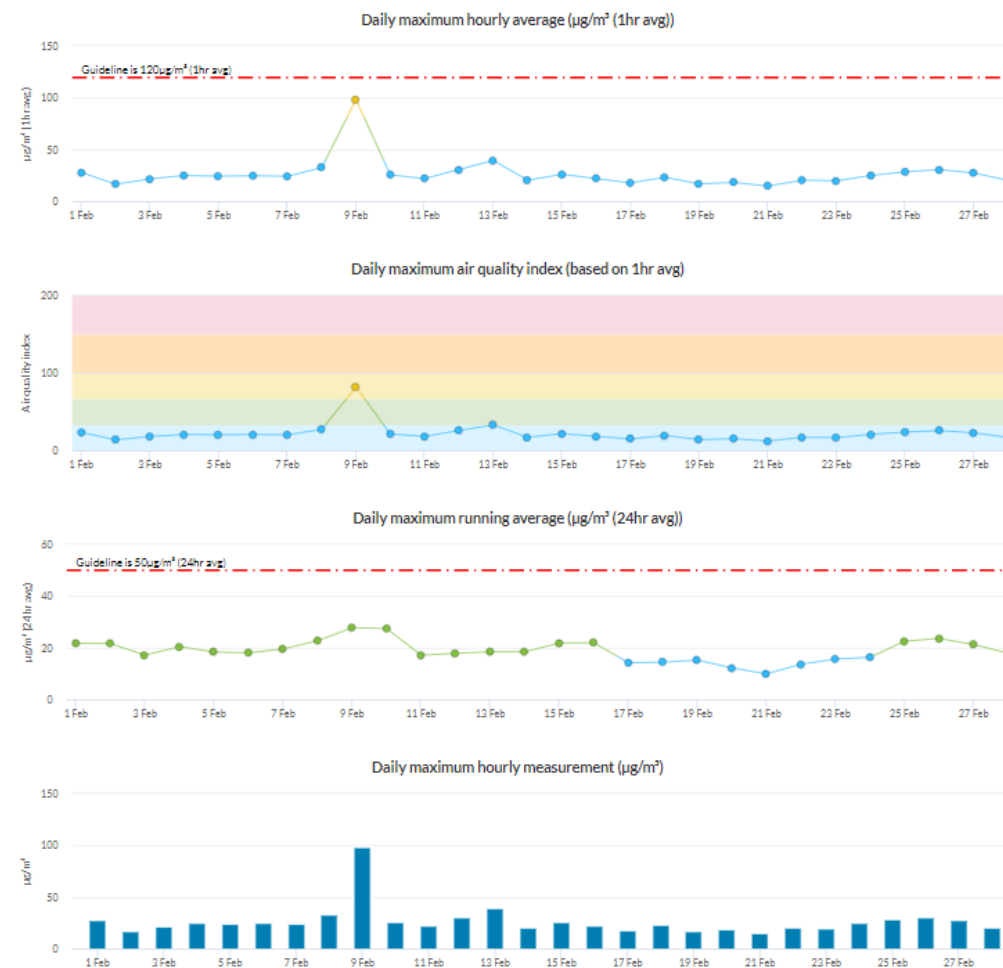


Figure 3: Woolloongabba – DES Station - PM10 graph for February 2021 (reproduction from the DES website).

3.4 Water Quality – Discharge

CBGU undertook seventeen (17) water quality monitoring events prior to the release (groundwater and surface water) from the site during February 2021.

3.4.1 Groundwater Discharge

Water quality monitoring data is provided in the table below.

Table 6: Groundwater Discharge – Water Quality Monitoring Data

Location	Date	Testing of Water Quality Objectives ^[1]											Adhered to Project Requirements (Yes / No)
		pH	Suspended solids (mg/L)	Turbidity (NTU)	Ammonia N (µg/L) ^[3]	Oxidised N (µg/L) ^[3]	Organic N (µg/L) ^[3]	Total nitrogen (µg/L) ^[3]	Total phosphorus (µg/L)	Filterable Reactive phosphorus (FRP) (µg/L)	Chlorophyll a (µg/L)	Dissolved oxygen (%) ^[2]	
Woolloongabba	25/01/2021	7.40	8.00	0.70	50.00	90.00	800.00	1000.00	20.00	20.00	<1	26.63	Yes
Boggo Road	29/01/2021	7.20	5.00	3.20	370.00	50.00	200.00	600.00	60.00	<10.00	<1	96.82	Yes
Boggo Road	1/02/2021	7.40	<5	3.40	160.00	350.00	200.00	800.00	70.00	50.00	<1	98.04	Yes
Woolloongabba	1/02/2021	7.40	<5	3.60	40.00	200.00	1100.00	1300.00	230.00	40.00	<1	84.72	Yes
Albert Street	14/02/2021	7.40	6.00	3.66	980.00	80.00	4400.00	5500.00	4870.00	<10	<2	74.78	Yes
Roma Street	15/02/2021	7.95	6.00	0.50	550.00	110.00	200.00	900.00	<10	<10	<1	91.98	Yes

- [1] The Project's discharge procedure is designed to minimise environmental impact and aim to achieve the water quality objectives. Water quality objectives are defined as goals within the Brisbane River estuary environmental values and water quality objectives document.
- [2] Adhered to project requirements regarding aiming to achieve the water quality objective. The dissolved oxygen samples were acquired prior to discharge from the site. Pumping of the water will have inadvertently aerated the water, thus influencing the dissolved oxygen level.
- [3] Adhered to project requirements regarding aiming to achieve the water quality objective. These samples identified results generally consistent with pre-construction conditions, and no external influences were introduced by construction activity.
- Note: testing of EPP (Water) Quality Objectives are analysed at a NATA accredited laboratory each month (results provided above). Field testing (turbidity, pH) is done regularly during ongoing discharge.

3.4.2 Ponded/Surface Water Discharge

Surface water quality monitoring data is provided in the table below.

Table 7: Surface Water Discharge - Water Quality Monitoring Data

Location	Date	Testing of Water Quality Objectives ^[1]		Adhered to Project Requirements (Yes / No)
		Turbidity (NTU)	pH	
Northern Portal	1/02/2021	1.20	7.65	Yes
Boggo Road	2/02/2021	3.60	7.80	Yes
Northern Portal	3/02/2021	32.40	7.58	Yes
Boggo Road	3/02/2021	6.10	7.56	Yes
Boggo Road	3/02/2021	33.80	7.62	Yes
Boggo Road	4/02/2021	30.60	7.64	Yes
Boggo Road	5/02/2021	13.44	7.71	Yes
Northern Portal	8/02/2021	23.70	7.56	Yes
Northern Portal	9/02/2021	19.84	7.59	Yes
Boggo Road	26/02/2021	5.41	8.24	Yes
Roma Street	26/02/2021	11.76	7.35	Yes

- [1] The Project's discharge procedure is designed to minimise environmental impact and aim to achieve the water quality objectives. All discharges were compliant with *Guidelines for Best Practice Erosion and Sediment Control (IECA, 2008)* and the *Department of Transport and Main Roads' Technical Standard MRTS 52 – Erosion and Sediment Control*.

3.5 Water Quality – Surface Water

During February 2021, CBGU JV undertook two (2) rounds of surface water sampling at five (5) locations (upstream and downstream).

Results from the below-monitoring locations reflect the condition of the broader catchment (not just the influence of the Project). Water quality generally appears good, and water discharge from the Project would not have had an impact on the catchment considering the results provided within section 3.4 above.

Table 8: Offsite Upstream & Downstream Water Quality Data

Location	Upstream / Downstream	Date	Purpose of Monitoring	Turbidity (NTU)	EC (µS/cm)	Dissolved oxygen (%)	pH
Albert Street	Upstream	3/02/2021	Post Rainfall	14.91	31200	91.36	7.76
Albert Street	Downstream	3/02/2021	Post Rainfall	15.38	31300	96.27	7.64
Roma Street	Upstream	3/02/2021	Post Rainfall	41.60	29700	81.09	7.76
Roma Street	Downstream	3/02/2021	Post Rainfall	42.30	29200	83.51	7.79
Woolloongabba	Upstream	3/02/2021	Post Rainfall	36.30	30000	100.46	7.65
Woolloongabba	Downstream	3/02/2021	Post Rainfall	54.90	30400	93.19	7.39
Boggo Road ^[1]	Downstream	3/02/2021	Post Rainfall	35.60	842	88.35	7.66
Woolloongabba	Upstream	12/02/2021	Monthly	27.50	41900	113.77	7.12
Woolloongabba	Downstream	12/02/2021	Monthly	20.10	42000	112.56	7.57
Boggo Road ^[1]	Downstream	12/02/2021	Monthly	4.10	20100	44.78	7.58
Albert Street	Upstream	15/02/2021	Monthly	21.10	32800	109.41	8.03
Albert Street	Downstream	15/02/2021	Monthly	23.10	33200	105.83	8.02
Roma Street	Upstream	15/02/2021	Monthly	34.80	30200	91.80	7.89

Location	Upstream / Downstream	Date	Purpose of Monitoring	Turbidity (NTU)	EC (μS/cm)	Dissolved oxygen (%)	pH
Roma Street	Downstream	15/02/2021	Monthly	28.60	29900	93.19	7.87
Northern Portal	Upstream	17/02/2021	Monthly	4.70	368	45.99	7.67
Northern Portal	Downstream	17/02/2021	Monthly	7.40	379	16.94	7.81

- [1] Monitoring at the Boggo Rd site occurs at a pipe outlet at the beginning of the surface catchment. There is no upstream/downstream monitoring point as such. The pipe outlet receives water released from the site, as well as a broader stormwater catchment.
- Note: During the month an additional surface water monitoring location was established at the Northern Portal.

4 Non-Compliances

Details of non-compliances are provided in accordance with Imposed Condition 6(b)(ii).

A Non-Compliance Event is defined as project works that do not comply with the Imposed Conditions. Nil non-compliances occurred during the monitoring period.

Table 9: Non-Compliance Events

Event Title	Location, Date and time of the event	Date the Event was Formally Notified to CG/IEM	Conditions Affected	Date the Event Report Formally Sent to CG/IEM	Status of Event
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Nil for this reporting period

5 Complaints

Reporting of complaints is provided below in accordance with Imposed Condition 6(b)(iii).

During February 2021, thirteen (13) complaints relating to the Project were received as detailed in Table 10 below.

Table 10: Summary of Complaints

No.	Date	Location	Description of Issue	Responses	Status of Event
1.	02/02/2021	Albert Street (Albert Street Precinct)	Noise and Worker Behaviour	<p>A stakeholder called the Project Hotline regarding noise and worker behaviour from the Albert Street precinct.</p> <p>CBGU provided the stakeholder with an overview of the works occurring and their duration at the Albert Street precinct. CBGU also outlined the mitigation measures used to alleviate potential impacts and ensure compliance.</p> <p>CBGU also reviewed the circumstances and monitoring confirmed works adhered to project noise requirements.</p> <p>An awareness campaign was also presented on the Project in the form of a toolbox talk.</p>	Closed
2.	05/02/2021	Peter Doherty Street (Boggo Road Precinct)	Noise	A stakeholder contacted the Project regarding noise from the Boggo Road precinct.	Closed

No.	Date	Location	Description of Issue	Responses	Status of Event
				<p>CBGU provided the stakeholder with an overview of the works occurring and their duration at the Boggo Road precinct. CBGU also outlined the mitigation measures used to alleviate potential impacts and ensure compliance.</p> <p>CBGU also reviewed the circumstances and monitoring confirmed works adhered to project noise requirements.</p>	
3.	18/02/2021	Boggo Road (Boggo Road Precinct)	Noise	<p>A stakeholder contacted the Project regarding noise from the Boggo Road precinct.</p> <p>CBGU provided the stakeholder with an overview of the works occurring and their duration at the Boggo Road precinct. CBGU also outlined the mitigation measures used to alleviate potential impacts and ensure compliance.</p> <p>CBGU also reviewed the circumstances and monitoring confirmed works adhered to project noise requirements.</p>	Closed
4.	18/02/2021	Albert Street (Albert Street Precinct)	Noise	<p>A stakeholder contacted the Project regarding noise from the Albert Street precinct.</p> <p>CBGU provided the stakeholder with an overview of the works occurring and their duration at the Albert Street precinct. CBGU also outlined the mitigation measures used to alleviate potential impacts and ensure compliance.</p> <p>CBGU also reviewed the circumstances and monitoring confirmed works adhered to project noise requirements.</p>	Closed
5.	19/02/2021	Main Street (Woolloongabba Precinct)	Parking	<p>A stakeholder contacted the Project regarding worker parking.</p> <p>CBGU investigated the issue and informed workers to park their vehicles in designated areas.</p>	Closed
6.	19/02/2021	Albert Street (Albert Street Precinct)	Parking	<p>A stakeholder contacted the Project regarding worker parking.</p> <p>CBGU investigated the issue and informed workers to park their vehicles in designated areas.</p>	Closed
7.	23/02/2021	Reid Street (Woolloongabba Precinct)	Noise	<p>A stakeholder called the Project Hotline regarding noise from the Woolloongabba precinct.</p> <p>CBGU provided the stakeholder with an overview of the works occurring and their duration at the Woolloongabba precinct. CBGU also outlined the mitigation measures used to alleviate potential impacts and ensure compliance.</p> <p>CBGU also reviewed the circumstances and monitoring confirmed works adhered to project noise requirements.</p>	Closed

No.	Date	Location	Description of Issue	Responses	Status of Event
8.	24/02/2021	Hawthorne Street (Woolloongabba Precinct)	Noise	A stakeholder called the Project Hotline regarding noise from the Woolloongabba precinct. CBGU provided the stakeholder with an overview of the works occurring and their duration at the Woolloongabba precinct. CBGU also outlined the mitigation measures used to alleviate potential impacts and ensure compliance. CBGU also reviewed the circumstances and monitoring confirmed works adhered to project noise requirements.	Closed
9.	24/02/2021	Hubert Street (Woolloongabba Precinct)	Noise	A stakeholder called the Project Hotline regarding noise from the Woolloongabba precinct. CBGU provided the stakeholder with an overview of the works occurring and their duration at the Woolloongabba precinct. CBGU also outlined the mitigation measures used to alleviate potential impacts and ensure compliance. CBGU also reviewed the circumstances and monitoring confirmed works adhered to project noise requirements.	Closed
10.	24/02/2021	Albert Street (Albert Street Precinct)	Noise	A stakeholder called the Project Hotline regarding noise from the Albert Street precinct. CBGU provided the stakeholder with an overview of the works occurring and their duration at the Albert Street precinct. CBGU also outlined the mitigation measures used to alleviate potential impacts and ensure compliance. CBGU also reviewed the circumstances and monitoring confirmed works adhered to project noise requirements.	Closed
11.	25/02/2021	Roma Street (Roma Street Precinct)	Traffic	A stakeholder contacted the Project regarding a vehicle at the Roma Street precinct. CBGU reviewed the circumstances and addressed the workforce via a toolbox talk.	Closed
12.	26/02/2021	(Woolloongabba Precinct)	Noise	A stakeholder called the Project Hotline regarding noise from the Woolloongabba precinct. CBGU provided the stakeholder with an overview of the works occurring and their duration at the Woolloongabba precinct. CBGU also outlined the mitigation measures used to alleviate potential impacts and ensure compliance. CBGU also reviewed the circumstances and monitoring confirmed works adhered to project noise requirements.	Closed

No.	Date	Location	Description of Issue	Responses	Status of Event
13.	27/02/2021	Main Street (Woolloongabba Precinct)	Worker Behaviour	A stakeholder contacted the Project regarding inappropriate workforce. CBGU addressed the workforce via toolbox talk about expected behaviours.	Closed