

The background of the entire page is a dark blue map. It features a complex network of thin white lines representing a street grid or property boundaries. A prominent, winding white line represents a river or waterway, flowing from the top center towards the bottom right. The map is semi-transparent, allowing the text to be clearly visible.

# Cross River Rail Project

## Monthly Environmental Report

August 2021

# Table of Contents

<b>EXECUTIVE SUMMARY .....</b>	<b>3</b>
Non-Compliance Events .....	6
<b>DEFINITIONS .....</b>	<b>7</b>
<b>1. INTRODUCTION.....</b>	<b>8</b>
1.1. BACKGROUND.....	8
1.2. PROJECT DELIVERY.....	8
1.3. REPORTING FRAMEWORK.....	10
1.4. MONTHLY ENVIRONMENT REPORT ENDORSEMENT .....	10
<b>2. COMPLIANCE REVIEW .....</b>	<b>10</b>
2.1. RELEVANT PROJECT WORKS.....	10
2.2. KEY ENVIRONMENTAL ELEMENTS.....	12
2.2.1. Noise .....	12
2.2.2. Vibration .....	13
2.2.3. Air Quality .....	14
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 .....	20
<b>APPENDIX A RIS MONTHLY REPORT .....</b>	<b>21</b>
<b>APPENDIX B TSD MONTHLY REPORT .....</b>	<b>22</b>

**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 August 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 – no. 11 (July 2021)* 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 CBGU 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:

Imposed Condition	Requirement Summary	Compliance Met (Yes/No/NA)	Comment
1.	<b>General conditions</b> – 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.	<b>Outline Environmental Management Plan</b> – timely submission to the Coordinator-General including required sub-plans	Yes	OEMP dated June 2020 is effective for the reporting period.
3.	<b>Design</b> – achievement of the Environmental Design Requirements	NA	Ongoing progress with design packages.
4.	<b>Construction Environmental Management Plan</b> – all relating to Relevant Project Works.	Yes	RIS – CEMP Revision 10 covering full scope of RIS works is effective from 29 April 2021. TSD – CEMP Revision 8 covering full scope of TSD works is effective from 9 June 2021.
5.	<b>Compliance and Incident management</b> – Non-compliance events, notifications and reporting.	Yes	There were no non-compliance events (NCEs) raised in August 2021. Refer to Section 2.5 of this report.

Imposed Condition	Requirement Summary	Compliance Met (Yes/No/NA)	Comment
6.	<b>Reporting</b> – Monthly and Annual reporting.	Yes	This MER including RIS and TSD Monthly Reports have been submitted in accordance with the conditioned requirements.  Refer to <b>Appendix A</b> and <b>Appendix B</b> .
7.	<b>Environmental Monitor (EM)</b> – engaged and functions resumed.	Yes	Ongoing weekly site inspections and document reviews continue to take place.
8.	<b>Community Relations Monitor (CRM)</b> – engaged and functions resumed	Yes	Ongoing.
9.	<b>Community Engagement Plan</b> – developed and endorsed by Environmental Monitor.	Yes	CEMPs endorsed with Community Engagement Plan.
10.	<b>Hours of work</b> – 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.	<b>Noise</b> – 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 <b>Appendix A (Sections 3.1.2 and 3.1.4, and Table 4)</b> .  TSD – Refer to <b>Appendix B (Section 3.2 and Table 3)</b> .
	<b>Vibration</b> – Project Works must aim to achieve vibration goals for cosmetic damage, human comfort and sensitive building contents.	Yes	RIS – Vibration monitoring was not required during the reporting period.  TSD – Vibration monitoring was undertaken to validate predicted vibration assessments and in response to vibration related complaints. The TSD contractor confirmed the monitoring results met project requirements.  Refer to <b>Appendix B (Section 3.1 and Table 2)</b> .
12.	<b>Property damage</b> – relating to ground movement.	Yes	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.



Imposed Condition	Requirement Summary	Compliance Met (Yes/No/NA)	Comment
			TSD – Vibration modelling has been prepared and is ongoing. Where required, building condition survey reports are completed for heritage and residential buildings. An enquiry was received from BCC about alleged property damage. CBGU-JV is investigating this matter but initial advice is that the cracks were not caused by tunnelling.
13.	<b>Air quality</b> – 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 <b>Appendix A (Sections 3.2, Tables 7, 8 and 9, and Figures 1, 2 and 3)</b>.</p> <p>TSD – Refer to <b>Appendix B (Sections 3.3.1 and 3.3.2, and Tables 4 and 5)</b>.</p>
14.	<b>Traffic and transport</b> – 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 and implemented on site.
15.	<p><b>Water quality</b> – 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 not triggered.</p> <p>Refer to <b>Appendix A, Table 10</b> for bi-annual surface water monitoring results.</p> <p>TSD – Four groundwater discharges reported from Roma Street, Albert Street, Woolloongabba and Boggo Road worksites were inconsistent with water quality objectives however consistent with pre-construction water quality levels. No external influences were introduced by the construction activities.</p> <p>Refer to <b>Appendix B (Table 6)</b> for ground water monitoring results. Refer to <b>Appendix B (Tables 7 and 8)</b> for surface water monitoring results.</p>
16.	<b>Water resources</b> – 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

Imposed Condition	Requirement Summary	Compliance Met (Yes/No/NA)	Comment
			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.	<b>Surface water</b> – 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.	<b>Erosion and sediment control</b> – 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.	<b>Acid sulfate soils</b> – 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.	<b>Landscape and open space</b> – general requirement to minimise impacts on landscapes and open space values and specific requirements around Victoria Park.	Yes	The construction of a temporary access road through Victoria Park has been approved under a Heritage Exemption Certificate approved by the Department of Environment and Science (DES) on 24 June 2021. Consideration is being taken to minimise loss of trees and area of park impacted during these temporary works.
21.	<b>Worksite rehabilitation</b> – 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 NCEs raised in August 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, several Requests for Project Change (RfPC) submissions have been evaluated by the Coordinator-General. RfPC 11 was endorsed in July 2021 by the Coordinator-General.

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:

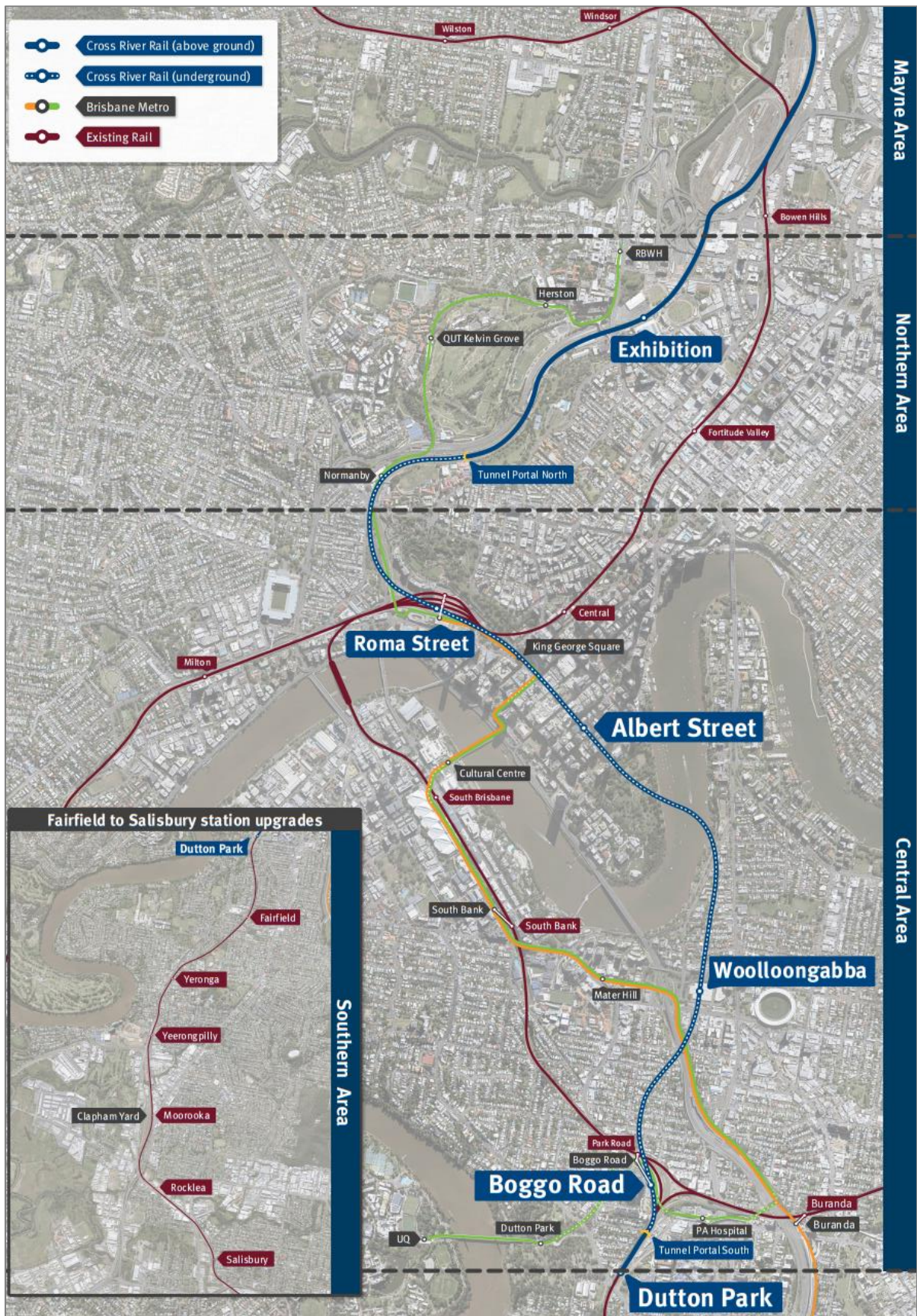
- Tunnel, Stations and Development (TSD) being delivered by CBGU JV; and
- Rail, Integration and Systems (RIS) being delivered by Unity Alliance.

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 MER 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 August 2021:

Area	Project Works
Mayne Area	<b>Mayne Yard North –</b> <ul style="list-style-type: none"><li>• Crew Change building foundation and in-ground hydraulics complete. Structural steel commenced;</li><li>• BR11/13 (Tripod Bridge) piling is complete and ground improvement piling for reinforced soil structure walls continues;</li><li>• RC14 (Ferry Grove Flyover) pier protection piling and form REO pour (FRP) works nearing completion;</li><li>• Load transfer platforms for multiple retaining walls nearing completion;</li><li>• Stabling yard fence installation, drainage works and combined services routes (CSR) continue; and</li><li>• BR08 temporary works continues.</li></ul>
Northern Area	<b>Northern Corridor –</b> <ul style="list-style-type: none"><li>• Drainage works between ICB and QR live tracks complete.</li><li>• Piling on Bowen Bridge pier protection and FRP nearing completion; and</li><li>• Construction of retaining wall RW260 has commenced.</li></ul> <b>RNA –</b> <ul style="list-style-type: none"><li>• Stage 1 drainage continues; and</li><li>• BR43 western viaduct FRP works on pile caps and blade walls continues.</li></ul> <b>Northern Portal –</b> <ul style="list-style-type: none"><li>• Permanent piling complete;</li><li>• TBM extraction box excavation and station box retention works ongoing;</li><li>• Deck units installation; and</li><li>• TBM removal infrastructure commenced installation (gantry crane support beams and rails).</li></ul>



Area	Project Works
Central Area	<b>Roma Street –</b> <ul style="list-style-type: none"> <li>• Services building excavation and ground retention continues at bench 13 of 15 in progress;</li> <li>• Station building excavation and retention works in progress with bench 4 and 5 in progress;</li> <li>• TBM #2 traversing through station cavern and TBM #1 relaunching; and</li> <li>• Inner Northern Busway (INB) pile cap construction commenced and excavation in progress.</li> </ul>
	<b>Albert Street –</b> <ul style="list-style-type: none"> <li>• Lot 1 – station box excavation and ground retention continues (RL -20.5),</li> <li>• Lot 2 – station adits blinding poured, one roadheader operational at the northern heading; and</li> <li>• Lot 3 – excavation continuing (22% complete), ongoing ground retention, pedestrian gantry constructed, protection slab and upstand wall complete.</li> </ul>
	<b>Woolloongabba –</b> <ul style="list-style-type: none"> <li>• Station jump form system complete to lift 7, next lift 8 underway;</li> <li>• Climtrack system on SW2 and SW8 past B4 level and B4 deck poured;</li> <li>• Southern cavern waterproofing and kicker complete;</li> <li>• Southern cavern headwall permanent lining complete;</li> <li>• TBM #1 (Else) relaunched from the Roma Street Station cavern completing 1526 rings by the end of August;</li> <li>• TBM #2 (Merle) arrived at Roma Street station completing 1528 rings by the end of August;</li> <li>• Road header downline excavation continued with 801m excavated by the end of August; and</li> <li>• Road header upline excavation continued with 804m excavated by the end of August.</li> </ul>
	<b>Boggo Road –</b> <ul style="list-style-type: none"> <li>• Station box excavation complete;</li> <li>• Second tower crane installed;</li> <li>• Ongoing slab and wall pours;</li> <li>• Ongoing cavi drain and invert works; and</li> <li>• Cavern waterproofing works commenced.</li> </ul>
	<b>Southern Portal –</b> <ul style="list-style-type: none"> <li>• Completed piling works to Dutton Park station;</li> <li>• Pile breakback and capping beam construction ongoing;</li> <li>• Detailed excavation with cut and cover trough;</li> <li>• Sewer and stormwater micro tunnelling commenced from shaft 4 to 3;</li> <li>• SCAS 23A – track removal works, enabling works for busway relieving slab and excavation works for Freight Flyover (FFO) pier protection; and</li> <li>• Piling in middle road during SCAS 23A followed by support slab pour and cure.</li> </ul>
Southern Area	<b>Dutton Park –</b> <ul style="list-style-type: none"> <li>• Continued modifications enabling works with redundant infrastructure removed and relocated in preparation for temporary platform construction during SCAS 23A.</li> </ul>
	<b>Yeronga Station –</b> <ul style="list-style-type: none"> <li>• Completion of Platform 2 and 3 bored piling;</li> <li>• Commencement of hydraulics and conduit installation scope;</li> <li>• Commencement of Platform 3 precast retaining wall installation; and</li> <li>• Over track vehicle (OTV) pads installed at Yeronga.</li> </ul>

Area	Project Works
	<b>Clapham Yard –</b> <ul style="list-style-type: none"> <li>• Earthworks and import of fill ongoing. 80,000m<sup>3</sup> placed; and</li> <li>• On-site concrete crushing of demolition waste.</li> </ul>

## 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, including communicating construction activities to potential and actual Directly Affected Persons (DAPs). For Project Works where potential noise impacts are predicted to be more than 20dBA above the relevant noise goal, specific engagement is required with 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, excavation, concrete works and spoil haulage at the Northern Portal during standard and non-standard hours. Noise levels met project requirements. 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.

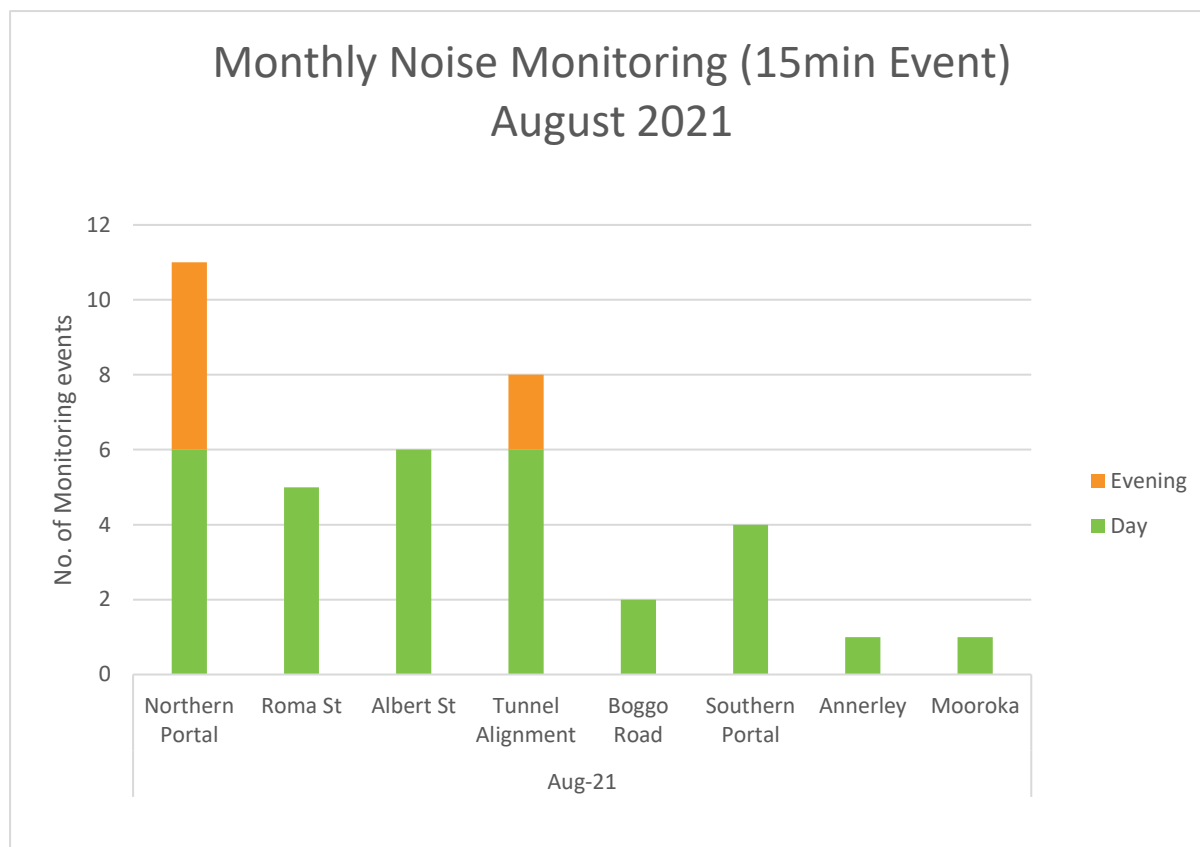
In the Southern Area, noise monitoring was undertaken to validate the predictive model using buffer distance validation testing during rock breaking of foundation slabs at Clapham Yard during standard hours and during track works at Sensitive Places during standard and non-standard hours in Annerley. Monitored noise levels and community engagement prior to works met project requirements. Noise monitoring in response to complaints was not triggered. Monitoring results for the Southern Area are detailed in Table 4, **Appendix A**.

Examples of noise management measures on the Project worksites include:

- using plant and equipment separately adjacent to sensitive receptors;
- purpose built noise barriers on the sites or site boundary;
- change in plant type, such as at Boggo Road/Southern area where an almost silent sheet-piling machine had been sourced in place of one with a much higher sound power level;
- acoustic spoil sheds;

- positioning of equipment on site to maximise the effects of the site layout and barriers such as the spoil shed itself or other workshops; and
- noise blankets, such as those applied on the Woolloongabba site to further mitigate noise from tonal plant and equipment.

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



## 2.2.2. Vibration

Vibration monitoring in the Mayne and Southern Areas was not triggered.

In the Northern Area, Vibration monitoring took place to validate predictive modelling for piling, excavation, ground stabilisation and material haulage activities at the Northern Portal worksite. No complaints relating to vibration were received during the reporting period. The reported results met the project's nominated goals. Vibration monitoring results for the Northern Area are detailed in **Appendix B** (Table 2).

In the Central Area, vibration monitoring took place to validate predictive modelling for tunnelling, piling, excavation and controlled blasting activities at Roma Street, Albert Street and along the tunnel alignment, in particular at Quarry Street due to the shallow tunnelling conditions. No complaints directly relating to vibration were received during the reporting period. The 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, Northern, Central and Southern Area worksites. In all cases dust deposition results met the project air quality goal<sup>1</sup>. Dust deposition monitoring was not triggered at Yeronga Station during the reporting period. A dust complaint was received relating to works at Albert Street and the results confirmed the works adhered to the project air quality requirements. A summary of dust deposition monitoring is provided in the table below.

Air Quality – Dust Deposition Monitoring			
Area	Worksite	Monitoring Location	Comments
Mayne Area	Mayne Yard	Mayne Yard	- Results met air quality goal.
Northern Area	RNA / Exhibition	RNA Showgrounds	- Results met air quality goal.
	Northern Portal	Northern Portal (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.
	Yeronga Station	Yeronga Station	- Not applicable.

### 2.2.3.2. Particulate Matter and Total Suspended Particulates

Monitoring for particulate matter (PM<sub>10</sub>) and total suspended particulates (TSP) was conducted at Mayne, Northern, Central and Southern Area worksites.

The Clapham Yard air quality unit experienced a power failure from 26-31 August 2021 due to a solar panel having been tipped over. This issue has now been rectified with the panel now secured with additional ground pegs. There were no high risk air quality activities occurring during the period of the

<sup>1</sup> CG air quality goal for dust deposition - 50µg/m<sup>3</sup> (over an averaging period of 24 hours).

power outage with PM<sub>10</sub> and TSP levels significantly lower than project air quality goals throughout August.

The Woolloongabba air quality unit experienced a technical fault and stopped functioning over the weekend from 14-16 August 2021 and was immediately resolved the following week. The review of nearby DES air quality monitoring stations (South Brisbane) demonstrated PM<sub>10</sub> levels on 14-16 August were compliant with project air quality goals.

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

Air Quality – PM <sub>10</sub> / TSP Monitoring			
Area	Worksite	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 Portal	Brisbane Girls Grammar School	- Results met air quality goals.
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.
	Roma St	Roma Street Station	- Results met air quality goals.
	Woolloongabba	Place Park, Woolloongabba	- Results met air quality goals. - Monitoring unit experienced a technical fault with no results on 14-16 August.
Southern Area	Clapham Yard	Clapham Yard	- Results met air quality goals. Data gap from 26-31 August due to power malfunction.

## 2.2.4. Water Quality

Water quality monitoring and reporting 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 all TSD worksites in accordance with Water Quality Management Plan. Results are detailed in **Appendix B** (Table 8).

Routine bi-annual background monitoring was undertaken across all RIS worksites in accordance with the Water Quality Management Plan. Results are detailed in **Appendix A** (Table 10).

In the Mayne and Northern, Central and Southern Areas, no active surface water discharges occurred, and post rainfall monitoring was not triggered during the month.

Surface water quality monitoring is summarised in the table below:

Surface Water Quality Monitoring					
Area	Worksite	Discharge	Post-Rain Monitoring	Routine Monitoring	Comments
Mayne Area	Mayne Yard North	No	No	Yes	- Bi-annual routine monitoring undertaken in accordance with the WQMP.
Northern Area	Northern Portal	No	No	Yes	- Routine monitoring undertaken in accordance with the WQMP.
Central Area	Albert Street	No	No	Yes	- Routine monitoring undertaken in accordance with the WQMP.
	Boggo Road	No	No	Yes	- Routine monitoring undertaken in accordance with the WQMP.
	Roma Street	No	No	Yes	- Routine monitoring undertaken in accordance with the WQMP.
	Woolloongabba	No	No	Yes	- Routine monitoring undertaken in accordance with the WQMP.
	Southern Portal	No	No	Yes	- Routine monitoring undertaken in accordance with the WQMP.
Southern Area	Clapham Yard	No	No	Yes	- Bi-annual routine monitoring undertaken in accordance with the WQMP.

#### 2.2.4.2. Groundwater

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

Groundwater discharge occurred in the Central Area at Roma Street and Boggo Road worksites. Two groundwater discharges from late last month at Albert St and Woolloongabba have been included in this month's report as the laboratory results were not available for last month's report. The groundwater discharge results reported for the month exceeded the Project's water quality objectives (WQO's)<sup>2</sup> for total nitrogen, ammonia nitrogen, oxidised nitrogen, organic nitrogen and dissolved oxygen. These result however are consistent with the receiving environment baseline monitoring pre-construction data.

Groundwater Quality Monitoring			
Area	Worksite	Discharge	Comments
Mayne Area	Mayne Yard North	No	- No groundwater discharges.
Northern Area	RNA/Exhibition	No	- No groundwater discharges.
	Northern Portal	No	- No groundwater discharges.
Central Area	Albert Street	Yes	- Groundwater discharge (dewatering) occurred late last month and reported this month.

<sup>2</sup> 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	Worksite	Discharge	Comments
			- 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.
	Boggo Road / Southern Portal	Yes	- 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	- 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	- Groundwater discharge (dewatering) occurred late last month and reported this month. - 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.
<b>Southern Area</b>	Clapham Yard	No	- No groundwater discharges.

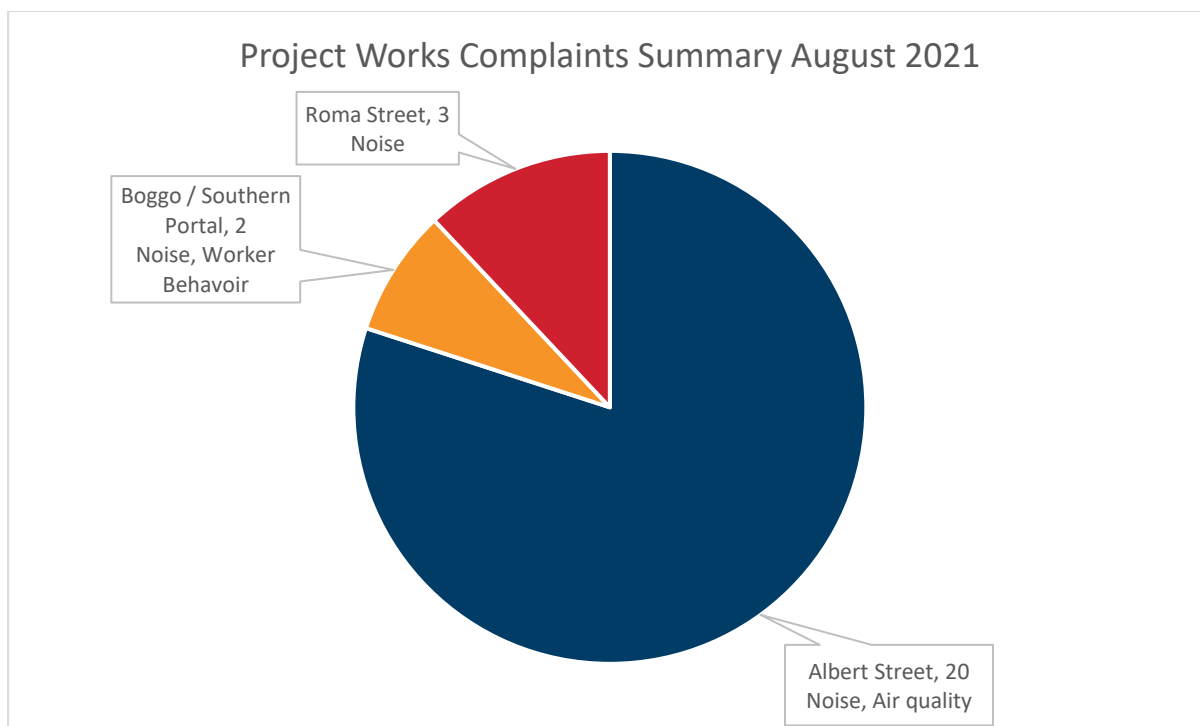
### 2.2.5. Erosion and Sediment Control

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

## 2.3. Complaints Management

A total of 30 complaints were received during the month, of which five were not related to Project Works. RIS works received no complaints this month.

TSD activities received 25 complaints related to works at Roma Street, Albert Street and Boggo Road worksites. 20 complaints were related to noise generated from excavation and ground retention works at Albert Street in both standard and non-standard hours. The TSD contractors reported that project requirements have been met during this reporting month. The Project Works complaints summary for the month is provided in the following chart.



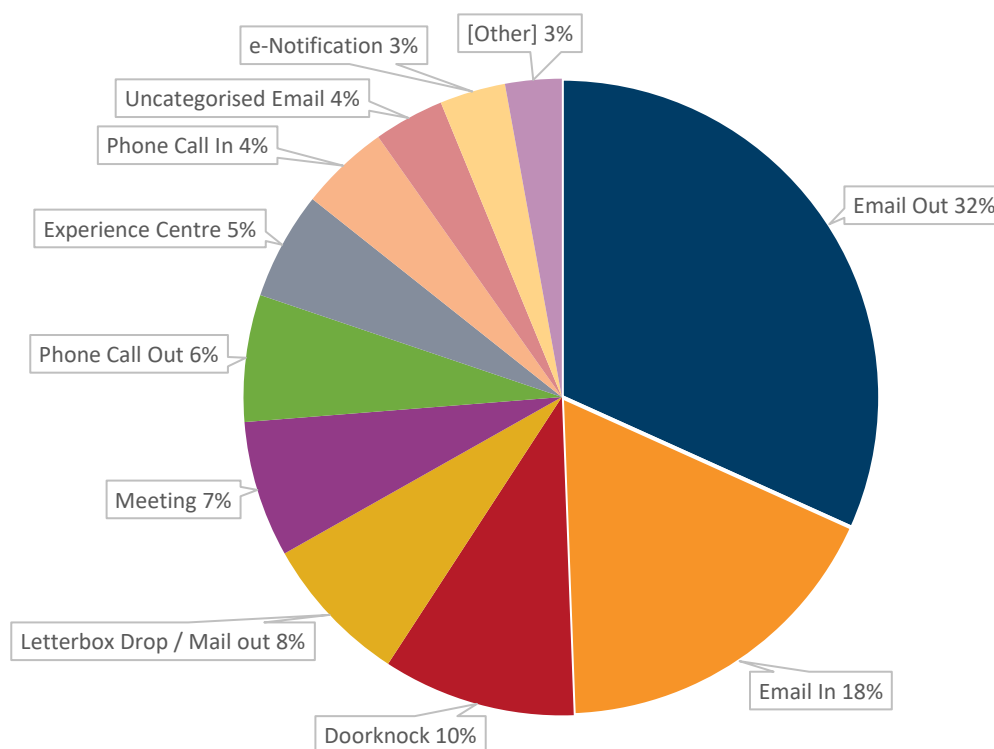
Where attended noise monitoring was undertaken in response to a complaint, the contractor confirmed on all occasions that works undertaken at the time of the complaint adhered to project requirements. In some instances, previous attended noise monitoring data, representative of the relevant construction 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 3 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 August 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	<b>Mayne Yard North –</b> <ul style="list-style-type: none"> <li>Commence establishment of crib facilities for building scope under Ferny Grove Flyover;</li> <li>Breakfast Creek Bridge temporary works- rock platform and temporary jetty on south side of Breakfast Creek; and</li> <li>Capping to commence.</li> </ul>
Northern Area	<b>Northern Corridor –</b> <ul style="list-style-type: none"> <li>Preparation works for extended SCAS #8 (end of October).</li> </ul> <b>RNA/Exhibition –</b> <ul style="list-style-type: none"> <li>Complete rock excavation for western corridor widening.</li> </ul> <b>Northern Portal –</b> <ul style="list-style-type: none"> <li>Construction of TBM cleaning shed in Oct-Nov;</li> <li>Installation of gantry crane in late September; and</li> <li>Breakthrough of TBM #1 and TBM #2 in late October and mid-November respectively.</li> </ul>
Central Area	<b>Roma Street –</b> <ul style="list-style-type: none"> <li>TBM 1 re-launch in September; and</li> <li>TBM 2 traverse through cavern in September and relaunch in October;</li> </ul> <b>Albert Street –</b> <ul style="list-style-type: none"> <li>Lot 1 – controlled blasting in September;</li> </ul>

Area	New planned works in the coming months
	<b>Woolloongabba –</b> <ul style="list-style-type: none"> <li>TBM backups and conveyor systems to be completely removed by mid-December;</li> <li>Permanent lining pour for cavern arch to commence in September; and</li> <li>Back of house 11<sup>th</sup> lift to reach ground level in late October.</li> </ul> <b>Boggo Road –</b> <ul style="list-style-type: none"> <li>Southern mined roadheader breakthrough forecast for September.</li> </ul> <b>Southern Portal –</b> <ul style="list-style-type: none"> <li>Continue utility relocation and Middle Road possession works in the rail corridor in August and September;</li> <li>Installation of deck units in September and the concrete pour on top of the units in October; and</li> <li>Geotechnical and contaminated land investigations upcoming.</li> </ul>
<b>Southern Area</b>	<b>Yeronga Station –</b> <ul style="list-style-type: none"> <li>Platform 1, 2 and 3 FRP and slab works; and</li> <li>Relocation of temporary overpass support columns;</li> </ul> <b>Clapham Yard –</b> <ul style="list-style-type: none"> <li>Commence site establishment of offices.</li> </ul>

## 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
<input checked="" type="checkbox"/> Open									
<input type="checkbox"/> Closed									
	CRRDA-001-RIS-001	11/09/19 Noise	Yeronga Station	4, 10, 11	11/10/19	14/11/19	26/11/19	18/12/19	01/10/20
	CRRDA-002-TSD-001	27/03/20 ESC	Woolloongabba	4, 15, 18	30/03/20	31/03/20	22/04/20	06/11/20	31/05/20
	CRRDA-003-TSD-002	27/03/20 ESC	Boggo Rd	4, 15, 18	30/03/20	31/03/20	22/04/20	06/11/20	31/05/20
	CRRDA-005-TSD-004	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
	CRRDA-006-TSD-005	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
	CRRDA-004-TSD-003	28/03/20 Traffic	Boggo Rd	4, 10, 14	30/03/20	31/03/20	22/04/20	06/11/20	31/05/20
<input type="checkbox"/> Withdrawn									
	CRRDA-007-RIS-002	04/01/20 Air Quality	Mayne Yard, Victoria Park, Yeronga, Fairfield	13	28/04/20	30/04/20	Withdrawn		
	CRRDA-008-TSD-006	04/08/20 Working Hours	Roma Street	4, 10	28/04/20	30/04/20	Withdrawn		
<b>Gate 1</b> - EM notification to contractor, NCE confirmed <b>Gate 2</b> - 48 hour NCE notification submitted to CG <b>Gate 3</b> - 14 day report submitted <b>Gate 4</b> - 14 day report uploaded to CRR website <b>Gate 5</b> - 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 – August 2021**

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

## Table of Contents

<b>1</b>	<b>Progress Summary - Relevant Project Works</b>	<b>3</b>
<b>2</b>	<b>Complaints</b>	<b>5</b>
<b>3</b>	<b>Environmental Monitoring Results</b>	<b>6</b>
3.1	Acoustics	6
3.2	Air Quality	9
3.3	Water Quality	14
<b>4</b>	<b>Compliance Review</b>	<b>17</b>
4.1	Non-Compliance Events	17
4.2	CEMP Compliance	17
<b>Attachment 1</b>	<b>CGCR Non-Compliance Event Report (if required)</b>	<b>19</b>
<b>Attachment 2</b>	<b>Monitoring Locations – Noise</b>	<b>20</b>
<b>Attachment 3</b>	<b>Monitoring Locations – Vibration</b>	<b>22</b>
<b>Attachment 4</b>	<b>Monitoring Locations – Air Quality</b>	<b>24</b>
<b>Attachment 5</b>	<b>Monitoring Locations – Surface Water</b>	<b>27</b>
<b>Attachment 6</b>	<b>DAP Engagement Process</b>	<b>30</b>



# 1 Progress Summary - Relevant Project Works

The following Project Works were undertaken during the reporting period:

*Table 1: Summary of Project Works completed during the reporting period*

Area	Project Works
Mayne Area	<ul style="list-style-type: none"> <li><b>Mayne Yard North</b></li> </ul> Graffiti Removal Facility in-ground services and FRP scope commenced Crew Change Building foundations and in-ground hydraulics completed, and structural steel commenced Stabling Yard Fencing, Drainage and CSR are continuing Tripod Bridge (BR11/13) CIP piling completed Load Transfer Platforms for RSS Walls RW110, RW120, RW125 nearing completion BR08 (Breakfast Creek Bridge) temporary works rock platforms commenced
<ul style="list-style-type: none"> <li>Northern Area</li> </ul>	<ul style="list-style-type: none"> <li><b>RNA</b></li> </ul> Limited scope progressed, as scheduled, due to the Ekka '21 embargo Drainage scope through RNA (Stage 1) has recommenced BR43 FRP on pile caps and blade walls continues Pier 5-8 <ul style="list-style-type: none"> <li><b>Northern Corridor</b></li> </ul> Piling on Bowen Bridge Pier Protection (RC22/23) is nearing completion including the FRP for pier protection under Bowen Bridge Drainage works (DL 230, 241 between ICB and QR live tracks) has been completed Rock excavation for western corridor widening nearing completion Retaining Wall RW260 FRP has commenced Signal gantry removal for Exhibition Stage 1 works. Tunnel Boring Machine retrieval access track construction - Victoria Park
Southern Area	<ul style="list-style-type: none"> <li><b>Yeronga Station</b></li> </ul> Completion of Platform 2/3 bored piling Commencement of hydraulics and conduit installation scope Commencement of Platform 3 precast retaining wall installation OTV Pads installed at Yeronga and north of Fairfield. These will be critical for future works and access due to the removal of the Dutton Park access <ul style="list-style-type: none"> <li><b>Clapham Yard</b></li> </ul> Earthworks continued with 80,000m <sup>3</sup> placed (R&R and embankment fill)

*Acronyms:*

*CIP – Cast in Situ Piles*

*CSR – Combined Services Route*

*DL – Drainage Line*

*FRP – Form Reo Pour*

*HV – High Voltage*

*OHLE – Overhead Line Equipment*

*OTV – On Track Vehicle*

*PUP – Public Utility Plant*

*RNA - Royal National Agricultural and Industrial Association of Queensland*

*R&R – Remove and Replace*

*RW – Retaining Wall*

*SCAS - Scheduled Corridor Access Schedule*

The following table summarises the upcoming Project Works:

Table 2: Summary of upcoming Project Works

Area	Project Works
Mayne Area	<ul style="list-style-type: none"> <li>• <b>Mayne Yard North</b></li> </ul> <p>New site/crib facilities being established for the building scope under Ferny Grove Flyover          Manufacturing of RSS panels for tripod RSS walls RW110/120/125 to commence          Capping to commence          Continue with civil scope in Yard including fencing, drainage, CSR, hydraulics, subsoils          Continue with Graffiti Removal Facility FRP and hydraulics scope as well as Crew Change Building          Structural Steel erection          Continue OHLE foundations and structure installation in Mayne Yard North          Breakfast Creek OHLE relocations          Installation of light poles.</p>
Northern Area	<ul style="list-style-type: none"> <li>• <b>RNA</b></li> </ul> <p>Continue FRP BR43 pile breakback, FRP on pile caps and blade walls (western viaduct)          Commence falsework for Span 1 to 4 and FRP on viaduct deck          Continue drainage at southern section (Stage 1).</p> <ul style="list-style-type: none"> <li>• <b>Northern Corridor</b></li> </ul> <p>Complete Drainage in Northern area until TSD hand-back of Northern portal in October 2023          Complete RW260          Continue FRP for Bowen Bridge pier protection          Complete western corridor widening          Complete TSD TBM extraction track through Victoria Park          Preparation works for Extended SCAS #8 (end of October), which is the last freight-free SCAS before the switch of EXH Stage 2 in September 2022</p>
Southern Area	<ul style="list-style-type: none"> <li>• <b>Yeronga Station</b></li> </ul> <p>Finalisation of Yeronga Station re-opening plan          Yeronga Station Platform 1, 2 and 3 FRP slab works          Yeronga Station installation in inground pits, conduits and hydraulic services          Yeronga Station relocation of Temporary Overpass support columns          Continuation of CSR works through corridor          OHLE transfers at Yeronga following removal of bridge</p> <ul style="list-style-type: none"> <li>• <b>Fairfield Station</b></li> </ul> <p>OHLE foundation works at Fairfield additional scope for DG lowering.</p> <ul style="list-style-type: none"> <li>• <b>Clapham Yard</b></li> </ul> <p>Continue earthworks scope          Complete removal of unexpected finds (underground concrete slabs)          Office extensions to commence.</p>

## 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 3: Summary of Complaints*

Date	Location	Issue	Activity source of the concern	Period	Unity Response	Status
Zero (0) complaints were recorded for the reporting period						

## 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:

- OTV (On-track vehicle) pad works at Annerley

Attended noise monitoring was nominated to be undertaken by the project Environmental Team, consistent with Attachment 4 of the C-EMP to validate the predictive noise assessment (buffer distance test), for:

- Rock breaking at Northern end of Clapham Yard (old Jax building)

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

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

Complaint-based noise monitoring because of Project Works was not triggered.

#### 3.1.2 Noise monitoring Results

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

The results from noise monitoring are assessed against two performance goals.

The first performance goal (herein referred to as Performance Goal 1), is determined as per Condition 11(a), Table 2, LA<sub>10</sub> noise goals.

The second performance goal (herein referred to as Performance Goal 2), is determined as per (Condition 11(c), using Table 2 LA<sub>10</sub> noise goal and adding + 20dBA.

An exceedance (predicted or measured) of either of these performance goals does not necessarily represent a potential or actual Non-Compliance Event.

Indeed, if the Project Works are authorised to proceed under Imposed Condition 10 and the Directly Affected Person (DAP) engagement process has occurred as per Imposed Condition 11 (c), then Project Works that are predicted to generate noise above the Noise Goal + 20dBA can proceed.

The purpose of these two performance goals is to inform:

- The extent of management measures that can reasonably and practically be implemented during the execution of the Relevant Project Works to minimise impact to DAPs, and
- Extent and type of consultation with DAPs prior to and leading up to the Relevant Project Works commencing.

The community, stakeholders, and DAP consultation and engagement process which is based on the outcomes of the predictive modelling is presented in Attachment 6.

Attachment 6 must be read in conjunction with the Noise and Vibration Management sub-plan (C-EMP sub-plan) with a focus on Attachment 1 and 2 of the sub-plan.

Table 4: Summary of Noise Monitoring Data

Location and Receiver Type Details	Type of Monitoring	Working Hours	Noise Type	Purpose of Monitoring	Predictive model LA <sub>10</sub> (dBA)	Performance Goal 1 (dBA) (Condition 11(a), Table 2, LA <sub>10</sub> noise goals)	Performance Goal 2 (dBA) – (Condition 11(c), Table 2 LA <sub>10</sub> noise goal + 20dBA)	Measured LA <sub>10</sub> (dBA)	Measured LA <sub>eq</sub> (dBA)	DAP engagement prior to works	Is performance Goal exceeded?	Comments
Residential 8 Ensign Avenue, Annerley	Attended Outdoors <sup>1</sup>	Standard Hours Monitoring undertaken Saturday 14 August 2021 1:10pm	Intermittent	Construction Monitoring at Sensitive Places Model Verification	70 (outdoors)	<b>Standard Hours</b> 65 (Outdoors) (AS2107 maximum design level [45dBA] + 10dBA + 10dBA façade reduction) <sup>2</sup>	<b>Standard Hours</b> 85 (Outdoors) (65 + 20dBA) <b>Out of Standard Hours</b> 72 (Outdoors) (52 + 20dBA)	63	59	Yes Standard	<b>Standard Hours &amp; Non-Standard Hours</b> No exceedance of Performance Goal 1 and Performance Goal 2	Track works at Annerley For interpretation, please refer to 3.1.4.1
Not applicable buffer distance testing between noise source George Weston Food (industrial receiver) 58 Chale Street, Yeerongpilly	Attended – Outdoors <sup>1</sup>	Standard Hours Saturday 14 August 2021 11:55 am	Intermittent	Buffer Distance Validation testing	79 (outdoors)	Not Applicable for Buffer Distance Testing	Not Applicable for Buffer Distance Testing	67	64	Yes Standard	Not applicable	Rock breaking at old Jax Building, Clapham Yard For interpretation, please refer to section 3.1.4.1.

- 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 Queensland<sup>1</sup>.
  - 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.

<sup>1</sup> [https://www.ombudsman.qld.gov.au/ArticleDocuments/218/Airport\\_Link\\_Ombudsman\\_Statement.pdf.aspx](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 not required during the reporting period based on the predictive vibration assessments for specific activities and previous validation monitoring having been undertaken.

*Table 5 Summary of Vibration 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
None required for the reporting period									

Complaint-based vibration monitoring was not triggered. No complaints related to vibration occurred during the reporting period.

### 3.1.4 Interpretation

#### 3.1.4.1 Noise Monitoring<sup>2</sup>

##### 3.1.4.1.1 Track Works – Annerley

Noise monitoring of track works at Annerley during standard working hours during an approved rail possession was undertaken externally. Monitoring was carried out at the sensitive place identified as being likely to experience the highest noise levels during the works. The sensitive place was identified as a residential DAP.

Monitoring was undertaken during standard construction hours (Saturday day) to inform whether the works were likely to exceed noise goals + 20dBA on Sunday day (non-standard working hours).

The measured LA<sub>10</sub> readings were compliant with the Imposed Conditions for works during standard hours. The LA<sub>10</sub> readings were less than the noise goal + 20dBA for works during non-standard working hours.

The works were authorised to proceed under Imposed Condition 10 as they were carried out during extended works hours (approved rail possession). DAP engagement had also occurred with the level of consultation as per the requirements of Imposed Condition 11 (c).

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 Old Jax Building Demolition – Clapham Yard

Noise monitoring of the demolition work of the old Jax Building during standard working hours at Clapham Yard was undertaken externally. Monitoring was carried out to validate the model. The sensitive place was identified as industrial being the George Weston Food Mill (DAP).

Monitoring of noise-intensive activities associated with rock breaking works at the aforementioned property during standard work hours was undertaken externally. Buffer Distance monitoring was carried out between the hammer and the Sensitive Place identified as being likely to experience the highest noise levels during the works. The sensitive place was identified as an industrial DAP and comprises the George Weston Foods Mill.

Monitoring was undertaken during standard construction hours 34m away from the source and 34m away from the DAP (equidistant) to confirm whether actual noise attenuation was the same as the predicted noise attenuation.

The measured LA<sub>10</sub> readings 34m away from the DAP were less than the predicted noise levels at the same distance. The works were authorised to proceed under Imposed Condition 10 as they were carried out during standard works hours (surface works). DAP engagement had also occurred with the level of consultation as per the requirements of Imposed Condition 11 (c).

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

No vibration monitoring was required for the reporting period.

### 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.

<sup>2</sup> 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

Visual monitoring was undertaken during routine environmental inspections. A total of 19 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 6: Summary of Air Quality monitoring devices

Monitoring Device Installed by UNITY	Area	Name	Date Installed	Status for the Reporting Period
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	1 February 2021	Active
Dust Deposition Gauge	Yeronga Station	AQ-07	12 August 2021	Inactive DDG was removed on 23 July and reinstated on 12 August 2021.
TSP / PM <sub>10</sub> Monitor	Mayne Yard (Eastern Air Shed)	Mayne Yard	23 April 2020	Active
TSP / PM <sub>10</sub> Monitor	Clapham Yard (Eastern Air Shed)	Clapham Yard	9 August 2021 – New Location	Active On the 9 of August, the unit was relocated from 27 Unwin St, Moorooka to the South end of Clapham Yard. Data gap from the 27 August to the 31 August due to solar panel having been tipped over.
TSP / PM <sub>10</sub> Monitor	RNA (Western Air Shed)	RNA	25 August 2020	Active

### 3.2.1 Dust results

As passive dust deposition gauges are analysed monthly, results span from 12 July 2021 to 12 August 2021.

For Yeronga Station, the DDG was removed on 23 July and reinstalled on 12 August. Dust deposition monitoring at Yeronga station is triggered by stage 4 works (backfilling of Platform 3) which is planned to commence early September 2021.

The results are detailed below and complied with Imposed Condition 13(b) of the CGCR.

Table 7 Dust deposition gauge results for the reporting period

CGCR Goal (mg/m <sup>2</sup> /day)	AQ-01 - RNA Showgrounds (mg/m <sup>2</sup> /day)	AQ-04 Abbotsford Rd (E Mayne) (mg/m <sup>2</sup> /day)	AQ-06– Clapham Yard (mg/m <sup>2</sup> /day)	AQ-07– Yeronga Station (mg/m <sup>2</sup> /day)
120	33	30	10	NA
Total Rainfall during Period	3.4	5.8	9.2	10

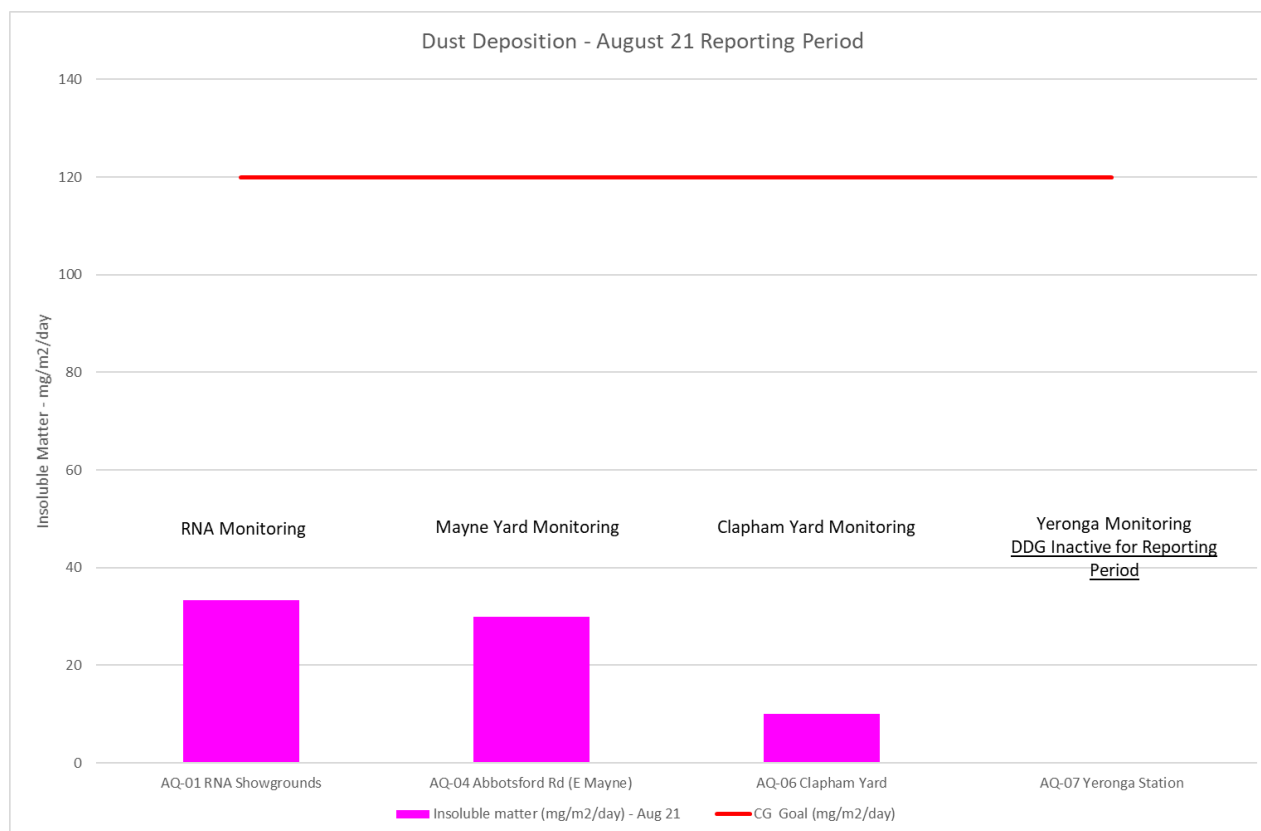


Figure 1 Air Quality Monitoring (Deposited Dust) Results

## 3.2.2 Particulates results

### 3.2.2.1 Air Quality Monitoring Stations

Unity had three (3) active air quality monitoring stations set up for the reporting period as detailed in Table 6. The Clapham Yard station suffered a power failure for five (5) days. The failure was attributed the solar panel having been tipped over. The issue was rectified within 48 hours of UNITY becoming aware of the failure, and the solar panel was secured with additional ground pegs.

### 3.2.2.2 Monitoring results – Reporting Period

External ambient air quality data was collected for total suspended particles (TSP), and particulate matter less than 10  $\mu\text{m}$  (PM<sub>10</sub>).

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<sub>10</sub> 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.

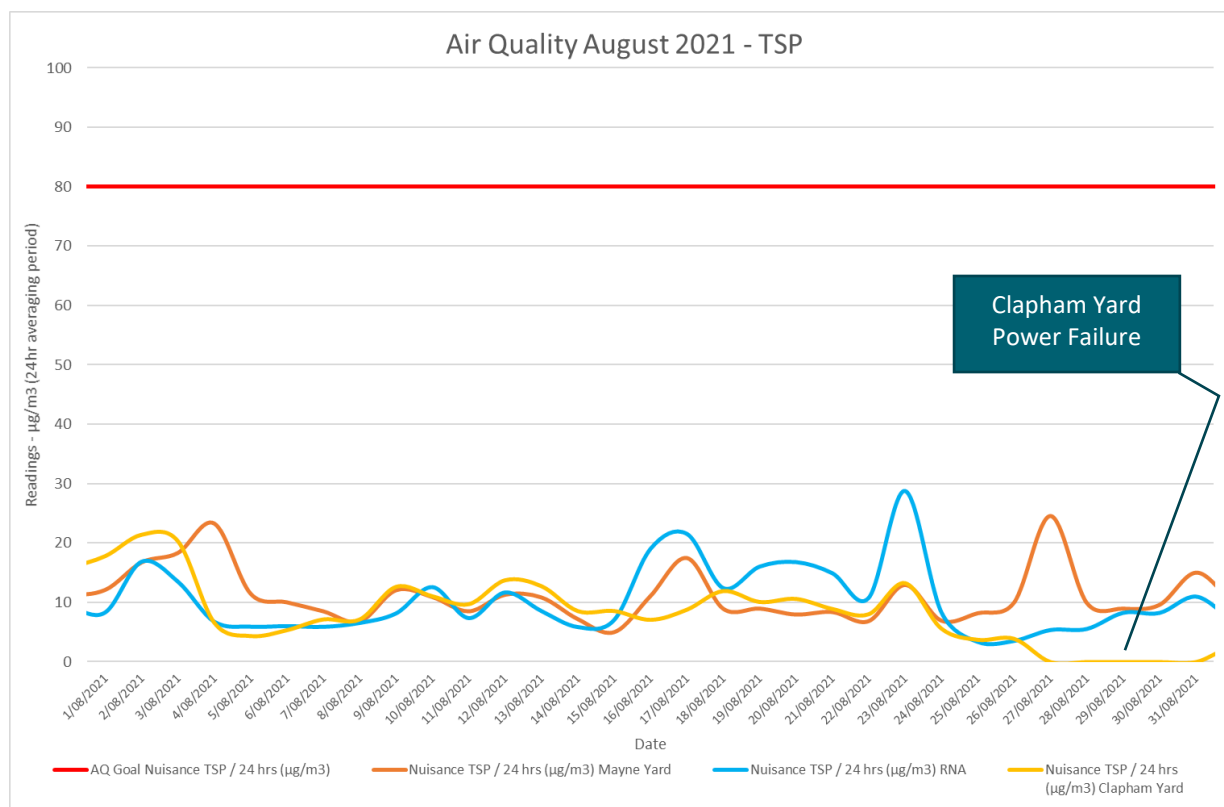


Figure 2 Air Quality Monitoring (TSP) Results

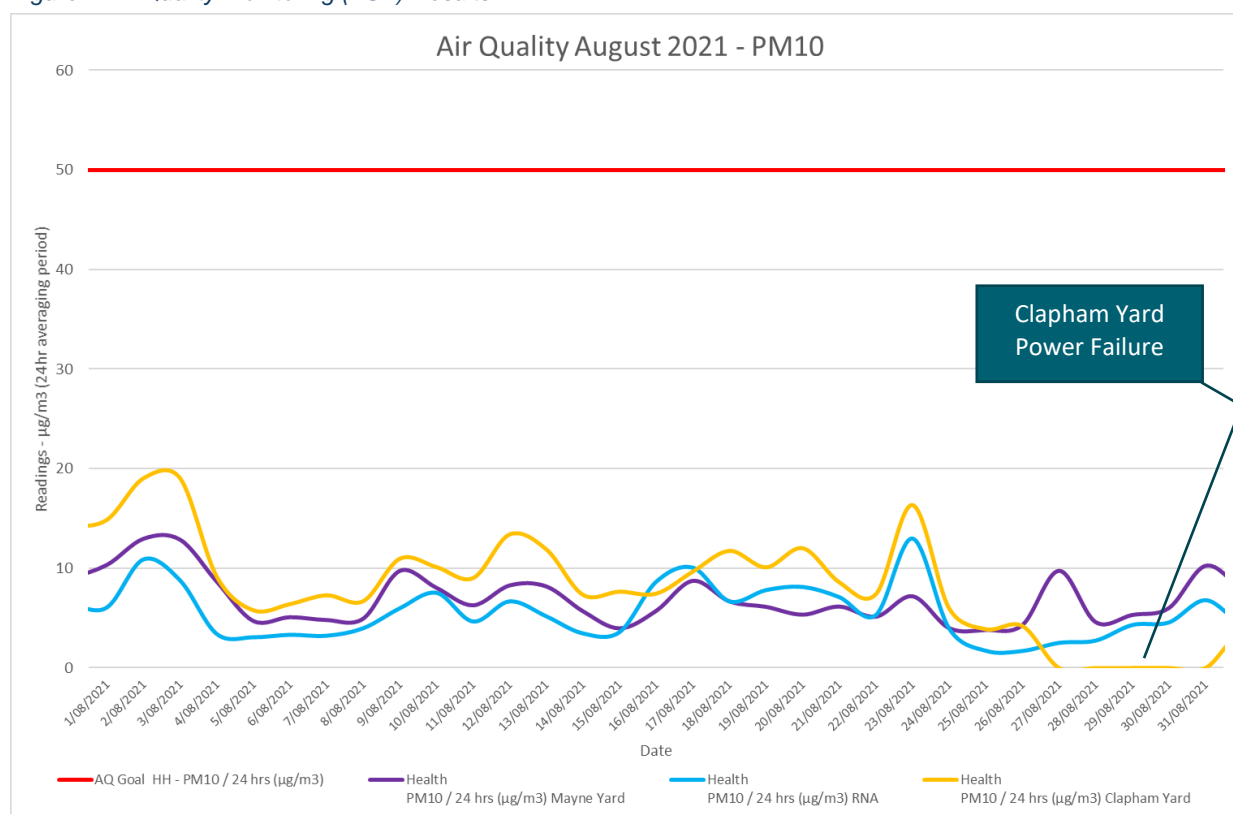


Figure 3 Air Quality Monitoring ( $\text{PM}_{10}$ ) Results

### 3.2.2.3 Monitoring results – Annual averaging

Imposed Condition 13 (a) sets annual average air quality goals for TSP (Human health) and  $\text{PM}_{10}$  (Human health).

The below table summarises where TSP and PM<sub>10</sub> monitoring has been carried out over the last 12 months.

The National Environment Protection (Ambient Air Quality) measure Technical paper No.5 provides guidance and procedures for uniform data recording and handling.

(<https://www.nepc.gov.au/system/files/resources/9947318f-af8c-0b24-d928-04e4d3a4b25c/files/aaqrctp05datacollection200105final.pdf>).

For air quality data to be officially reported, as per section 4.5 of Technical Paper No. 5, the minimum data capture would be 75% of the year or 274 days.

*"It is essential that data loss is kept to an absolute minimum. For representative monitoring data and for credible compliance assessment it is desirable to have data capture rates higher than 95%. 75% data availability is specified as an absolute minimum requirement for data completeness".*

In some instances, Relevant Project Works, which triggered TSP and PM<sub>10</sub> monitoring were carried out for less than 274 days (e.g. at the Northern Corridor). In such instances the annual averages are still reported but are indicative only as data capture did not meet the 75% data capture requirements of *National Environment Protection (Ambient Air Quality) Measure Technical Paper No. 5 – Data Collection and Handling*.

Table 8: Summary of Air Quality monitoring devices over 12 months

Monitoring Device Installed by UNITY	Area	Date Installed	Date Decommissioned	Number of Days data was captured over 365 days period	Data capture over an annual period	Annual performance reporting
TSP / PM <sub>10</sub> Monitor	Northern Corridor (Eastern Air Shed)	23 April 2020	13 January 2021	260 over 365 days	71% over 365 days	<i>Indicative only</i> Data capture did not meet the minimum data capture requirements
TSP / PM <sub>10</sub> Monitor	Mayne Yard (Eastern Air Shed)	23 April 2020	Not yet decommissioned	<b>Period 1</b> (to 23 April 2021) 358 over 365 days <b>Period 2</b> (starting 24 April 2021) 130 over 130 days	<b>Period 1</b> 98% over 365 days <b>Period 2</b>	<b>Applicable for Period 1</b> Data capture met minimum data capture requirements <b>Not Applicable for Period 2</b> Data capture has not yet met the minimum data capture requirements
TSP / PM <sub>10</sub> Monitor	RNA (Western Air Shed)	11 June 2020	Not yet decommissioned	<b>Period 1</b> (to 11 June 2021) 314 over 365 days <b>Period 2</b> (starting 12 June 2021) 81 over 81 days	<b>Period 1</b> 86% over 365 days <b>Period 2</b>	<b>Applicable for Period 1</b> Data capture met minimum data capture requirements <b>Not Applicable for Period 2</b> Data capture has not yet met the minimum data capture requirements

Monitoring Device Installed by UNITY	Area	Date Installed	Date Decommissioned	Number of Days data was captured over 365 days period	Data capture over an annual period	Annual performance reporting
TSP / PM <sub>10</sub> Monitor	Clapham Yard (Eastern Air Shed)	1 February 2021	Not yet decommissioned	177 (over 212 days)	83% over 212 days	Not Applicable Data capture has not yet met the minimum data capture requirements

The below table summarises the applicable and indicative annual data results for TSP and PM<sub>10</sub> against the performance goals imposed under Condition 13(a). Results in italic are indicative only.

Table 9 Annual Performance Results

Air Quality Indicator	Goal	Northern Corridor	Mayne Yard	RNA
TSP	90 µg/m <sup>3</sup>	8 µg/m <sup>3</sup>	11 µg/m <sup>3</sup>	18 µg/m <sup>3</sup>
PM <sub>10</sub>	25 µg/m <sup>3</sup>	5 µg/m <sup>3</sup>	7 µg/m <sup>3</sup>	11 µg/m <sup>3</sup>

### 3.2.3 Interpretation

During the reporting period:

- None of the particulate results exceeded their relevant goals
- There was no evidence of dust being generated and leaving the site boundaries
- There were no complaints received associated with air quality concerns.

Annual averages for TSP and PM<sub>10</sub> did not exceed the relevant goals.

The RIS scope of works has met the project 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 not triggered. The rain events recorded during the reporting period did not result in run-off being generated from the active worksites.

There were no active surface water discharges (e.g. dewatering through pumping, sediment basin release) to receiving waters.

In-situ Physico-chemical parameters results for all monitoring undertaken during the reporting period are presented below.



### 3.3.1 Rainfall Records

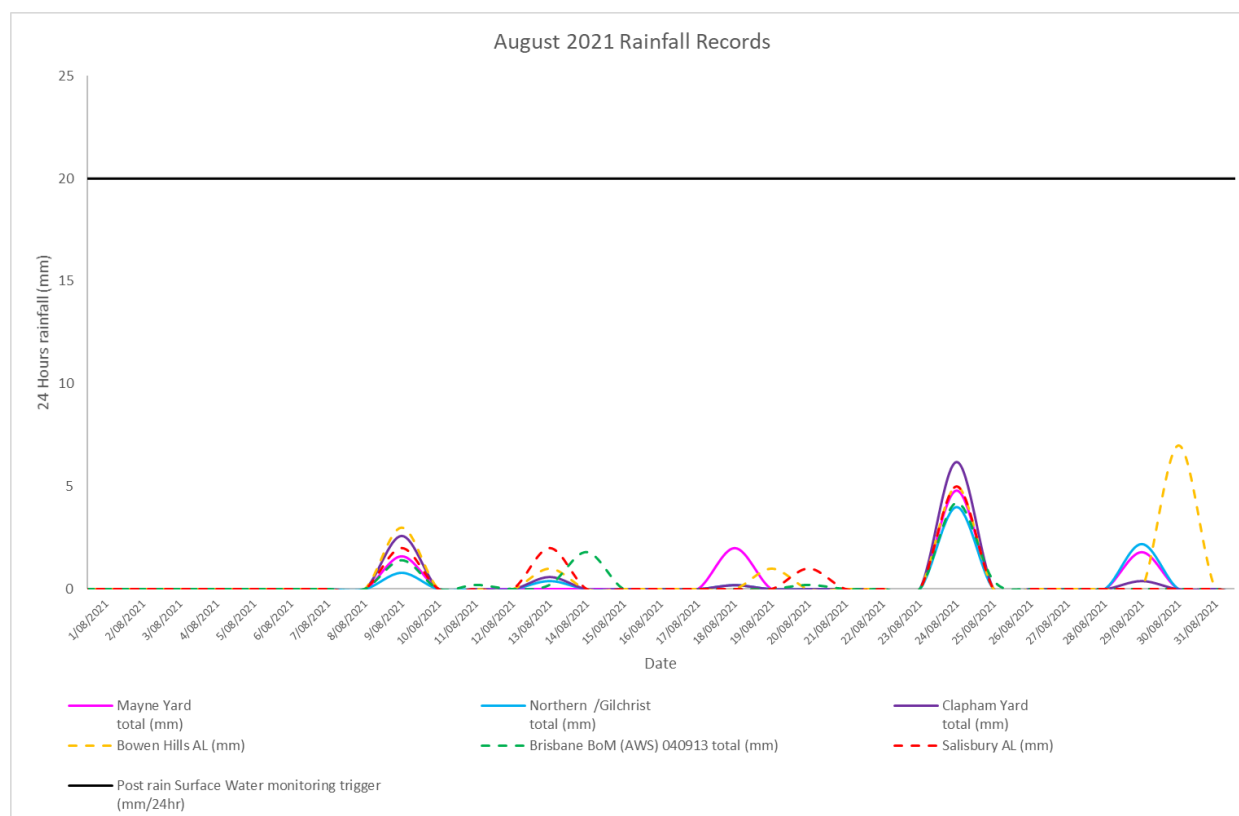


Figure 4 Rainfall Records

### 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 the higher intensity may cause run-off which would also trigger post-rain monitoring consistent with the C-EMP.

Post rainfall monitoring was not triggered during the reporting period.

### 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 surface water quality monitoring which aligns with the dry season (April to September). This reduction of monitoring frequency is acceptable to continue informing the Dis-1 Credit for the ISCA 'Excellent Rating' the Project is pursuing.

Table 10: Bi-Annual Surface Water Monitoring Results

Date	Location	Waterway	Tide	Turbidity (NTU)	TSS (mg/L)	DO (%)	pH (pH Unit)
19/08/21	SW 1 – Upstream of Mayne Yard	Breakfast Creek	Falling Brackish to marine conditions	In field: 5.8 Lab: 3.6	<5	61	7.3
19/08/21	SW 2 – Adjacent to Mayne Yard	Breakfast Creek	Falling Brackish to marine conditions	Infield: 7.2 Lab: 4.9	6	81	7.5

Date	Location	Waterway	Tide	Turbidity (NTU)	TSS (mg/L)	DO (%)	pH (pH Unit)
19/08/21	SW 3 – Downstream of Mayne Yard	Breakfast Creek	Falling Brackish to marine conditions	Infield: 7.5 Lab: 3.3	<5	92	7.7
19/08/21	SW 4 – Downstream of Northern Corridor	Barrambin / York's Hollow	Not applicable – non tidal environment	In field: 13.9 Lab: 3.8	<5	65	7.31
19/08/21	SW 5 – Upstream rail corridor	Moolabin Creek	Not applicable – non-tidal environment	Infield: 8.8 Lab: 8.9	9	80	7.4
19/08/21	SW 6 – Downstream rail corridor	Moolabin Creek	Not applicable – non tidal environment	In field: 6.3 Lab: 9.3	6	82	7.5
19/08/21	SW 7 – Upstream Rail corridor	Rocky Water Holes Creek	Not applicable – non-tidal environment	Infield: 19.2 Lab: 3.6	6	73	7.3
19/08/21	SW 8 – Downstream Rail corridor	Rocky Water Holes Creek	Not applicable – non-tidal environment	In field: 8.4 Lab: 15.2	27	69	7.6
19/08/21	SW 9 – Downstream Rail corridor	Stable Swamp Creek	Not applicable – non-tidal environment	Infield: 4.5 Lab: 1.7	5	82	7.5

### 3.3.5 Interpretation

No post rainfall monitoring was undertaken during the reporting period.

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 11 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 12 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 is undertaken as part of routine inspections. Monitoring for TSP, PM10, and deposited dust was 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	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	Not triggered	Compliant	Not Applicable
Vibration	Complaints response	Moderate to High	Not triggered – no complaints	Compliant	Not Applicable
Water Quality	Monthly monitoring	N/A	Yes – monitoring regime reduced to bi-annually – dry season monitoring carried out	Compliant	Not Applicable
Water Quality	Post Rainfall	Moderate to High	Not triggered	Compliant	Not Applicable

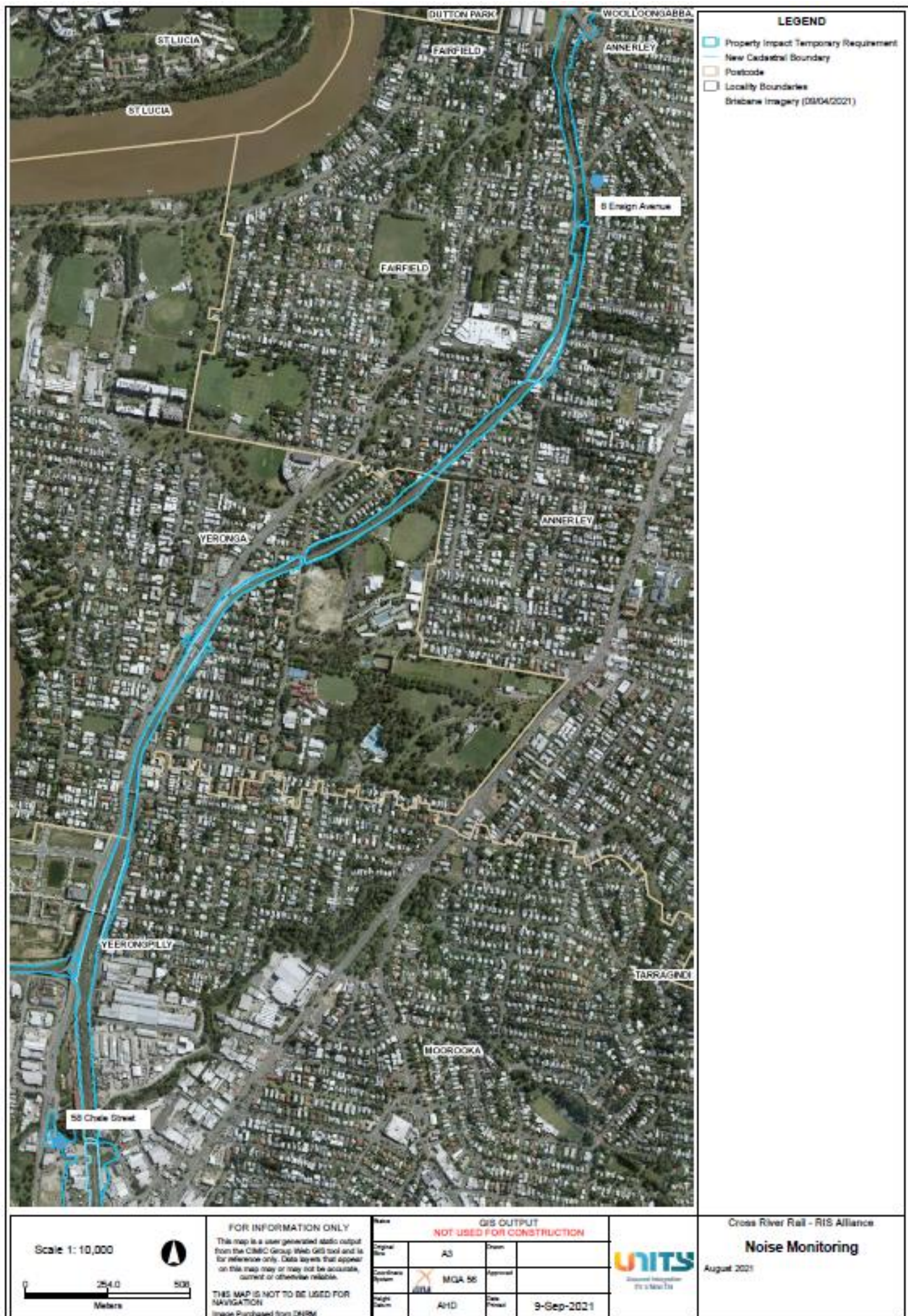
Aspect	Monitoring requirement	Activities risk profile	Monitoring undertaken	Compliance status with CEMP / Subplan	Effect of the non-compliance
Water Quality	Dewatering	Moderate to High	Not triggered – no dewatering to receiving water systems	N/A	Not Applicable

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

None for this reporting period.

## Attachment 2    Monitoring Locations – Noise





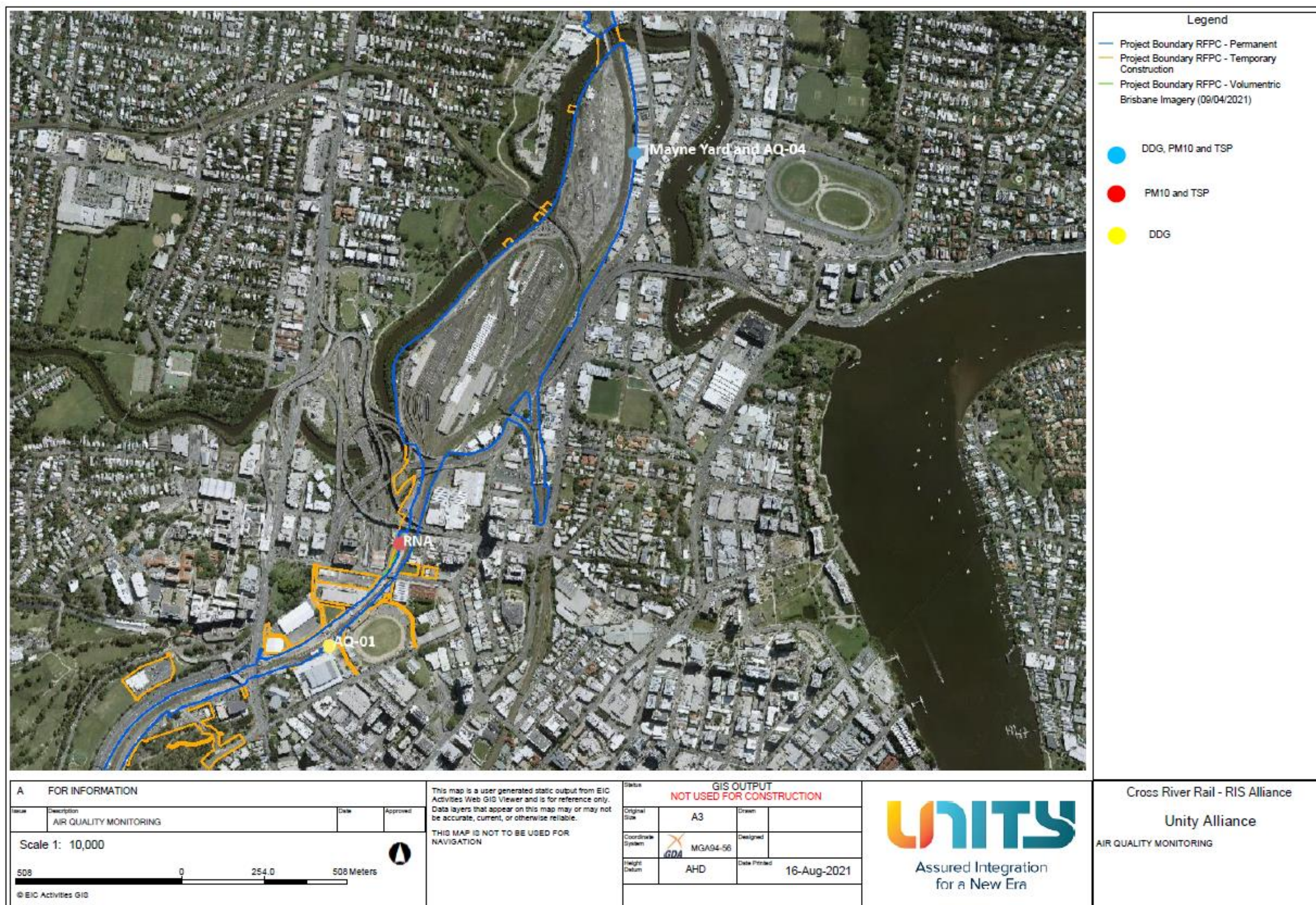


## Attachment 3    Monitoring Locations – Vibration

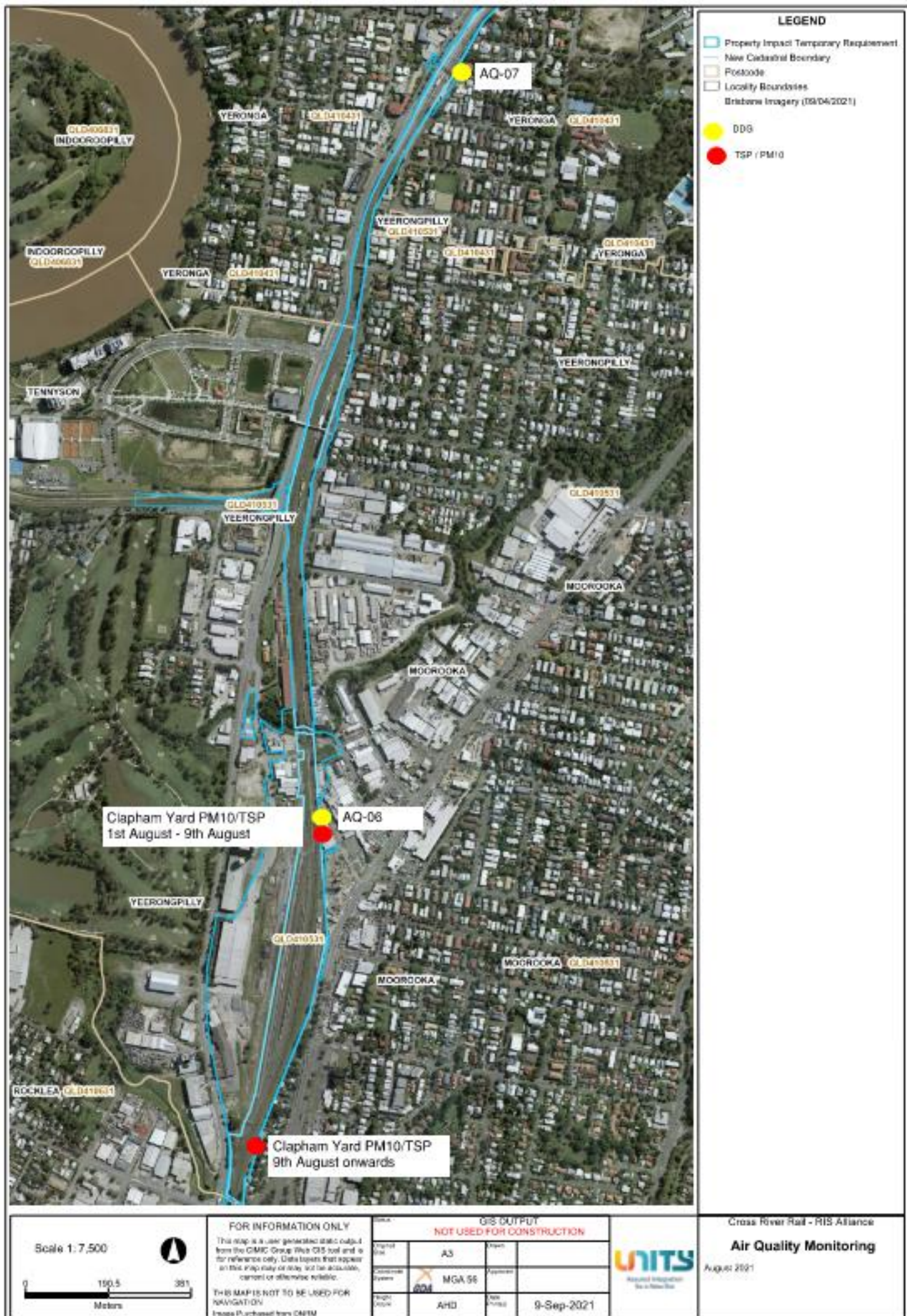
Not applicable for the reporting period

## Attachment 4    Monitoring Locations – Air Quality





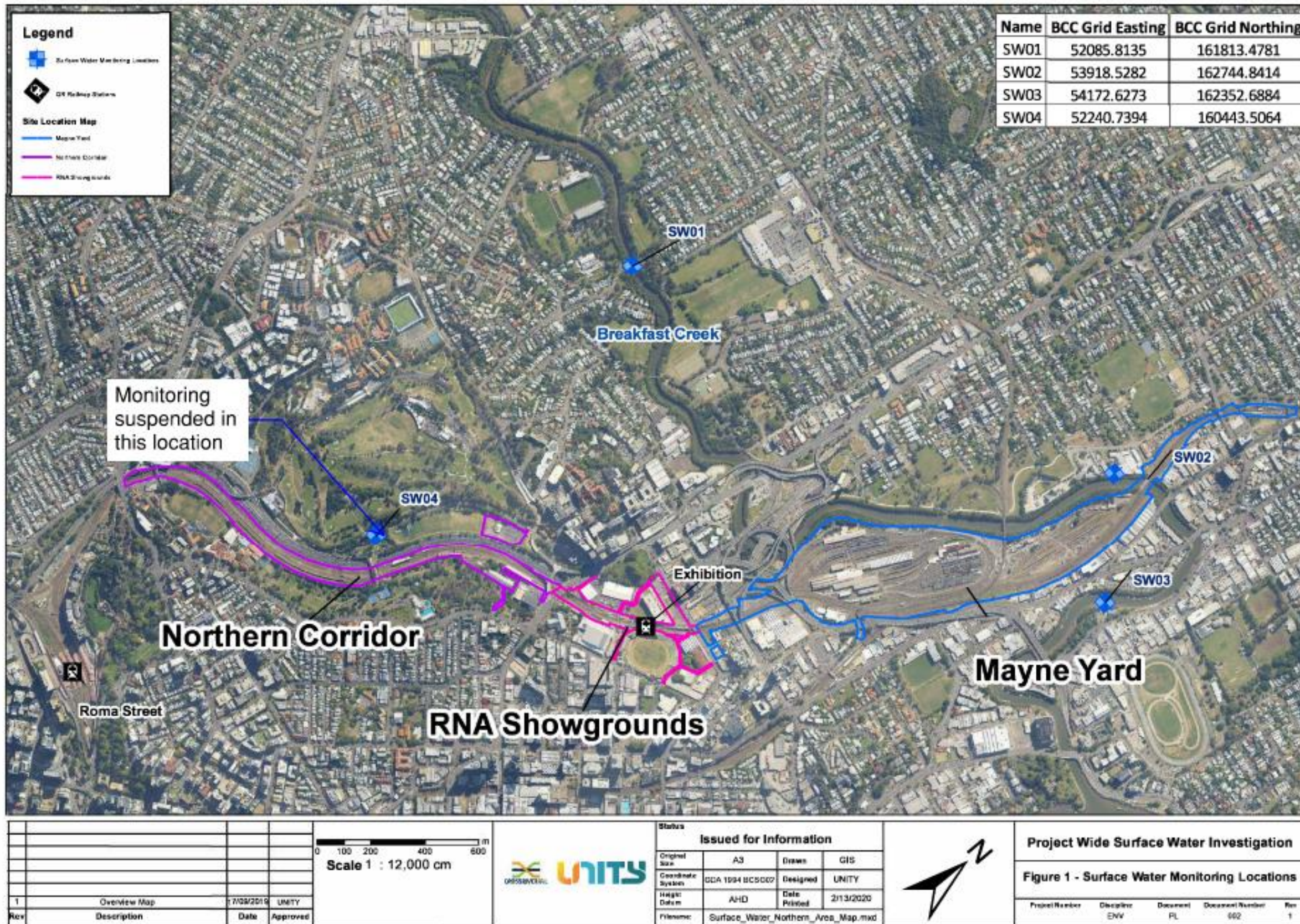




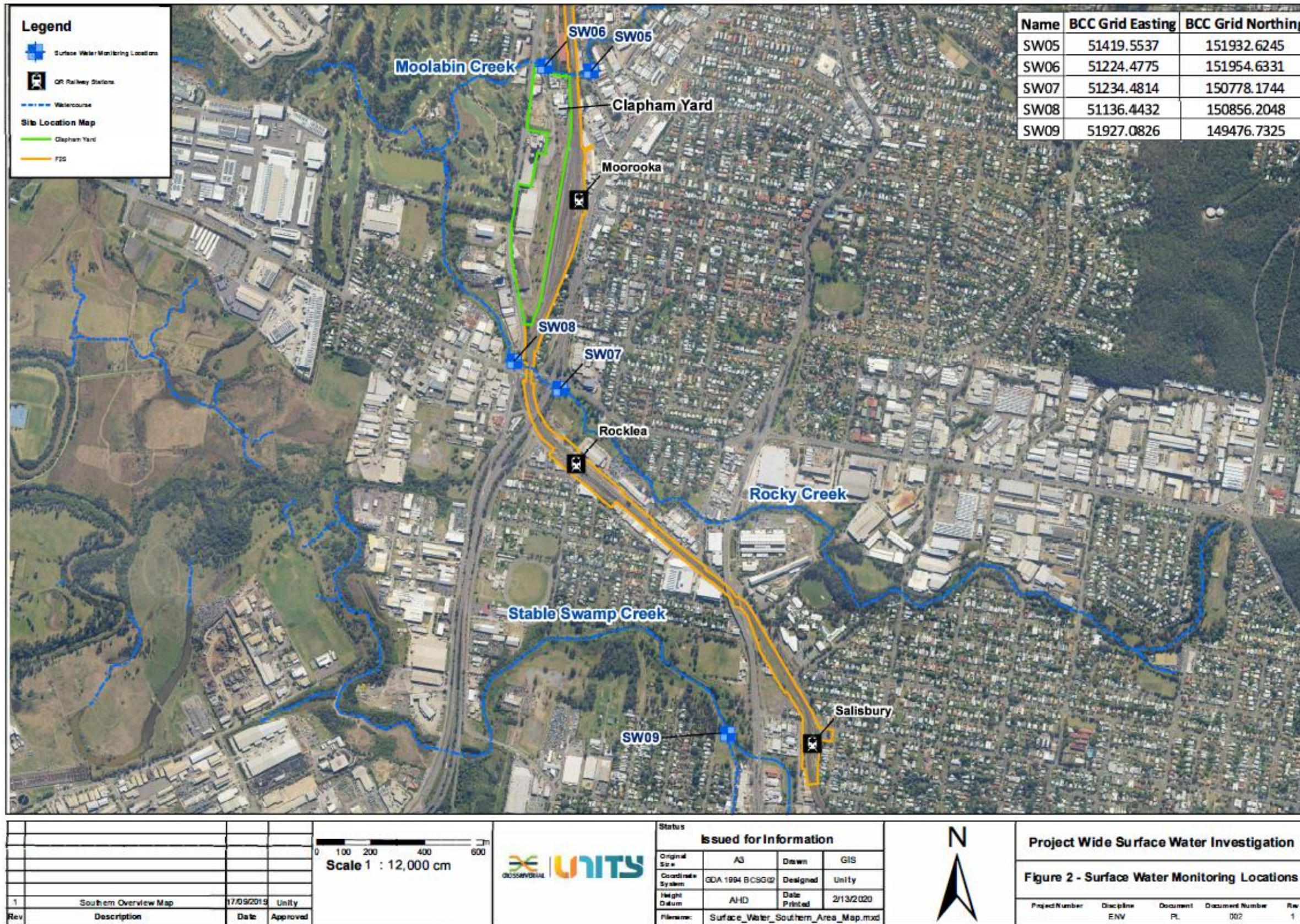


## Attachment 5    Monitoring Locations – Surface Water



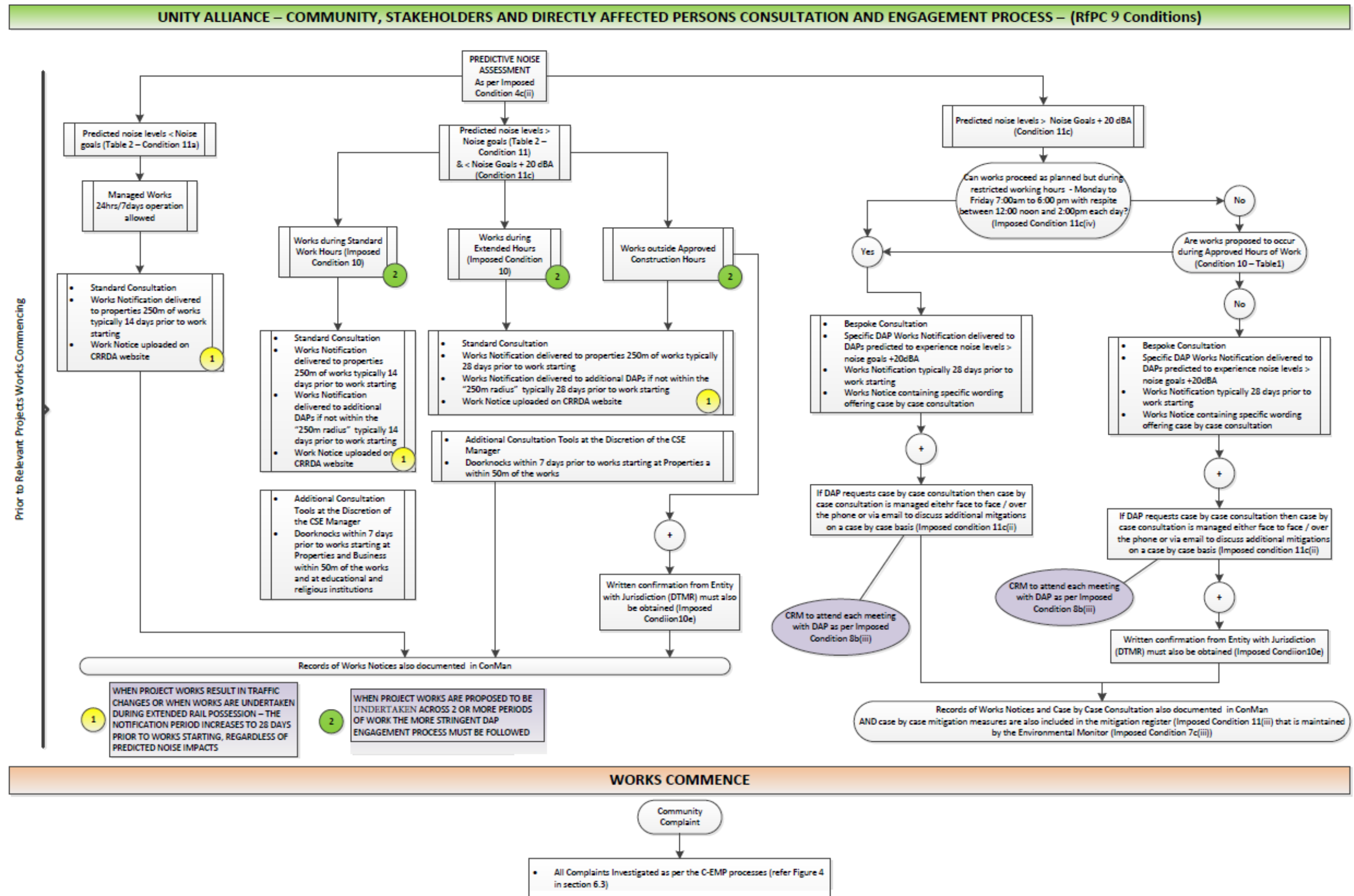








## Attachment 6 DAP Engagement Process



# Appendix B TSD Monthly Report

## COORDINATOR-GENERAL'S MONTHLY REPORT: AUGUST 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 twenty-one (21) occasions, and noise monitoring was conducted on thirty-six (36) occasions during August 2021. Each vibration and noise monitoring event confirmed works adhered to project requirements.

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

Water quality monitoring was conducted before the release of water from the site on four (4) occasions. Each monitoring event confirmed project requirements were adhered to. One (1) round of surface water quality monitoring was conducted; the 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.	<b>General conditions</b> – compliance with the Project Changes relevant to the Contractor's scope.	Yes	CBGU project works have been conducted in compliance with the Imposed Conditions.
2.	<b>Outline Environmental Management Plan</b> – timely submission to the Coordinator-General, including required sub plans.	N/A	The OEMP is not an obligation of the CBGU Joint Venture.
3.	<b>Design</b> – the achievement of the Environmental Design Requirements.	Yes	Design and implementation proceeded in accordance with the Environmental Design Requirements.
4.	<b>Construction Environmental Management Plan</b> – all relating to Relevant Project Works.	Yes	All CBGU works were conducted in accordance with the Construction Environmental Management Plan (CEMP) (Rev 8).
5.	<b>Compliance and Incident management</b> – Non-compliance events, notifications and reporting.	Yes	Nil non-compliances occurred during the monitoring period (refer to Section 4).
6.	<b>Reporting</b> – Monthly and Annual reporting.	Yes	All reporting requirements are completed in accordance with Imposed Condition 6.
7.	<b>Environmental Monitor</b> – 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.	<b>Community Relations Monitor</b> – 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.	<b>Community engagement plan</b> – 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.	<b>Hours of work</b> – 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.	<b>Noise</b> – 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.
	<b>Vibration</b> – 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.	<b>Property damage</b> relating to ground movement	Yes	The management of potential impacts relating to property damage has been completed in accordance with Imposed Condition 12.
13.	<b>Air quality</b> – 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.	<b>Traffic and transport</b> – 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.	<b>Water quality</b> – 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.	<b>Water resources</b> – 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.	<b>Surface water</b> – 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.	<b>Erosion and sediment control</b> – 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.
19.	<b>Acid Sulfate Soils</b> 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.

CG Condition	Requirement Summary	Compliance Met (Yes/No/NA)	Comment
20.	<b>Landscape and open space</b> – 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.	<b>Worksite rehabilitation</b> – 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.

Twenty-one (21) vibration monitoring sessions were conducted during August 2021.

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

Table 2: Vibration Monitoring Data

No.	Start Date	Time (AM/PM)	Finish Date	Location	Average Vibration level (mm/s)	Max Vibration Level (mm/s)	Vibration Goal (mm/s)	Receiver / Goal Type	Adhered to Project Requirements (Yes / No)
1.	02/08/2021	4:15:00 PM	02/08/2021	Roma Street Station	-	0.45	10	Heritage Structure (Controlled Blast)	Yes
2.	05/08/2021	10:23:00 AM	10/08/2021	King George Square Bus Station	0.148	0.80	25	Structure	Yes
3.	09/08/2021	11:10:00 AM	12/08/2021	Albert St Uniting Church	0.15	0.46	2	Heritage Structure	Yes
4.	09/08/2021	11:48:00 AM	9/08/2021	Ipswich Road (TRI Building)	0.12	0.18	0.5	Sensitive Infrastructure	Yes
5.	11/08/2021	9:09:00 AM	11/08/2021	Roma Street (Magistrates Court)	0.3	0.65	25	Structure	Yes
6.	11/08/2021	8:48:00 AM	17/08/2021	Roma Street Station	0.106	5.18	50	Structure	Yes
7.	11/08/2021	12:26:00 PM	16/08/2021	Park Road (Tunnel Alignment)	0.13	0.23	0.5 <sup>[1]</sup>	Residential	Yes

No.	Start Date	Time (AM/PM)	Finish Date	Location	Average Vibration level (mm/s)	Max Vibration Level (mm/s)	Vibration Goal (mm/s)	Receiver / Goal Type	Adhered to Project Requirements (Yes / No)
8.	11/08/2021	10:24:00 AM	20/08/2021	BGGS	0.1	1.13	50	Structure	Yes
9.	20/08/2021	9:15:00 AM	21/08/2021	Quarry Street (Tunnel Alignment)	0.12	0.14	0.5 <sup>[1]</sup>	Residential	Yes
10.	21/08/2021	9:15:00 AM	22/08/2021	Quarry Street (Tunnel Alignment)	0.12	0.15	0.5 <sup>[1]</sup>	Residential	Yes
11.	23/08/2021	9:15:00 AM	24/08/2021	Quarry Street (Tunnel Alignment)	0.14	0.23	0.5 <sup>[1]</sup>	Residential	Yes
12.	24/08/2021	9:15:00 AM	25/08/2021	Quarry Street (Tunnel Alignment)	0.14	0.38	0.5 <sup>[1]</sup>	Residential	Yes
13.	25/08/2021	9:15:00 AM	25/01/1900	Quarry Street (Tunnel Alignment)	0.17	0.4	0.5 <sup>[1]</sup>	Residential	Yes
14.	26/08/2021	9:15:00 AM	27/08/2021	Quarry Street (Tunnel Alignment)	0.19	0.5	0.5 <sup>[1]</sup>	Residential	Yes
15.	26/08/2021	2:22:00 PM	27/08/2021	Roma Street Station	0.11	0.46	50	Structure	Yes
16.	27/08/2021	9:15:00 AM	28/08/2021	Quarry Street (Tunnel Alignment)	0.17	0.46	0.5 <sup>[1]</sup>	Residential	Yes
17.	27/08/2021	11:43:00 AM	27/08/2021	Roma Street Station	0.23	0.71	50	Structure	Yes
18.	28/08/2021	9:15:00 AM	29/08/2021	Quarry Street (Tunnel Alignment)	0.17	0.39	0.5 <sup>[1]</sup>	Residential	Yes
19.	29/08/2021	9:15:00 AM	30/08/2021	Quarry Street (Tunnel Alignment)	0.16	0.39	0.5 <sup>[1]</sup>	Residential	Yes
20.	30/08/2021	10:09:00 AM	30/08/2021	Quarry Street (Tunnel Alignment)	0.16	0.33	0.5 <sup>[1]</sup>	Residential	Yes
21.	30/09/2021	10:19:00 AM	6/09/2021	Quarry Street (Tunnel Alignment)	0.16	0.39	0.5 <sup>[1]</sup>	Residential	Yes

- [1] Monitoring at times proceeds over the day & night time periods. The most conservative (night) goal has been noted above, however vibration recorded outside the night-time period is subject to a separate criterion.

### 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-six (36) occasions during August 2021. All noise monitoring data adhered to project requirements and is provided in the table below.

Table 3: Noise Monitoring Data

No.	Date	Time (AM / PM)	Location (Street Name) (Construction Precinct)	Purpose of Monitoring	Internal or External <sup>[3]</sup> Monitoring	Activity	Dominant Noise Source	Noise Goal LA10 <sup>[1]</sup>	Noise level LA10	Noise Goal LAeq <sup>[2]</sup>	Noise level LAeq	Adhered to Project Requirements (Yes / No)
1.	2/08/2021	9:15:00 AM	Roma Street (Roma Street Precinct)	Construction Monitoring at Sensitive Places	Internal	Ground Support and Concrete Works	Construction and Concourse Noise	60	72.8	50	71.8	Yes
2.	2/08/2021	9:33:00 AM	Roma Street (Roma Street Precinct)	Construction Monitoring at Sensitive Places	Internal	Ground Support	General Public and PA system	60	74.7	50	72.4	Yes
3.	2/08/2021	4:15:00 PM	Roma Street (Roma Street Precinct)	Construction Monitoring at Sensitive Places	External	Controlled Blast	Construction	-	-	130 <sup>[3]</sup>	111.6 <sup>[3]</sup>	Yes
4.	3/08/2021	8:16:00 PM	Gregory Terrace (Northern Portal)	Construction Monitoring at Sensitive Places	External	Excavation and Spoil Haulage	Road Traffic	49	62.5	42	59.2	Yes
5.	3/08/2021	8:44:00 PM	Gregory Terrace (Northern Portal)	Construction Monitoring at Sensitive Places	External	Excavation and Spoil Haulage	Road Traffic Noise	49	61.3	42	58.7	Yes

No.	Date	Time (AM / PM)	Location (Street Name) (Construction Precinct)	Purpose of Monitoring	Internal or External <sup>[3]</sup> Monitoring	Activity	Dominant Noise Source	Noise Goal LA10 <sup>[1]</sup>	Noise level LA10	Noise Goal LAeq <sup>[2]</sup>	Noise level LAeq	Adhered to Project Requirements (Yes / No)
6.	4/08/2021	9:48:00 AM	Gregory Terrace (Northern Portal)	Construction Monitoring at Sensitive Places	External	Excavation, Piling and Concrete Works	Construction	62	78.4	52	74.3	Yes
7.	4/08/2021	10:22:00 AM	Gregory Terrace (Northern Portal)	Construction Monitoring at Sensitive Places	External	Excavation and Piling	Construction	62	70.2	52	67.9	Yes
8.	4/08/2021	8:02:00 PM	Gregory Terrace (Northern Portal)	Construction Monitoring at Sensitive Places	External	Excavation and Spoil Haulage	Road Traffic	49	63.9	42	60.1	Yes
9.	4/08/2021	8:29:00 PM	Gregory Terrace (Northern Portal)	Construction Monitoring at Sensitive Places	External	Excavation	Road Traffic	49	64	42	59.9	Yes
10.	4/08/2021	9:08:00 PM	Victoria Park Road (Northern Portal)	Construction Monitoring at Sensitive Places	External	Excavation and Spoil Haulage	Road Traffic	49	64.9	42	61.1	Yes
11.	4/08/2021	12:28:00 PM	Albert Street (Albert Street Precinct)	Stakeholder Enquiry	External	Retention, Craneage, Excavation and Tunnelling	Construction	72	71.8	62	68.2	Yes
12.	4/08/2021	1:23:00 PM	Albert Street (Albert Street Precinct)	Stakeholder Enquiry	External	Ground Support, Craneage and Excavation	Construction	72	68.1	62	66.6	Yes



No.	Date	Time (AM / PM)	Location (Street Name) (Construction Precinct)	Purpose of Monitoring	Internal or External <sup>[3]</sup> Monitoring	Activity	Dominant Noise Source	Noise Goal LA10 <sup>[1]</sup>	Noise level LA10	Noise Goal LAeq <sup>[2]</sup>	Noise level LAeq	Adhered to Project Requirements (Yes / No)
13.	5/08/2021	3:57:00 PM	Albert Street (Albert Street Precinct)	Construction Monitoring	External	Excavation and Craneage	Construction	72	72.9	62	71.7	Yes
14.	6/08/2021	7:19:00 AM	Albert Street (Albert Street Precinct)	Construction Monitoring	External	Excavation, Craneage, and Spoil Haulage	Construction	72	71.2	62	68.6	Yes
15.	9/08/2021	11:50:00 AM	Ipswich Road (Southern Area)	Model Verification	External	Public Utilities	Construction	67	70.2	57	67.9	Yes
16.	9/08/2021	2:36:00 PM	Peter Doherty Street (Southern Area)	Model Verification	External	Public Utilities	Construction and Railway Operations	67	66.3	57	61.7	Yes
17.	10/08/2021	3:06:00 PM	Charlotte Street (Albert Street Precinct)	Stakeholder Enquiry	External	Retention, Excavation, Spoil Haulage	Road Traffic	72	70.1	62	76.7	Yes
18.	10/08/2021	3:50:00 PM	Albert Street (Albert Street Precinct)	Stakeholder Enquiry	External	Retention, Excavation, Spoil Haulage	Construction	72	70.9	62	70.3	Yes
19.	11/08/2021	10:31:00 AM	Gregory Terrace (Northern Portal)	Construction Monitoring	External	Concreting, Piling and Public Utilities Works	Road Traffic & Construction	62	70.3	52	69	Yes

No.	Date	Time (AM / PM)	Location (Street Name) (Construction Precinct)	Purpose of Monitoring	Internal or External <sup>[3]</sup> Monitoring	Activity	Dominant Noise Source	Noise Goal LA10 <sup>[1]</sup>	Noise level LA10	Noise Goal LAeq <sup>[2]</sup>	Noise level LAeq	Adhered to Project Requirements (Yes / No)
20.	12/08/2021	12:21:00 PM	Roma Street (Roma Street Precinct)	Construction Monitoring	Internal	Excavation and Retention Works	General Public and PA system	60	71.5	50	70.2	Yes
21.	15/08/2021	1:24:00 PM	Peter Doherty Street (Southern Area)	Model Verification	External	Railway Works	Construction	59	69.7	57	65.6	Yes
22.	15/08/2021	1:45:00 PM	Railway Terrace (Southern Area)	Model Verification	External	Railway Works	Construction	49	60.3	42	56.7	Yes
23.	16/08/2021	12:10:00 PM	Park Road (Tunnel Alignment)	Construction Monitoring	External	Tunnelling	Road Traffic	57	35.6	47	35.6	Yes
24.	17/08/2021	4:07:00 PM	Railway Terrace (Southern Area)	Construction Monitoring	External	Concrete Works and Cranage	Construction	57	72.6	47	67.3	Yes
25.	24/08/2021	9:29:00 AM	Quarry Street (Tunnel Alignment)	Construction Monitoring	Internal	Tunnelling	Road and Aircraft Noise	55	45.2	45	41.8	Yes
26.	25/08/2021	3:09:00 PM	Gregory Terrace (Northern Portal)	Construction Monitoring	External	Retention and Concrete Works	Construction	62	68	52	66.2	Yes
27.	25/08/2021	9:44:00 AM	Quarry Street (Tunnel Alignment)	Construction Monitoring	Internal	Tunnelling	Road and Railway Traffic	55	40.2	45	38.3	Yes
28.	25/08/2021	9:18:00 AM	Quarry Street (Tunnel Alignment)	Construction Monitoring	Internal	Tunnelling	Road and Railway Traffic	55	35.6	45	33.4	Yes

No.	Date	Time (AM / PM)	Location (Street Name) (Construction Precinct)	Purpose of Monitoring	Internal or External <sup>[3]</sup> Monitoring	Activity	Dominant Noise Source	Noise Goal LA10 <sup>[1]</sup>	Noise level LA10	Noise Goal LAeq <sup>[2]</sup>	Noise level LAeq	Adhered to Project Requirements (Yes / No)
29.	25/08/2021	7:04:00 PM	Quarry Street (Tunnel Alignment)	Construction Monitoring	Internal	Tunnelling	Road and Railway Traffic	50	34	40	32.2	Yes
30.	25/08/2021	7:23:00 PM	Quarry Street (Tunnel Alignment)	Construction Monitoring	Internal	Tunnelling and Craneage	Road and Railway Traffic	50	34.9	40	32.7	Yes
31.	26/08/2021	2:29:00 PM	Roma Street (Roma Street Precinct)	Construction Monitoring	Internal	Excavation & Retention Works	Construction and PA system	60	73.2	50	71.1	Yes
32.	26/08/2021	10:16:00 AM	Quarry Street (Tunnel Alignment)	Construction Monitoring	Internal	Tunnelling	Construction and Road Traffic	55	37.3	45	33.7	Yes
33.	27/08/2021	9:59:00 AM	Quarry Street (Tunnel Alignment)	Construction Monitoring	Internal	Tunnelling	Road and Aircraft Noise	55	37.3	45	34.8	Yes
34.	30/08/2021	10:47:00 AM	Railway Terrace (Southern Area)	Construction Monitoring	External	Piling, Excavation, Spoil Haulage and Craneage	Construction	57	50	47	53.2	Yes
35.	31/08/2021	11:30:00 AM	Gregory Terrace (Northern Portal)	Construction Monitoring	External	Ground Support and Spoil Haulage	Construction and Road Traffic	62	71	52	68.7	Yes
36.	31/08/2021	11:48:00 AM	Gregory Terrace (Northern Portal)	Construction Monitoring	External	Ground Support and Spoil Haulage	Construction	62	70.5	52	67.6	Yes

- [1] Intermittent noise goal (LA10)
- [2] Continuous noise goal (LAeq)
- [3] Blasting is measured in dB Linear Peak.
- Note: 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.

### 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 August 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 Goals <sup>[1]</sup>			Monitoring results (mg/m2/day)	Comments
	Criterion	Air Quality Indicator	Goal (mg/m2/day)		
Northern Portal	Nuisance	Deposited dust	120	51.72	Air quality monitoring was performed during the reporting period. All results adhered to project requirements.
Roma Street Precinct				20.00	
Albert Street Precinct (North)				50.00	
Albert Street Precinct (South)				17.86	
Woolloongabba Precinct (North)				10.71	
Woolloongabba Precinct (South)				35.48	
Boggo Road Precinct (North)				19.35	
Boggo Road Precinct (South)				38.71	

Southern Portal (South)				12.90	
Southern Portal (East)				22.58	

- [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 Particulates (TSP) and particulate matter less than 10µm (PM10) monitoring was conducted during August 2021.

TSP and PM10 are monitored using portable air quality units and nearby Government air quality stations. Targeted monitoring of potential dust-generating activities is conducted by the mobile air quality units and was completed at Albert Street, Woolloongabba, Boggo Road and Northern Portal Precincts during August 2021. Three (3) Government air quality stations near the Construction Precincts are also utilised.

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

Date	TSP	PM10	Woolloongabba		Albert		Boggo Road		Northern Portal	
	Project Goal	Project Goal	TSP	PM 10	TSP	PM 10	TSP	PM 10	TSP	PM 10
	(µg/m3/24 hr)									
01-August-21	80	50	22.55	22.49	21.37	21.34	18.24	18.23	21.80	21.72
02-August-21	80	50	22.28	22.20	22.53	22.49	15.19	15.18	25.61	25.57
03-August-21	80	50	19.60	19.41	17.93	17.90	12.72	12.69	17.25	17.18
04-August-21	80	50	6.41	6.14	9.73	9.64	1.34	1.31	3.00	2.87
05-August-21	80	50	5.71	5.57	12.72	12.66	1.52	1.50	3.01	2.93
06-August-21	80	50	12.05	11.91	16.37	16.36	7.47	7.46	12.21	12.16
07-August-21	80	50	19.57	19.44	19.45	19.42	18.79	18.78	17.26	17.21
08-August-21	80	50	13.03	12.94	16.77	16.75	10.62	10.61	12.50	12.45
09-August-21	80	50	10.19	10.15	15.63	15.62	7.10	7.08	10.09	10.06
10-August-21	80	50	10.98	10.87	11.64	11.62	7.16	7.15	9.82	9.77
11-August-21	80	50	10.58	10.52	18.50	18.48	7.26	7.26	11.39	11.35
12-August-21	80	50	10.21	10.11	14.46	14.44	7.20	7.16	12.22	12.17
13-August-21	80	50	14.35	14.25	26.60	26.58	8.98	8.97	14.28	14.24
14-August-21	80	50	-	-	22.80	22.78	14.19	14.18	19.69	19.66
15-August-21	80	50	-	-	13.74	13.73	14.53	14.53	17.04	17.01
16-August-21	80	50	-	-	18.41	18.34	6.87	6.84	10.37	10.29
17-August-21	80	50	10.45	9.05	20.85	20.82	5.15	5.14	6.86	6.77
18-August-21	80	50	14.83	14.79	19.68	19.65	8.79	8.79	13.07	13.02

Date	TSP	PM10	Woolloongabba		Albert		Boggo Road		Northern Portal	
	Project Goal	Project Goal	TSP	PM 10	TSP	PM 10	TSP	PM 10	TSP	PM 10
	(µg/m3/24 hr)									
19-August-21	80	50	16.49	16.44	14.87	14.80	13.70	13.69	15.66	15.61
20-August-21	80	50	14.61	14.57	13.92	13.78	9.30	9.28	11.94	11.90
21-August-21	80	50	15.89	15.62	20.82	20.73	13.10	13.08	16.04	16.17
22-August-21	80	50	17.27	17.18	19.43	19.37	15.57	15.57	19.26	19.19
23-August-21	80	50	12.33	12.23	18.50	18.41	10.15	10.15	13.83	13.78
24-August-21	80	50	5.06	4.89	10.82	10.70	2.48	2.44	4.28	4.19
25-August-21	80	50	4.24	4.05	16.22	16.11	1.81	1.79	3.32	3.26
26-August-21	80	50	4.66	4.52	15.10	15.00	2.32	2.30	3.24	3.17
27-August-21	80	50	6.32	6.15	17.72	17.60	4.61	4.57	5.33	5.25
28-August-21	80	50	9.97	9.84	18.30	18.19	9.44	9.42	10.99	10.93
29-August-21	80	50	17.95	17.78	18.95	18.86	18.00	17.99	20.10	20.01
30-August-21	80	50	9.38	9.22	18.85	18.70	7.57	7.53	9.08	8.99
31-August-21	80	50	17.85	17.71	27.14	27.05	15.25	15.22	23.19	23.11

- [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.
- [2] Due to a technical fault, the Woolloongabba air quality units stopped functioning between the 14<sup>th</sup> – 16<sup>th</sup> August 2021. The issue has been resolved. A nearby (Southern Brisbane) DES Air Quality Stations demonstrated compliant air quality during August 2021, these results are provided below. Low levels were also consistently monitored throughout the month when the unit was operating.

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: PM<sub>10</sub> daily Maximum average: **27.9 µg/m3/24 hr** (<https://apps.des.qld.gov.au/air-quality/chart/?station=cbd&parameter=18&date=1/08/2021&timeframe=month>)
- South Brisbane: PM<sub>10</sub> daily Maximum average: **36.5 µg/m3/24 hr** (<https://apps.des.qld.gov.au/air-quality/chart/?station=sbr&parameter=18&date=1/08/2021&timeframe=month>)
- Woolloongabba: PM<sub>10</sub> daily Maximum average: **38.7 µg/m3/24 hr** (<https://apps.des.qld.gov.au/air-quality/chart/?station=woo&parameter=18&date=1/08/2021&timeframe=month>)

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



# Particle PM<sub>10</sub> at Brisbane CBD, 1–31 August 2021 [about Particle PM<sub>10</sub>](#)

[Brisbane CBD station overview](#)

The guideline for Particle PM<sub>10</sub> is 120µg/m<sup>3</sup> (1hr avg) and 50µg/m<sup>3</sup> (24hr avg).

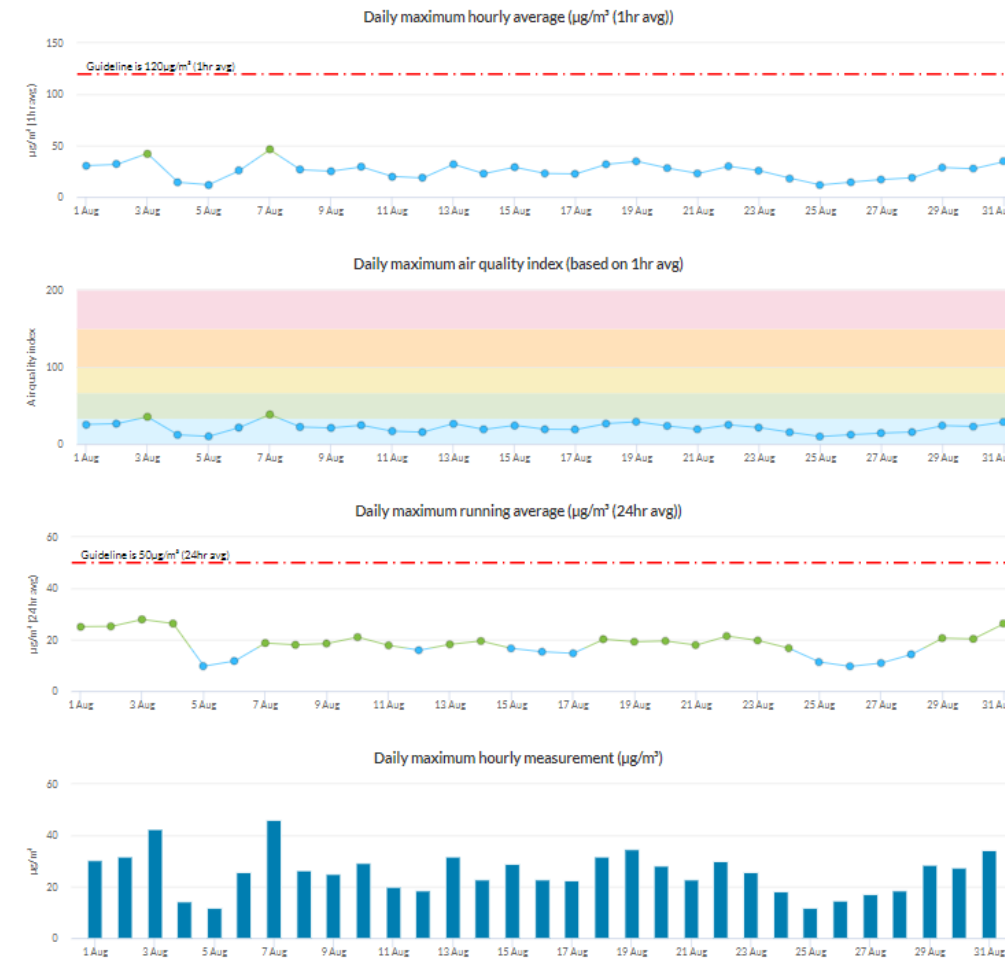


Figure 1: Brisbane CBD – DES Station - PM<sub>10</sub> graph for August 2021 (reproduction from the DES website).

## Particle PM10 at South Brisbane, 1–31 August 2021 [about Particle PM10](#)

[South Brisbane station overview](#)

The guideline for Particle PM<sub>10</sub> is 120µg/m<sup>3</sup> (1hr avg) and 50µg/m<sup>3</sup> (24hr avg).

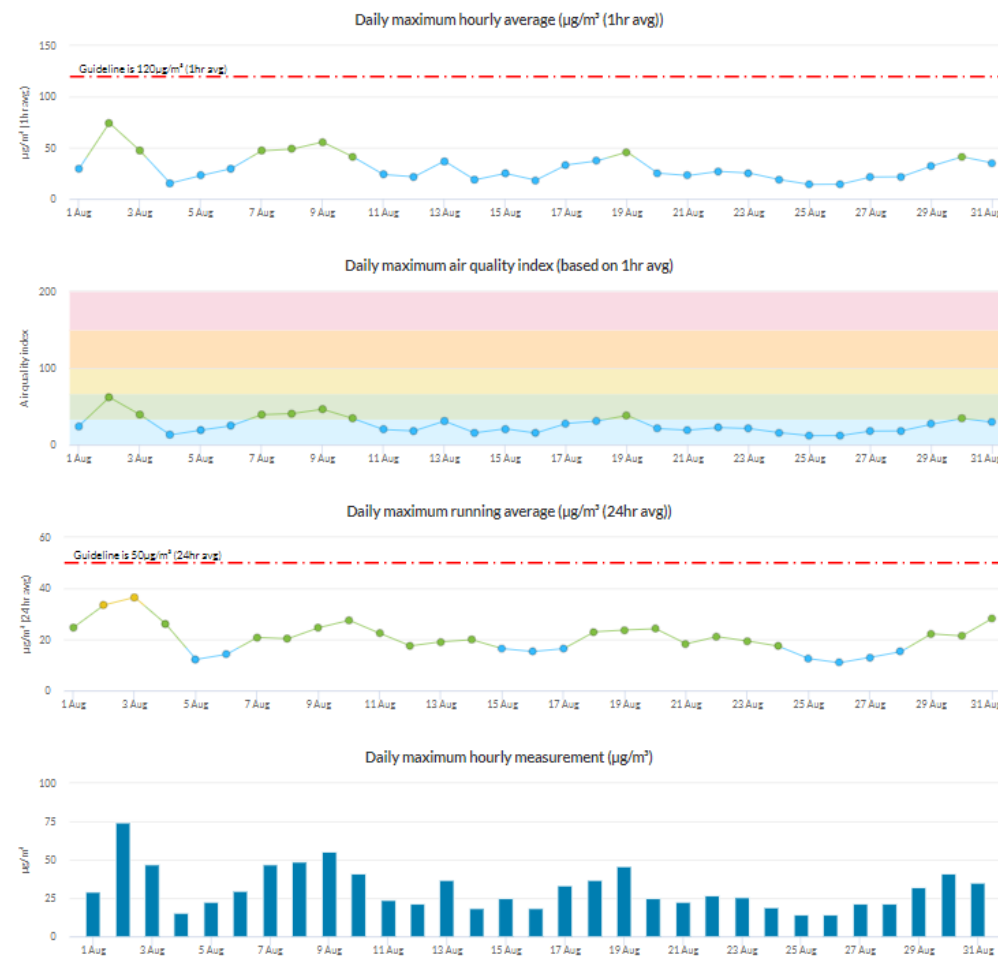


Figure 2: South Brisbane – DES Station - PM10 graph for August 2021 (reproduction from the DES website accessed).

### Particle PM<sub>10</sub> at Woolloongabba, 1–31 August 2021 [about Particle PM<sub>10</sub>](#)

[Woolloongabba station overview](#)

The guideline for Particle PM<sub>10</sub> is 120µg/m<sup>3</sup> (1hr avg) and 50µg/m<sup>3</sup> (24hr avg).

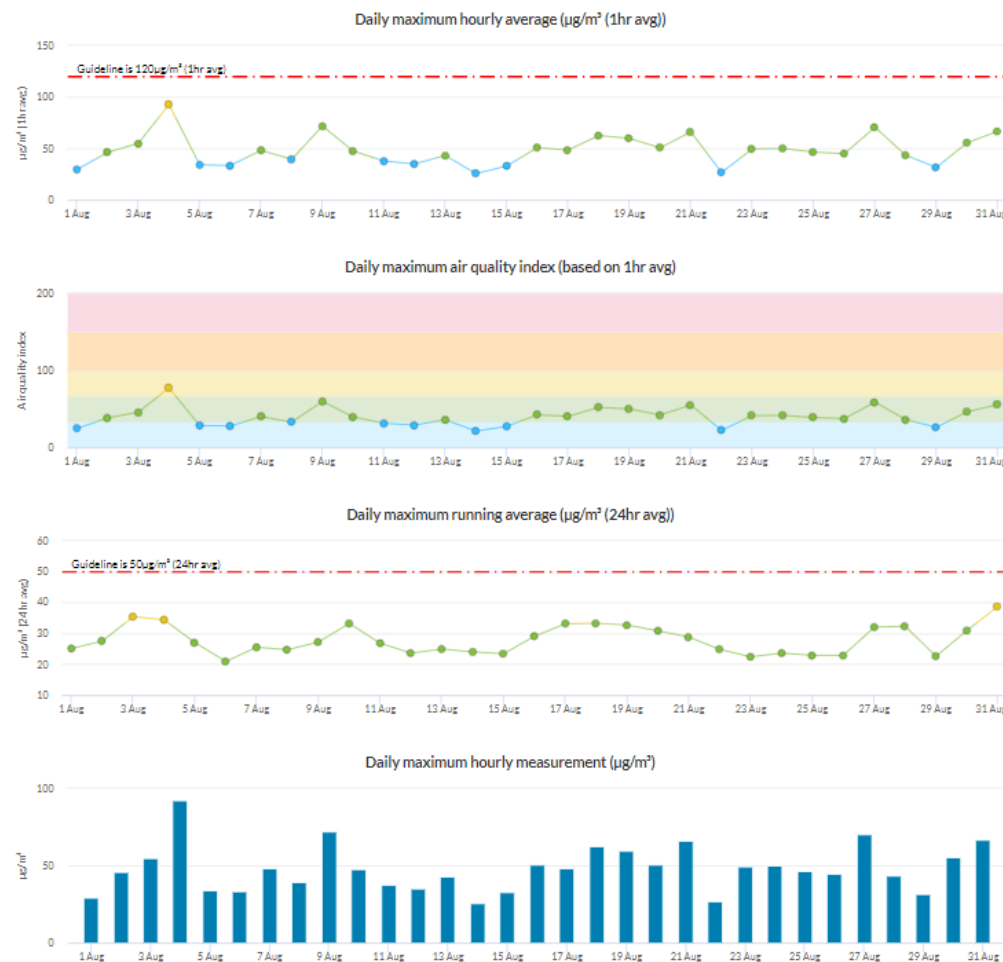


Figure 3: Woolloongabba – DES Station - PM<sub>10</sub> graph for August 2021 (reproduction from the DES website).

### 3.4 Water Quality – Discharge

CBGU undertook four (4) water quality monitoring events prior to the release (groundwater and surface water) from the site. Two (2) samples were taken at the end of July but are therefore covered within this August reporting period.

#### 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 <sup>[1]</sup>											Adhered to Project Requirements (Yes / No)
		pH	Suspended solids (mg/L)	Turbidity (NTU)	Ammonia N (µg/L) <sup>[3]</sup>	Oxidised N (µg/L) <sup>[3]</sup>	Organic N (µg/L) <sup>[3]</sup>	Total nitrogen (µg/L) <sup>[3]</sup>	Total phosphorus (µg/L)	Filterable Reactive phosphorus (FRP) (µg/L)	Chlorophyll a (µg/L)	Dissolved oxygen (%) <sup>[2]</sup>	
Albert Street	31/07/2021	7.83	5.00	0.20	3,460.00	10,600.00	<1000	15,000.00	<10	<10	<1	101.67	Yes
Woolloongabba	31/07/2021	7.50	6.00	1.10	520.00	170.00	2,500.00	3,200.00	180.00	<10	<1	83.51	Yes
Roma Street	2/08/2021	7.87	<5	2.70	630.00	1,400.00	1,400.00	3,400.00	10.00	<10	<1	95.61	Yes
Boggo Road	5/08/2021	7.12	<5	3.10	20.00	1,560.00	400.00	2,000.00	<10	<10	<1	114.98	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 Poned/Surface Water Discharge

No ponded/surface water was discharged during this reporting period

Table 7: Surface Water Discharge - Water Quality Monitoring Data

No.	Location	Date	Testing of Water Quality Objectives <sup>[1]</sup>		Adhered to Project Requirements (Yes / No)
			pH	Turbidity (NTU)	

Nil

- [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 August 2021, CBGU JV undertook one (1) round of surface water sampling at five (5) site 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 also 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	11/08/2021	Monthly	10.9	38,800	111.3	7.7
Albert Street	Downstream	11/08/2021	Monthly	13.3	39,000	111.3	7.9
Roma Street	Upstream	16/08/2021	Monthly	21.8	34,400	108.9	7.6
Roma Street	Downstream	16/08/2021	Monthly	24.6	33,900	108.9	7.7
Northern Portal - SW	Upstream	16/08/2021	Monthly	0.0	863	73.8	7.7
Northern Portal- SW	Downstream	16/08/2021	Monthly	0.0	850	83.5	7.8
Gabba	Upstream	17/08/2021	Monthly	10.1	632	113.7	7.6
Gabba	Downstream	17/08/2021	Monthly	10.2	32,500	116.1	7.7
Boggo Road <sup>[1]</sup>	Downstream	17/08/2021	Monthly	2.8	32,200	82.3	7.8

- [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.

## 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 this Month

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
Nil					

## 5 Complaints

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

During August 2021, twenty-five (25) 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.	2 Aug 21	Charlotte Street (Albert Street Precinct)	Noise	A stakeholder contacted the Project 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, and the works undertaken were consistent with the community notification.	Closed
2.	2 Aug 21	Unknown Address (Albert Street Precinct)	Noise	A stakeholder contacted the Project regarding noise from the Albert Street precinct.	Closed

No.	Date	Location	Description of Issue	Responses	Status of Event
3.	2 Aug 21	Albert St (Albert Street Precinct)	Noise	<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, and the works undertaken were consistent with the community notification.</p>	Closed
4.	3 Aug 21	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, and the works undertaken were consistent with the community notification.</p>	Closed
5.	4 Aug 21	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, and the works undertaken were consistent with the community notification.</p>	Closed
6.	4 Aug 21	Charlotte 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, and the works undertaken were consistent with the community notification.</p>	Closed
7.	4 Aug 21	Roma Street (Roma Street Precinct)	Noise	<p>A stakeholder contacted the Project regarding noise from the Roma Street precinct.</p>	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 Roma 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, and the works undertaken were consistent with the community notification.</p>	
8.	6 Aug 21	Boggo Road (Boggo Road Precinct)	Workforce	<p>A stakeholder contacted the Project regarding a worker not complying with PPE requirements.</p> <p>CBGU reviewed the circumstances and informed the workforce via a toolbox about PPE requirements and site expectations.</p>	Closed
9.	6 Aug 21	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, and the works undertaken were consistent with the community notification.</p>	Closed
10.	6 Aug 21	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, and the works undertaken were consistent with the community notification.</p>	Closed
11.	6 Aug 21	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>	Closed

No.	Date	Location	Description of Issue	Responses	Status of Event
				CBGU also reviewed the circumstances and monitoring confirmed works adhered to project noise requirements, and the works undertaken were consistent with the community notification.	
12.	9 Aug 21	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, and the works undertaken were consistent with the community notification.</p>	Closed
13.	9 Aug 21	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, and the works undertaken were consistent with the community notification.</p>	Closed
14.	10 Aug 21	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, and the works undertaken were consistent with the community notification.</p>	Closed
15.	10 Aug 21	Unknown (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>	Closed

No.	Date	Location	Description of Issue	Responses	Status of Event
				CBGU also reviewed the circumstances and monitoring confirmed works adhered to project noise requirements, and the works undertaken were consistent with the community notification.	
16.	13 Aug 21	Charlotte Street (Albert Street Precinct)	Traffic Management	A stakeholder contacted the Project regarding heavy vehicle movements. CBGU also reviewed the circumstances, and CCTV confirmed heavy vehicles were compliant.	Closed
17.	14 Aug 21	Albert Street (Albert Street Precinct)	Noise	A stakeholder contacted the Project 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, and the works undertaken were consistent with the community notification.	Closed
18.	16 Aug 21	Herschel Street (Roma Street Precinct)	Noise	A stakeholder contacted the Project regarding noise from the Roma Street precinct. CBGU provided the stakeholder with an overview of the works occurring and their duration at the Roma 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, and the works undertaken were consistent with the community notification.	Closed
19.	18 Aug 21	Albert Street (Albert Street Precinct)	Noise	A stakeholder contacted the Project 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, and the works undertaken were consistent with the community notification.	Closed
20.	18 Aug 21	Lochaber 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, and the works undertaken were consistent with the community notification.</p>	
21.	20 Aug 21	Roma Street (Roma Street Precinct)	Noise	<p>A stakeholder contacted the Project regarding noise from the Roma Street precinct.</p> <p>CBGU provided the stakeholder with an overview of the works occurring and their duration at the Roma 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, and the works undertaken were consistent with the community notification.</p>	Closed
22.	26 Aug 21	Albert Street (Albert Street Precinct)	Traffic Management	<p>A stakeholder contacted the Project regarding vehicle access.</p> <p>CBGU reviewed the circumstances and reminded the workforce about site expectations.</p>	Closed
23.	27 Aug 21	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, and the works undertaken were consistent with the community notification.</p>	Closed
24.	31 Aug 21	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, and the works undertaken were consistent with the community notification.</p>	Closed

No.	Date	Location	Description of Issue	Responses	Status of Event
25.	31 Aug 21	Albert Street (Albert Street Precinct)	Air quality	<p>A stakeholder contacted the Project regarding dust 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, installed additional mitigation, and monitored confirmed works adhered to project air quality requirements.</p>	Closed