

# Cross River Rail Project

## Monthly Environmental Report

August 2020



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**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 2020 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 reports – condition change (hours of works) 2019 (CGCR, October 2019) and Temporary change of certain work hours May 2020 (effective 7 May) 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. The 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** (Rail, Integration and Systems) and **Appendix B** (Tunnel, Stations and Development). Non-Compliance Event Reports (if any) are attached in **Appendix C**.

The Environmental Monitor (EM) has reviewed and endorsed this MER. This endorsement follows ongoing and new document reviews, and surveillance across the construction sites (taken place through surveillance officers designated to single sites in response to the COVID-19 restrictions and other means).

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

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

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	The CEMP and site 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	The OEMP has been updated to incorporate changes associated with RfPC-7 and submitted to the Coordinator-General on 8 July.
3.	<b>Design</b> – achievement of the Environmental Design Requirements	NA	<p>TSD – ongoing progress with design packages relating to tunnel and station work</p> <p>RIS – Detailed flood modelling is in progress to ensure design will not cause property damage from flood impacts to third parties for events up to and including the 1 in 100 Annual Exceedance Probability flood event.</p> <p>Documents continue to be reviewed related to compliance with the environmental design standards.</p>

CG Condition	Requirement Summary	Compliance Met (Yes/No/NA)	Comment
4.	<b>Construction Environmental Management Plan</b> – all relating to Relevant Project Works	Yes	TSD – CEMP Rev 6 for tunnelling and ongoing activities in the Central area was endorsed by the Environment Monitor, submitted to the Coordinator-General in June and became effective on 5 July 2020.  RIS – CEMP Rev 1 for Northern Portal (Stage 1), RNA Showgrounds (Stage 1) and Mayne Yard North (Stage 1 and 2) has been implemented on site.
5.	<b>Compliance and Incident management</b> – Non-compliance events, notifications and reporting	Yes	There were no non-compliance events (NCEs) were recorded in August.  Refer to Section 2.5 of this report.
6.	<b>Reporting</b> – Monthly and Annual reporting	Yes	This Monthly Environmental Report. Refer to <b>Appendix A (RIS Monthly Report)</b> and <b>Appendix B (TSD Monthly Report)</b> .
7.	<b>Environmental Monitor</b> - engaged and functions resumed	Yes	Ongoing
8.	<b>Community Relations Monitor</b> - engaged and functions resumed	Yes	Ongoing
9.	<b>Community Engagement Plan</b> – developed and endorsed by Environmental Monitor	Yes	CEMP's endorsed with Community Engagement Plan.
10.	<b>Hours of work</b> – works undertaken during approved hours	Yes	This has been achieved through standard working hours, Extended work hours and Managed Work.
11.	<b>Noise</b> – Work must aim to achieve internal noise goals for human health and well-being	Yes	Refer to <b>Appendix A (Table 2)</b> and <b>Appendix B (Table 3)</b> .
	<b>Vibration</b> - Works must aim to achieve vibration goals for cosmetic damage, human comfort and sensitive building contents.	Yes	Refer to <b>Appendix B (Table 2)</b> .
12.	<b>Property damage</b> - relating to ground movement	Yes	Vibration modelling has been prepared and is ongoing and where required, building condition survey reports (for heritage and residential buildings) and Property damage sub plans completed.  RIS – Property Damage Sub-plan has been prepared for heritage and residential buildings where predictive modelling identified potential exceedance of

CG Condition	Requirement Summary	Compliance Met (Yes/No/NA)	Comment
			nominated vibration goals. This Plan has been reviewed by the EM and submitted to the Department of Environment and Science (DES) to address one of the RNA heritage approval recommendations. This Plan covers revised vibration limits derived from findings of the precondition building condition survey conducted by a suitably qualified person.
13.	<b>Air quality</b> - Works must aim to achieve air quality goals for human health and nuisance.	Yes	Refer to <b>Appendix A (Section 3.2, Table 4 and Figures 4-6)</b> and <b>Appendix B (Table 4)</b> .
14.	<b>Traffic and transport</b> - Works must minimise adverse impacts on road safety and traffic flow.	Yes	Traffic Management Plans covered in the CEMP and sub plans for all active worksites were reviewed by the Environment Monitor.
15.	<b>Water quality</b> - Works must not discharge groundwater from the construction site above the relevant environmental values and water quality objectives.	Yes	No groundwater discharges occurred for the month.  Monitoring and reporting on surface water quality was undertaken in accordance with RIS and TSD Water Quality Management Plans.
16.	<b>Water resources</b> – evaluate potential impact, plan works, implement controls and monitor inflow of groundwater associated with drawdown.	Yes	Ongoing.
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 certified and reviewed by the Environmental Monitor and implemented on site.  Surface water discharge from project worksites met project discharge criteria requirements.

CG Condition	Requirement Summary	Compliance Met (Yes/No/NA)	Comment
19.	<b>Acid sulfate soils</b> - managed as per the Queensland Acid Sulfate Soil Technical Manual.	Yes	Acid Sulfate Soil Management Plans for all active worksites are in place.
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	Stormwater bund works in Victoria Park have commenced under the Site Environmental Plan and Heritage Exemption Certificate approved by the DES.
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 Non-Compliance Events (NCE) raised in August 2020.

# 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
CG	Coordinator-General
CGCR	Coordinator-General's Change Report
Community Relations Monitor	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
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
QR	Queensland Rail
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, seven Requests for Project Change (RfPCs) have been evaluated by the Coordinator-General, at the time of writing this report.

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 Outline Environmental Management Plan (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:

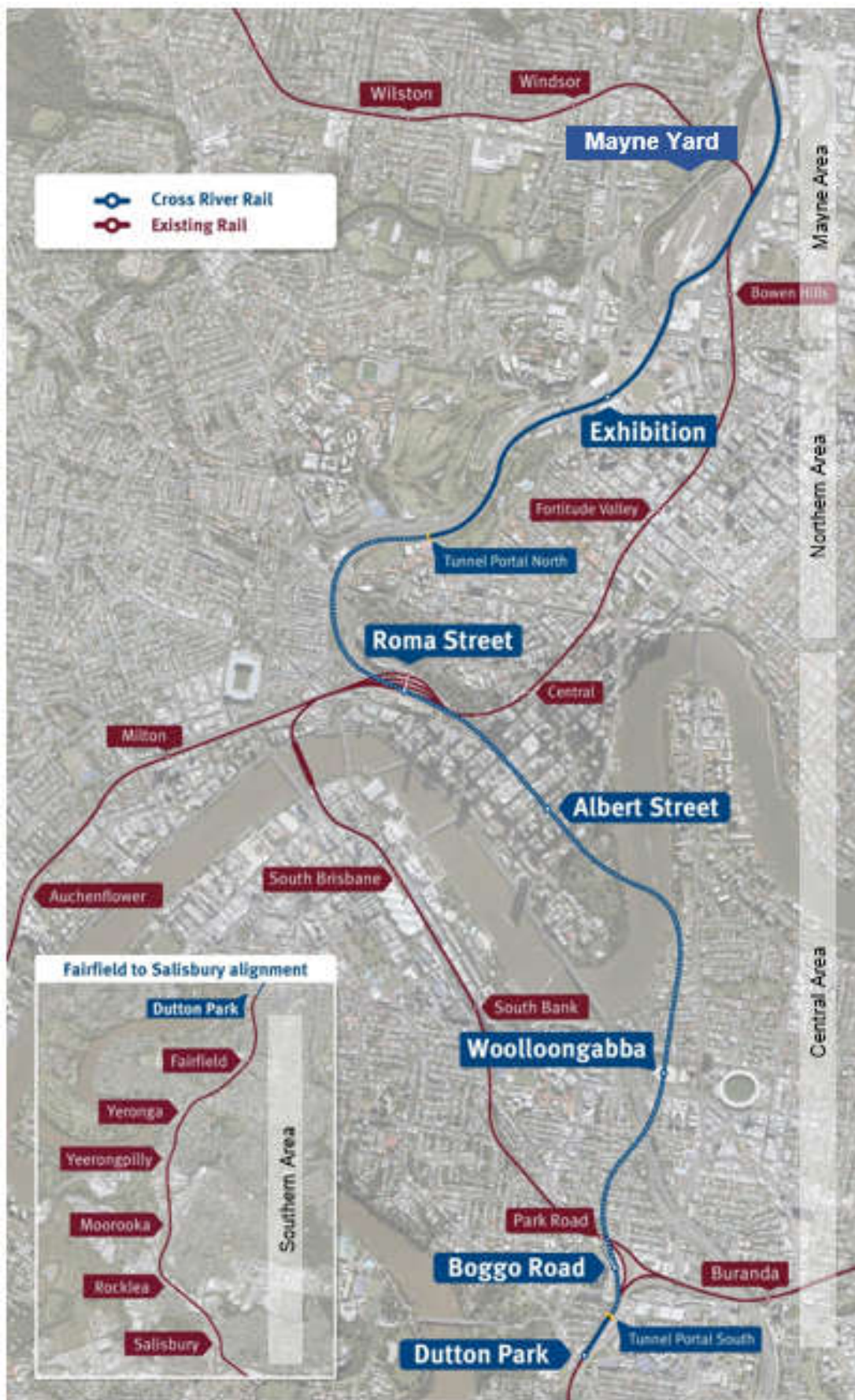
- Tunnel, Stations and Development (TSD) being delivered by CBGU JV; and
- Rail, Integration and Systems (RIS) being delivered by Unity Alliance.

The Project is geographically divided into four areas:

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

These are shown in the figures below.





## 1.3 Reporting Framework

This MER has been prepared to comply with 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 Non-Compliance Event (NCE), 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 Environmental Monitor.

## 1.4 Monthly Environment Report Endorsement

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

# 2.Compliance Review

This Monthly Report has been reviewed and endorsed by Environmental Monitor as per Condition 7 of the Coordinator-General Change Report (CGCR).

## 2.1 Relevant Project Works

The following Project Works were undertaken in August 2020:

Area	Project Works
Mayne Area	<ul style="list-style-type: none"><li>• Mayne Yard satellite office set up completed.</li><li>• Demolition and removal of Mayne Yard North buildings and facilities completed.</li><li>• Subgrade treatment and embankment fill nearing completion. Improvement layer has been placed.</li><li>• Stormwater drainage works commenced.</li><li>• Site establishment for Breakfast Creek Bridge re-decking works.</li></ul>
Northern Area	<ul style="list-style-type: none"><li>• Line drilling for rail corridor widening rock excavation adjacent to O'Connell Terrace commenced.</li><li>• Micro-tunnelling for drainage under track crossing under Exhibition roads and holding road has commenced.</li><li>• Geo-technical investigations at RNA to refine permanent and temporary works designs (retaining structure, ground retention, bridge piers).</li><li>• Drainage line in Normanby completed. Form Reo Pour (FRP) works on pits being finalised.</li><li>• Piling for pier protection of Land Bridge completed and FRP works on pile cap commenced.</li><li>• Stone pitching works.</li><li>• Commencement of the overhead line equipment (OHLE) foundations for new holding road.</li></ul>
Central Area	<ul style="list-style-type: none"><li>• Roma Street - continued demolition of the Brisbane Transit Centre and Hotel Jen; adit excavation; and main cavern excavation; Services Building shaft excavation and piling; Inner Northern Busway diversion continues; and temporary platform preparation works and ongoing site establishment work across the site.</li></ul>

Area	Project Works
	<ul style="list-style-type: none"> <li>Albert Street – station box excavation continues on Lot 1; shaft and adit excavation on Lot 2; and commencement of soft demolition on Lot 3 in August and .</li> <li>Woolloongabba – excavation, drilling and anchoring of piles within the station box, northern and southern caverns; continued site establishment activities including site offices, worker facilities and the spoil acoustic shed; ongoing decline and shaft excavation and haulage of excavated material; trial blasting commenced in September.</li> <li>Boggo Road – Continued site establishment (e.g. water treatment plant); piling, capping beam installation and excavation works in the station box; continued demolition of the busway retaining wall; and service and ground condition investigations.</li> </ul>
<b>Southern Area</b>	<ul style="list-style-type: none"> <li>No active worksites along Fairfield to Salisbury area.</li> </ul>

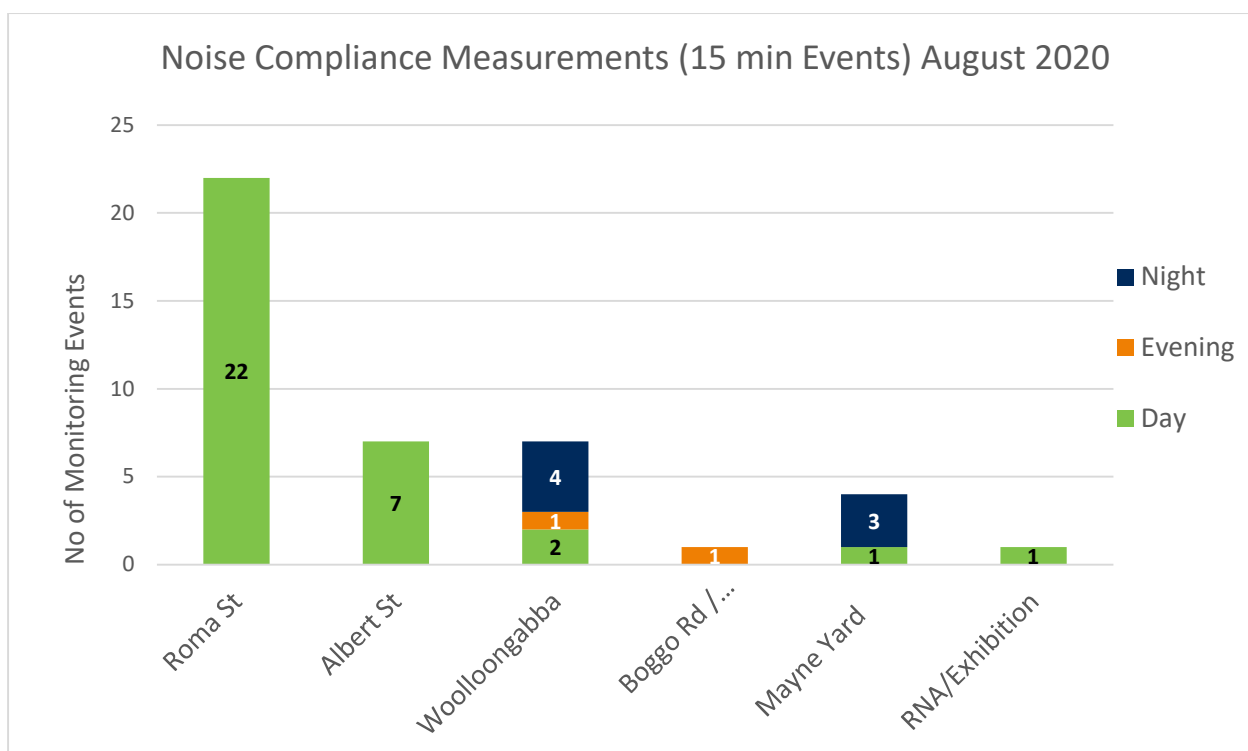
## 2.2 Key Environmental Elements

### 2.2.1 Noise

The number of noise monitoring events a summarised in the graph below.

Noise monitoring was undertaken to validate predictive modelling during line drilling works at RNA site associated with rock breaking at Lanham Yard during standard hours, and service location works on Abbotsford Road; and foundation removal works at Mayne Yard North in the Mayne area during out of hours work. Noise levels did not exceed the project noise goals for standard hours or out of hours works and is detailed in **Appendix A**.

In the Central area, noise monitoring was undertaken on 37 occasions during the month and is detailed in Table 1, **Appendix B**. Where internal monitoring was not possible, they have undertaken external monitoring at nominated locations. The contractors noise consultants have then used suitable façade attenuation corrections, considering receiver property type, to determine compliance with the project's noise requirements and to provide calibration of the completed modelled predictions. The TSD contractors have reported that the project noise requirements have been met during this reporting month.



## 2.2.2 Vibration

Vibration monitoring took place on 13 occasions at Roma Street, Albert Street, Woolloongabba and Boggo Road sites (and nearby receivers) where major construction activities were being undertaken. The contractor reported the results were within the project's nominated goals for all receiver types.

## 2.2.3 Air Quality

### 2.2.3.1 Dust Deposition

Dust deposition monitoring was conducted at Mayne Yard, Northern Corridor, RNA Showgrounds, Albert Street, Boggo Road, Roma Street and Woolloongabba sites during the month. All monitoring results met the Coordinator-General's air quality goals.

A summary of air quality monitoring undertaken is shown in the table below. It should be noted that the Central Area dust deposition monitoring does not always occur from the first of the month and can often be mid-month to mid-month.

Air Quality – Dust Deposition Monitoring			
Area	Active Site*	Monitoring Location	Comments
Mayne Yard	Mayne Yard	Mayne Yard North Eastern Air Shed	Results met air quality goal
Northern Area	Northern Corridor	Near Brisbane Girls Grammar School	Results met air quality goal
		Near Centenary Pool	Results met air quality goal
	RNA/Exhibition	RNA Showgrounds	Results met air quality goal
Central Area	Albert St	Mary Street	Results met air quality goal
	Boggo Rd / Southern Portal	Leukemia Foundation Peter Doherty Street	Results met air quality goal
	Roma St	Platform 3	Results met air quality goal



		Roma Street Station	
	Woolloongabba	Russian Orthodox Cathedral	Results met air quality goal
		Woolloongabba Busway	Results met air quality goal

\* Fairfield to Salisbury had no active high-risk activities

### 2.2.3.2 Particulate Matter (PM10 / TSP)

PM10 and TSP were monitored at Mayne Yard, the Northern Corridor, RNA Showgrounds, Roma Street, Woolloongabba, Boggo Road and Albert Street during the reporting period. Particulate monitoring exceeded the PM10 and TSP goal at Albert Street on the 4 August and the Roma Street PM10 goal on 5 August. Both these sites recorded uncharacteristic readings compared to the 'routine' monitoring results. The PM10 and TSP goal at Mayne Yard on 20 August were due to a regional air quality event. The Department of Environment and Science (DES) ambient air quality monitoring stations in the Brisbane CBD, Woolloongabba and South Brisbane recorded elevated particulate levels throughout the periods of 4 to 6 August (no DES exceedances recorded) and 19 to 22 August (exceedances at DES stations) therefore exceedances were not considered to be caused by Project Works. It is understood that the higher levels were due to regional burning in the South East Queensland, however further confirmation is being sought.

A summary of particulate matter monitoring is shown below:

Air Quality – PM10/ TSP Monitoring			
Area	Active Site*	Monitoring Location	Comments
Mayne Yard	Mayne Yard	Mayne Yard North Eastern Air Shed (Burrows St, Bowen Hills)	An exceedance of the PM10 (24hr) and TSP (24hr) goals occurred on 20 August due to a regional air quality event. All other results met air quality goals for the reporting period.
Northern Area	Northern Corridor	Northern Corridor Eastern Air Shed (North of Land Bridge)	Results for PM10 and TSP met air quality goals for the period monitored (1-27 August). This air quality monitor was moved to Brisbane Girls Grammar School on 28 August.
		Brisbane Girls Grammar School	Results for PM10 and TSP met air quality goals for the period monitored (28-31 August).
	RNA/Exhibition works	RNA Western Air Shed (Lanham Street, Bowen Hills)	Results for PM10 and TSP met air quality goals for the period monitored (25-31 August). The monitoring unit was re-activated on 25 August after replacement of stolen components. High risk activities that required particulate monitoring (earthworks and rock line drilling) commenced on 26 August.
Central Area	Albert St	Mary Street QUT Gardens Point	An exceedance of PM10 (24hr) and the TSP goal occurred on 4 August, likely due to a regional air quality event. Due to a technical fault the monitoring unit stopped functioning on 6 August.
	Boggo Rd / Southern Portal	DES Monitoring Station O'Keefe Street, PA Hospital	Results for PM10 and TSP met air quality goals for the period monitored (5-31 August). Nearby DES air quality monitoring station recorded PM10 levels below the air quality goal (1-5 August).
	Roma St	Roma Street Station	An exceedance of PM10 (24hr) goal occurred on 5 August likely due to a regional air quality event. All other results met air quality goals for the reporting period.
	Woolloongabba	TMR / DES monitoring station, South Brisbane	Results for PM10 and TSP met air quality goals.



\*Fairfield to Salisbury had no active worksites

## 2.2.4 Water Quality

There were no groundwater discharges from Project Works.

Monitoring and reporting on surface water quality was undertaken in accordance with the contractors Water Quality Management Plans. The maximum monthly rainfall was 12mm over a 24hr period on 8 August in Brisbane. Post rainfall discharge monitoring was undertaken at Breakfast Creek and Barrambin (York's Hollow) and active dewatering of stormwater was undertaken at Albert Street, Boggo Road, Roma Street and Woolloongabba. The rainfall event did not exceed the design standard for the sediment controls or the project discharge criteria prescribed by Department of Transport and Main Roads Technical Standards MRTS51 and MRTS52 and Guidelines for Best Practice Erosion and Sediment Control (IECA,2008).

Surface Water – Discharge Monitoring			
Area	Active Site*	Discharge monitoring	Comments
Mayne Yard	Mayne Yard North	Yes	Post rain discharge monitoring undertaken at Breakfast Creek. Results met water quality discharge criteria.
Northern Area	Northern Corridor	Yes	Post rain discharge monitoring undertaken at Barrambin (York's Hollow). Results met water quality discharge criteria.
Central Area	Albert St	Yes	Four active discharges from site. Results met water quality discharge criteria.
	Boggo Rd / Southern Portal	Yes	One active discharge from site. Results met water quality discharge criteria.
	Roma St	Yes	Five active discharges from site. Results met water quality discharge criteria.
	Woolloongabba	Yes	Six active discharges from site. Results met water quality discharge criteria.

\*Fairfield to Salisbury had no active worksites

## 2.2.5 Erosion and Sediment Control

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

## 2.3 Complaints Management

The project received fifteen complaints during the month. Thirteen complaints were in relation to works at the Roma Street, Boggo Road and Albert Street worksites. Two complaint was in relation to works occurring in the Northern Corridor. The complaints included noise and vibration, dust and worker behaviour. (See **Table 1** in **Appendix A** and **Table 9** in **Appendix B**).

Where attended noise monitoring was undertaken in response to a complaint, the contractor confirmed that works undertaken at the time of the complaint adhered to project requirements. For dust related complaints, the TSD contractor advised stakeholders that air quality monitoring is ongoing and dust mitigation measures were effectively implemented on site with works adhering to project requirements. All complaints were closed out by the contractors.

For scheduled Out of Hours works, community notification was provided in all instances, as well as regular project updates.

## 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
<b>Mayne Area</b>	<ul style="list-style-type: none"> <li>• Lower capping earthworks.</li> <li>• Commence Breakfast Creek Bridge re-decking.</li> <li>• Temporary OHLE works to facilitate Ferny Grove flyover pier strengthening.</li> <li>• Commence Mayne Yard North stormwater drainage works.</li> <li>• Geotechnical and contaminated land investigative works within Breakfast Creek.</li> </ul>
<b>Northern Area</b>	<ul style="list-style-type: none"> <li>• O'Connell Terrace rock excavation works and soil nailing to continue at RNA.</li> <li>• Sewer, services and water relocation at RNA.</li> <li>• Construction of RNA Sector 3 access track.</li> <li>• Lower capping earthworks in Northern Corridor.</li> <li>• Completion of retaining walls in Northern Corridor.</li> <li>• High voltage route installation.</li> <li>• Concrete lined drains to commence.</li> <li>• Combined service route and OHLE relocation.</li> <li>• Signalisation of Gregory Terrace intersection with Victoria Park access road.</li> <li>• Sewer relocation in Victoria Park.</li> </ul>
<b>Central Area</b>	<ul style="list-style-type: none"> <li>• Roma Street – Enabling works for Services Building, building of temporary busway platform to the east of Platform 1 and modifying Platforms 2 and 3.</li> <li>• Albert Street – Excavation of station box on Lot 1 to continue to mid-2021, 24 hour tunnelling will continue within the acoustic enclosure on Lot 2. Blasting occurrences on Lot 2 in the tunnel shaft.</li> <li>• Woolloongabba – Controlled blasting in station box to continue, cavern excavation and spoil shed construction continue and 24-hour work for shaft excavation, earthworks and utility investigations and relocation is underway.</li> <li>• Boggo Road – Temporary car park construction., ongoing excavation with an increase in spoil removal from site.</li> </ul>
<b>Southern Area</b>	<ul style="list-style-type: none"> <li>• Site establishment works at Yeronga Station.</li> <li>• Shed demolition works at Fairfield station.</li> <li>• Track lowering preparation works at Fairfield and Yeronga.</li> </ul>

## 2.5 Non-Compliance Events

No new Non-Compliance Events (NCEs) have been raised this month. A summary of NCEs to date is shown in the table below.

Status	Date of event	Category	Area as on the Report	Conditions affected	Gate 1	Gate 2	Gate 3	Gate 4	Gate 5
Open									
Closed									
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
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 conditions and that there are management plans in place and required management measures implemented.

## 2.6 Addendum to July 2020 Monthly Environmental Report

Further to feedback from the Office of the Coordinator-General on interpretation of noise results in the July 2020 Report, the Delivery Authority can confirm that the noise table in the TSD report (Appendix B, Table 3) now includes a column to identify the dominant noise sources at the time of the noise monitoring to aid interpretation of the results and contributing noise sources.

Where internal noise monitoring is not possible or for routine monitoring to be undertaken to get an indication of compliance with the project requirements, external noise monitoring is carried out at representative locations. The noise tables in Appendix B in the monthly reports use external noise goals in accordance with Imposed Condition 11. This details that where internal noise levels are unable to be measured, external noise goals are 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.

The Delivery Authority and the Environment Monitor are satisfied that the external goals are representative.

# Appendix A – RIS Monthly Report

# **Monthly CGCR Report – August 2020**

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



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# 1 Progress Summary

## 1.1 Summary of Project Works

The following *Project Works* continued in August 2020

- Mayne Yard North
  - Stage 1 subgrade treatment (remove and replace) and placement of embankment fill.
  - Demolition and removal of Mayne Yard North Buildings and Facilities. Works are now completed.
  - Stormwater drainage works
- Northern Corridor
  - The backbone Drainage Line 220 in Normanby was completed, with the Form Reo Pour (FRP) works on pits being finalised
  - Piling for RC24 pier protection at the Land Bridge was completed and FRP works on pile cap commenced.
  - Micro tunnelling for Drainage UTX crossings under Exhibition Roads and Holding Road for RC24 pier protection of Land Bridge
  - Stone Pitching works
- RNA
  - No continued works
- F2S
  - Service location investigations

The following *Project Works* started in August 2020

- Mayne Yard North
  - No new works commenced
- Northern Corridor
  - Commencement of OHLE foundations for new Holding Road.
- RNA
  - Line drilling for rail corridor widening rock excavation adjacent O'Connell Terrace
- F2S
  - No new works commenced

The following *Project Works* are proposed in September 2020

- Mayne Yard North
  - Commence re-decking of existing Breakfast Creek siding bridge to facilitate alternative construction access to Mayne Yard from north of Breakfast Creek.
- Northern Corridor
  - OHLE structural steel installation
  - HV route installation
  - Concrete lined drains installation
- RNA
  - Sewer and Water relocation

- Access track installation
- F2S
  - Yeronga tree clearing

## 2 Complaints

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

*Table 1: Summary of Complaints*

Date	Location	Issue	Unity Response	Status
28/08/20	Tufton Street	Dust	The project provided an initial written feedback to the enquiry pertaining to dust and offered to meet with the resident to further discuss the matter. Upon investigation of the site and review of the air quality data, it was confirmed that the site was compliant with the CG Imposed Conditions.	Closed

## 3 Environmental Monitoring Results

The below section summarises the monitoring results to be reported in accordance 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 occurs.

#### 3.1.1 Noise Monitoring

Attended Noise Monitoring was triggered based on the predictive noise assessments for

- Service location works on Abbotsford Road (out of hours work)
- Line Drilling works associated with rock breaking at Lanham Yard (standard hours work)
- Foundation removal works in Mayne Yard North (out of hours work)

In accordance with the C-EMP, attended outdoors monitoring was undertaken to validate the predictive assessment.

Monitoring was undertaken at the start of the activities in order to validate and to confirm that works could proceed as planned.

The monitoring validated that the activities were not going to generate noise levels in exceedance of the upper noise goal for out of hours works or standard works. On this basis no further monitoring was triggered for these activities.

The results from the monitoring are presented in the following section.

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

#### 3.1.2 Noise monitoring Results

The below table summarises the Noise Monitoring results for reporting period.



Table 2: Summary of Noise Monitoring Data

Location and Receiver Type Details	Type of Monitoring	Working Hours	Noise Type	Purpose of Monitoring	Performance Criterion (dBA) - outdoors - (Condition 11(a), Table 2, LA10 noise goals)	Performance Criterion (dBA) - outdoors (Table 2 LA10 noise goal + 20dBA)	Predictive model (LA10 external) External Noise (dBA)	Measured LA10 (dBA) - external	Measured LAeq (dBA) - external	Is performance criterion exceeded?	Comments
Mayne yard - No receiver	Attended - External	Standard Hours Friday 21/8/20 06:30	Intermittent	Buffer Distance Test - Model Verification	N/A	N/A	N/A	73	74	N/A	N/A
Tufton Street/Campbell Street – Residential/Commercial	Attended - External	Standard Hours Thursday 27/8/20 12:59	Intermittent	Construction Monitoring at Sensitive Places - Model Verification	65 (AS2107 maximum design level [45dBA] + 10dBA + 10dBA façade reduction)	85 (65+20dBA)	75-80	81	76	No exceedance	LA10 reading impacted by passing trains
Caltex Service Station Abbotsford Road - Commercial	Attended - External	Out of Standard Hours Thursday 27/8/20 20:41	Intermittent	Construction Monitoring at Sensitive Places - Model Verification	52 (42dBA default goal + 10dBA façade reduction)	72 (52+ 20dBA)	68	73	71	Exceedance (Dominant source not associated with UNITY works)	Measurements were heavily impacted by traffic in local area. The dominant source of noise during this activity was the local traffic on Abbotsford Road, not the Unity scope of works. For periods with lower traffic, measured noise levels were between 66 and 70dB. A short capture during this period of time was captured below. Therefore, it is concluded that Unity works were compliant with the CG imposed conditions.  Measurements were taken during loudest predicted activity - concrete saw.
Caltex Service Station Abbotsford Road - Commercial	Attended - External	Out of Standard Hours Thursday 27/8/20 20:59	Intermittent	Construction Monitoring at Sensitive Places - Model Verification	52 (42dBA default goal + 10dBA façade reduction)	72 (52+ 20dBA)	68	71	69	No exceedance	Short grab of data when minimal traffic was impacting measurements (to provide evidence for statement above).  Measurements were taken during loudest predicted activity - concrete saw.
Caltex Service Station Abbotsford Road - Commercial	Attended - External	Out of Standard Hours Sunday 30/8/20 07:22	Intermittent	Construction Monitoring at Sensitive Places - Model Verification	52 (42dBA default goal + 10dBA façade reduction)	72 (52+ 20dBA)	66.7	60	59	No exceedance	Measurements were heavily impacted by traffic in local area. The dominant source of noise during this activity was the local traffic on Abbotsford Road, not the Unity scope of works. The core drilling produced a very low output of noise. Rail embankment provided some additional buffer not previously assessed.

- 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.*
  - Internal noise measurements were not undertaken as the majority of receivers at this location (outdoor pool) would be external.
  - 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 triggered during the reporting period.

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

### 3.1.4 Vibration Monitoring Results

Not applicable for this monitoring period

### 3.1.5 Interpretation

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

Monitoring of service locating works on Abbottsford Road was undertaken as close as possible to the nearest DAP (Caltex Service Station, one storey clad building), approximately 10m from façade of the building. The measured LA<sub>10</sub> and LAeq readings were deemed compliant with the Imposed Conditions for works during and outside of standard working hours. The first 15-minute capture was impacted heavily by traffic (dominant source) although a further short capture confirmed compliance with the imposed conditions for out of hours works (minimal impact from traffic).

Monitoring of line drilling works was undertaken as close as possible to the nearest DAP (50 Campbell Street, 2-storey brick warehouse), approximately 5m from the façade of the building. The measured LA<sub>10</sub> and LAeq readings were compliant with the imposed conditions for works during standard working hours. This monitoring location is also the same distance from the works at Tufton Street and has been deemed the most indicative location for the receivers on Tufton Street.

Monitoring of foundation removal works in Mayne Yard was undertaken as close as possible to the nearest DAP (Caltex Service Station, one storey clad building), approximately 6m from the façade of the building. The measured LA<sub>10</sub> and LAeq readings were compliant with the Imposed Conditions for works during and outside of standard working hours.

The RIS scope of works is achieving the outcomes set out by the CGCR and OEMP.

#### 3.1.5.2 Vibration Monitoring

Not applicable for this monitoring period

## 3.2 Air Quality

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 Construction Environmental Management Plan occurs.

Visual Monitoring was undertaken during routine environmental inspections. A total of fourteen (14) inspections were undertaken by the environment team across Mayne Yard, RNA showgrounds 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.

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<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

Table 3: Summary of Air Quality devices

Monitoring Device Installed by UNITY	Area	Name	Date Installed	Status for the Month of August
Dust Deposition Gauge	RNA Showgrounds	AQ-01	13 December 2019	Active
Dust Deposition Gauge	Northern Corridor (near BGGS)	AQ-02	13 December 2019	Active
Dust Deposition Gauge	Northern Corridor (near Centenary Pool)	AQ-03	13 January 2020	Active
Dust Deposition Gauge	Mayne Yard (Eastern Air Shed)	AQ-04	13 February 2020	Active
TSP / PM <sub>10</sub> Monitor	Mayne Yard (Eastern Air Shed)	UNI324	23 April 2020	Active
TSP / PM <sub>10</sub> Monitor	Northern Corridor (Eastern Air Shed)	UNI327	23 April 2020	Active – moved to Brisbane Girls Grammar School on 28/08/20
TSP / PM <sub>10</sub> Monitor	RNA (Western Air Shed)	UNI319	01 July 2020 Relocated 25 August 2020	Station inactive from 10 July 2020 to 24 August 2020 due to theft of components Station re-activated on 25/08/20 after replacement of stolen components. High risk activities requiring particulate monitoring (earthworks and rock line drilling) commenced on 26 August 2020

### 3.2.1 Dust results

Since passive dust deposition gauges are analysed on a monthly basis, results span from 13 July 2020 to 13 August 2020.

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

Table 4: Dust deposition gauge results for period 13 July 2020 to 13 August 2020.

CGCR Goal (mg/m <sup>2</sup> /day)	AQ-01 Results - RNA Showgrounds (mg/m <sup>2</sup> /day)	AQ-02 Results - BGGS (mg/m <sup>2</sup> /day)	AQ-03 Centenary Pool (mg/m <sup>2</sup> /day)	AQ-04 Abbotsford Rd (E Mayne) (mg/m <sup>2</sup> /day)
120	13	93	50	27
Total Rainfall during Period	14mm	16mm	16mm	14mm

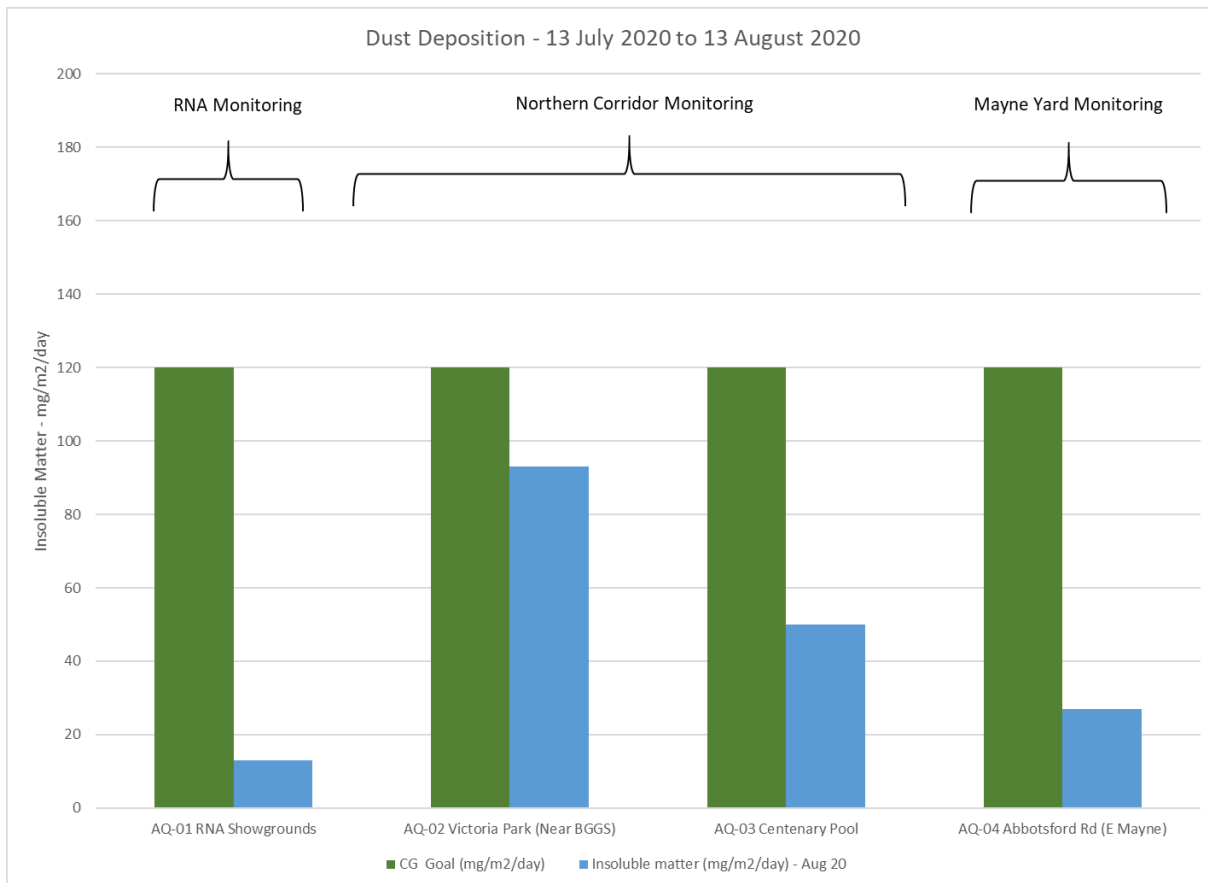


Figure 4: Air Quality Monitoring (Deposited Dust) – 13 July – 13 August 2020 Results

### 3.2.2 Interpretation

The RIS scope of works is achieving the outcomes set out by the CGCR and OEMP.

### 3.2.3 Particulates results

#### 3.2.3.1 UNITY Air Quality Monitoring Stations

Unity had two operational Air Quality monitoring stations set up for the entirety of the reporting period. A third station was relocated on the 25<sup>th</sup> August within the Lanham Yard compound to monitor the air quality impact associated with the line drilling (ahead of the rock breaking) works north of O'Connell Terrace.

External Ambient Air Quality data was collected for total suspended particles (TSP), and particulate matter less than 10 µm (PM<sub>10</sub>).

PM<sub>10</sub> is one of the indicators for which the Coordinator General has imposed a goal of 50 µg/m<sup>3</sup> (over an averaging period of 24 hours) the project must aim to achieve under Imposed Condition 13(a).

TSP is one of the indicators for which the Coordinator General has imposed a goal of 80 µg/m<sup>3</sup> (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.

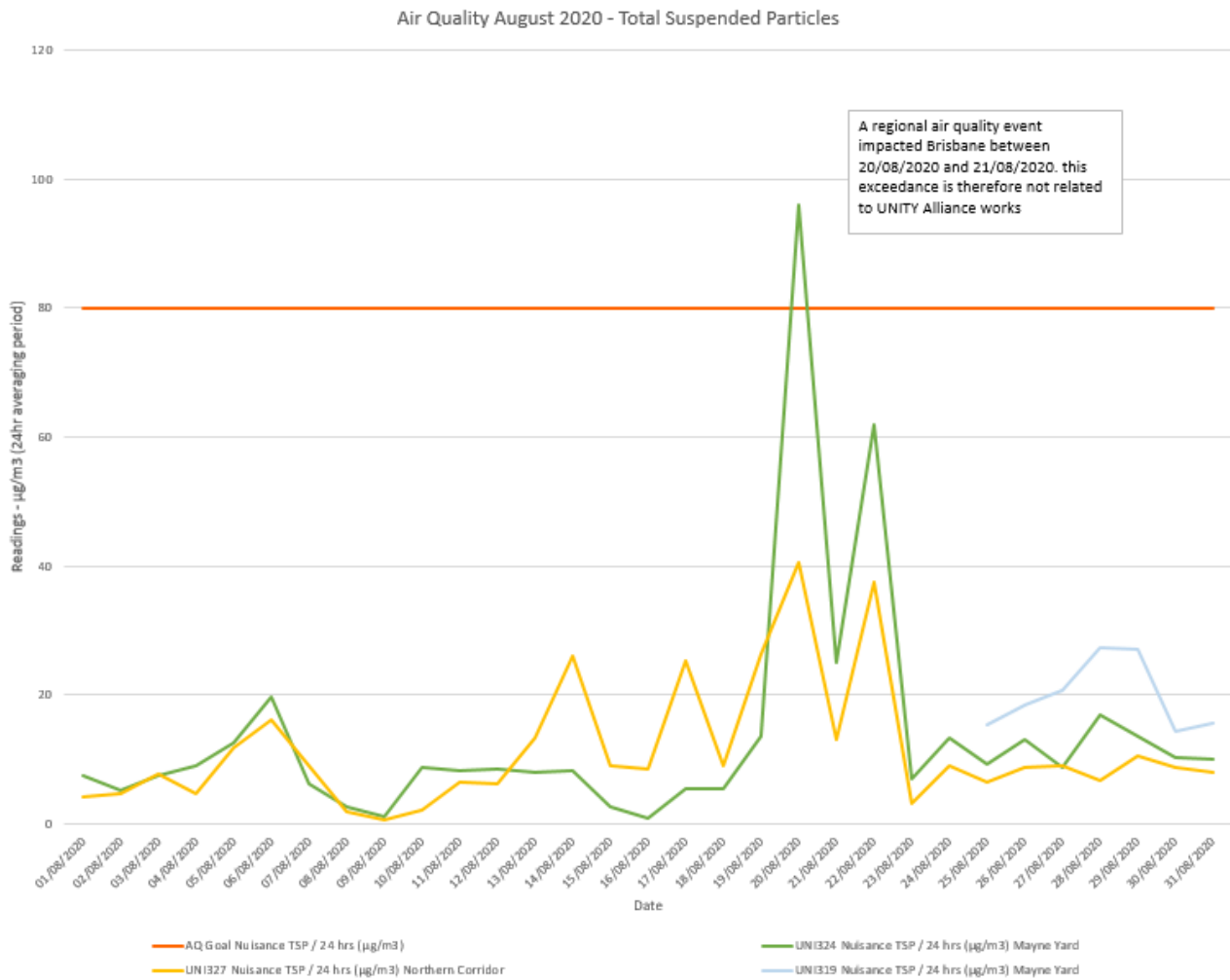


Figure 5: Air Quality Monitoring (TSP) - August 2020 Results



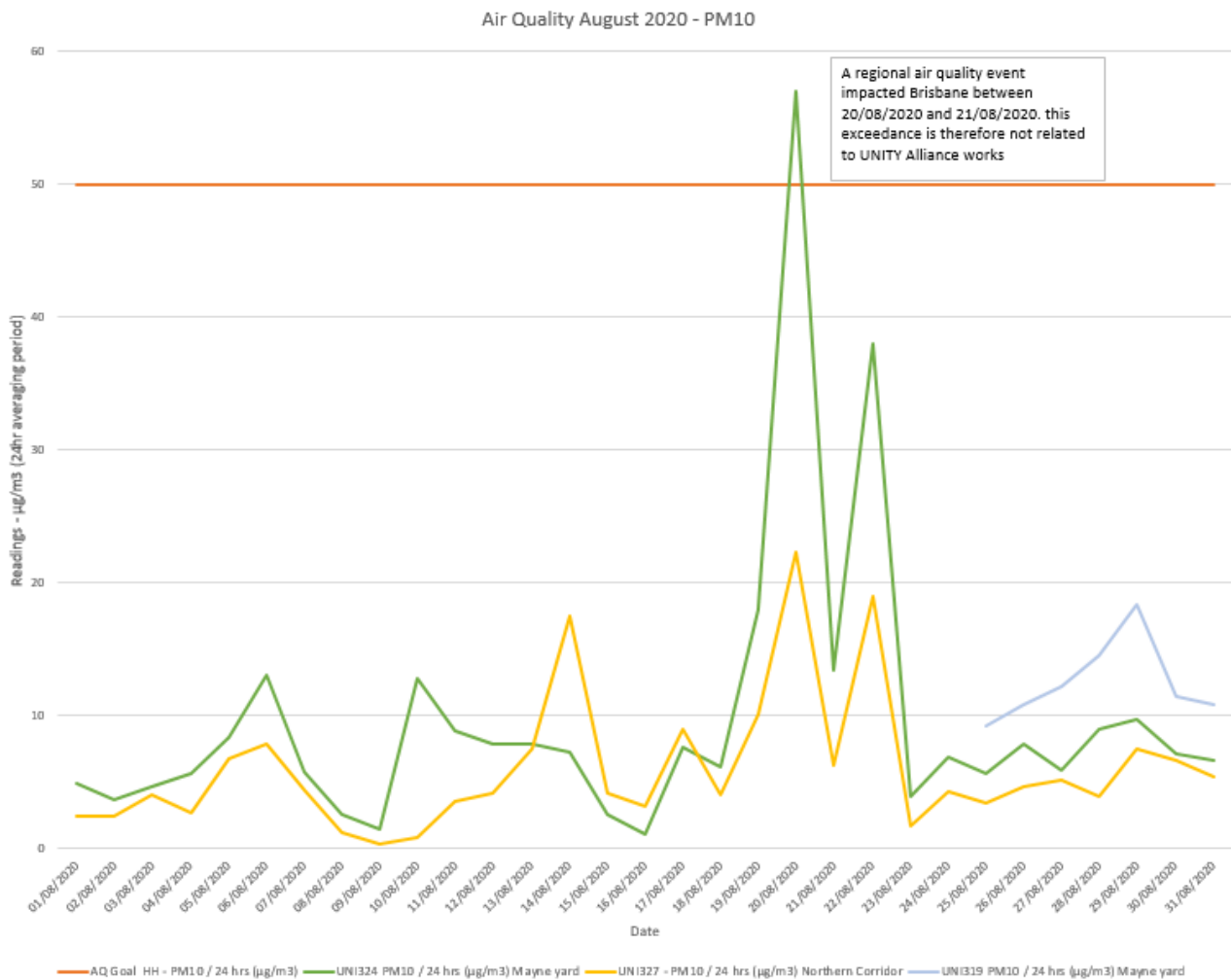


Figure 6: Air Quality Monitoring (PM10) - August 2020 Results

### 3.2.4 Interpretation

All particulate monitoring results did not exceed the relevant air quality goals specified by imposed condition 13, excluding the 20<sup>th</sup> of August 2020. On this date (and extending to the 23<sup>rd</sup> of August) a regional air quality event occurred, with poor air quality experienced across South East Queensland. These exceedances were regionally based and therefore not associated with UNITY works. This is further explored in section 3.2.5 below. The RIS scope of works is achieving the outcomes set out by the CGCR and OEMP.

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

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

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

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

### 3.2.5 20<sup>th</sup> – 23<sup>rd</sup> August Regional Event

For the period of the 20<sup>th</sup>-23<sup>rd</sup> August, a regional air quality event impacted South East Queensland. This was captured at the Department of Environment and Science Air quality monitoring stations (refer to figure 7 and 8) within proximity to UNITY stations.

For the four days in question, the daily running average for PM10 was classified as very poor by the Department of Environment and Science. This was significantly higher than the rest of the month. Significant spikes were observed at our stations with significant spikes on both the 20<sup>th</sup> and 22<sup>nd</sup> of August.

Due to the consistency of poor air quality results in the area, it has been concluded that UNITY works were not the cause of the measured exceedances at Mayne Yard station and the decreased air quality at the Victoria Park Station.

## Particle PM<sub>10</sub> at Woolloongabba, 1-31 August 2020 [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).

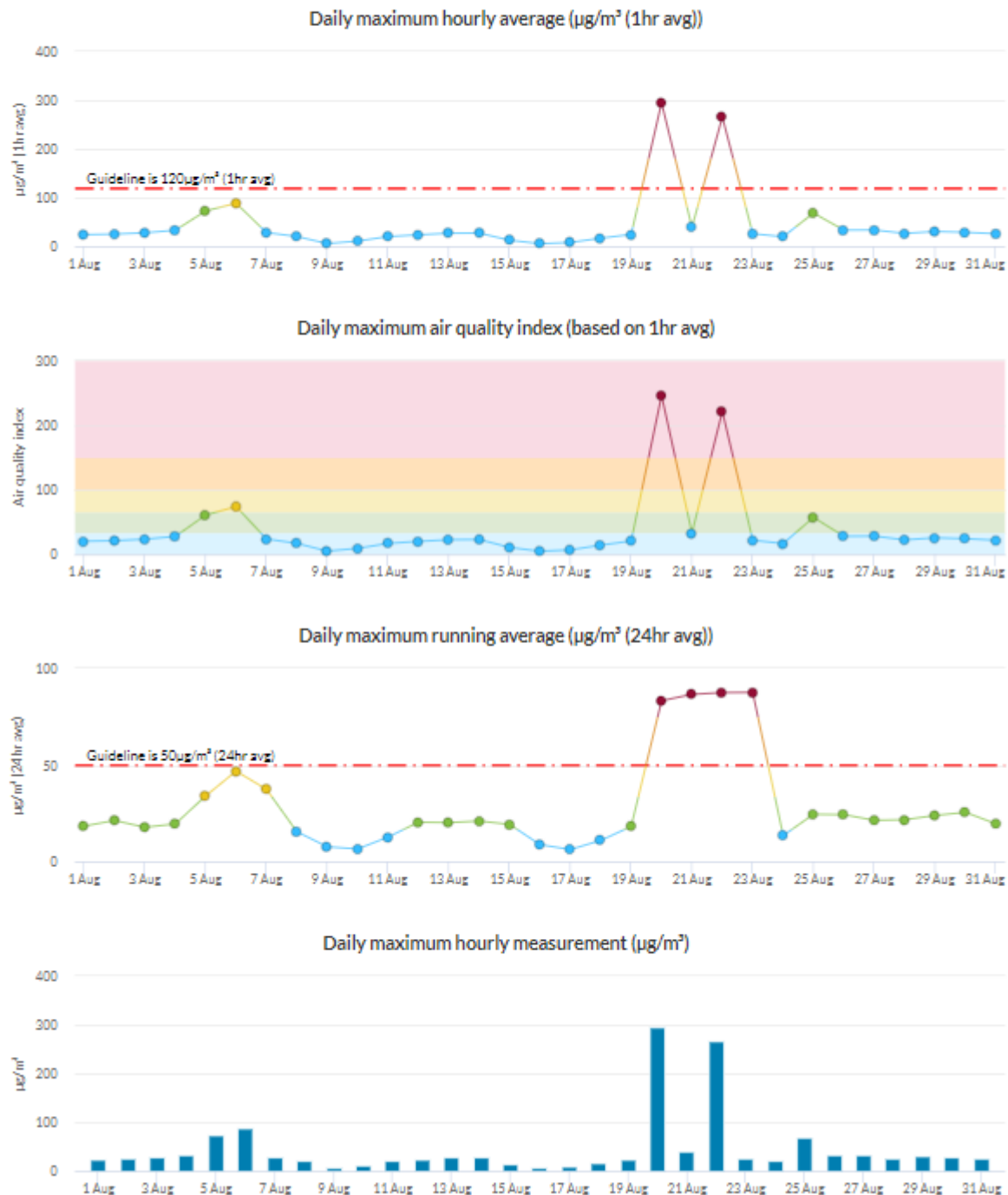


Figure 7: Woolloongabba – DES Station - PM<sub>10</sub> graph for August 2020 (reproduction from the DES website accessed 14 August 2020)

## Particle PM<sub>10</sub> at Brisbane CBD, 1–31 August 2020 [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).

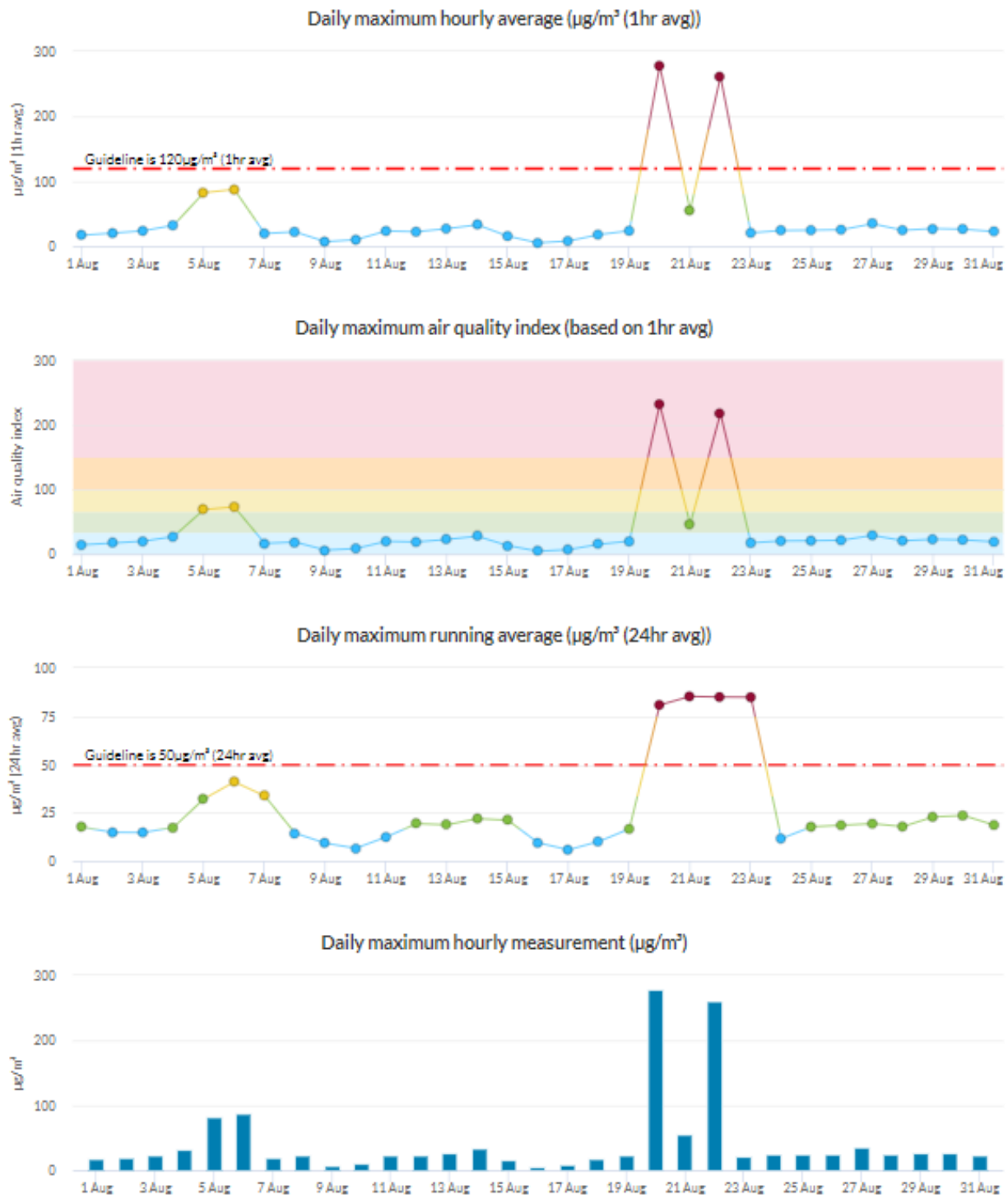


Figure 8: Brisbane – DES Station - PM<sub>10</sub> graph for August 2020 (reproduction from the DES website accessed 14 August 2020)

### 3.3 Water Quality – Surface Water

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 Brisbane River Estuary 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 15b and Condition 18 was triggered on 07 August due a rainfall event resulting in run-off being generated from the active sites. Surface water monitoring undertaken on 08 August.

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

There were no groundwater discharges.

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 Construction Environmental Management Plan occurs.

A maximum monthly rain recording of 13mm over a 24-hour period was recorded at the Salisbury weather station, which does not exceed the default trigger for post rainfall monitoring.

Site inspections at the active sites (Mayne Yard North, RNA and Northern Corridor) confirmed that while run-off had left site, it had occurred through a series of Erosion and Sediment Control devices installed in accordance with the Site-Specific ESC-Ps.

Subsequent visual inspections of Breakfast Creek did not identify any visual evidence of construction related run-off (e.g. no obvious discoloured discharges from discrete drainage outlets entering the water bodies). This was confirmed by the in-situ surface water monitoring.

The inspection of Barrambin (York's Hollow) identified no discolouration that may have been associated with the project works. This was confirmed by the in-situ surface water monitoring.

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

### 3.3.1 Rainfall Records

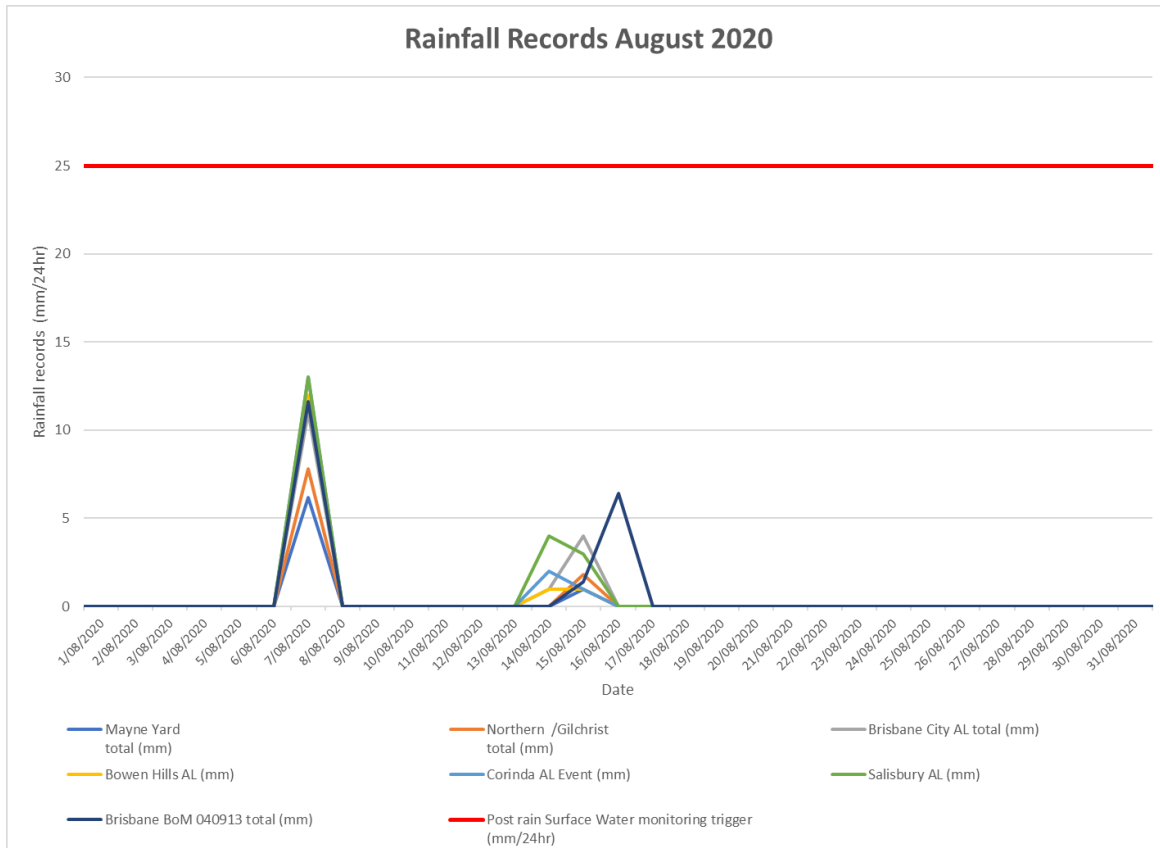


Figure 9: Rainfall – August 2020 Results

### 3.3.2 Discharge Monitoring / Post Rainfall Monitoring

Post Rainfall monitoring was undertaken in response to the 7<sup>th</sup> of August Rainfall event at Breakfast Creek and Barrambin only consistent with the C-EMP. There were no active worksites within the catchment of the other waterways. The results are presented in the following sections.

### 3.3.3 C-EMP Monitoring

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

### 3.3.4 Monitoring Results

#### 3.3.4.1 Breakfast Creek

The below table summarises the in-situ records collected during one (1) round of routine surface water monitoring and one (1) round of post rainfall event monitoring at Breakfast Creek, the relevant surface water receiver for Mayne Yard.

Results in blue exceed / do not meet the Water Quality Objectives nominated in the relevant Environmental Protection Policy (Water and Wetland Biodiversity) 2019 documentation (EPP Water).

Results in red exceed / do not meet the Project Discharge Criteria for Compliance with Imposed Conditions 15 and 18.

Table 5: Breakfast Creek

Date	Location	Tide	Sampling Purpose	Turbidity (NTU)	TSS (mg/L)	DO (%)	pH (pH Unit)
WQO (EPP Water)				8	20	85-105% saturation	7.0-8.4
Discharge Criteria				Nil until Turbidity / TSS correlation achieve	50	Nil	Stable pH reading; and General sites: 6.5 – 8.5, or Wallum/Acidic Ecosystems: 5.0 – 7.0
6/08/2020	SW 1 – Upstream of Mayne Yard	Falling Brackish to Marine conditions	Monthly Dis-1 Monitoring	In field: 8.7 Lab: 11.7	26	72	7.1
6/08/2020	SW 2 – Adjacent to Mayne Yard	Falling Brackish to Marine conditions	Monthly Dis-1 Monitoring	In field: 13.0 Lab: 16.2	34	94	7.7
6/08/2020	SW 3 – Downstream of Mayne Yard	Falling Brackish to Marine conditions	Monthly Dis-1 Monitoring	In field: 9.2 Lab: 13.5	21	96	7.8
8/08/2020	SW 1 – Upstream of Mayne Yard	Rising Brackish to marine conditions	Discharge / post rainfall Monitoring	In field: 6.6 Lab: 8.6	<5	80	7.0
8/08/2020	SW 2 – Adjacent to Mayne Yard	Rising Brackish to marine conditions	Discharge / post rainfall Monitoring	In Field: 4.7 Lab: 7.0	<5	78	7.2
8/08/2020	SW 3 – Downstream of Mayne Yard	Rising Brackish to marine conditions	Discharge / post rainfall Monitoring	In field: 5.89 Lab: 9.0	<5	85	7.3

### 3.3.4.2 Barrambin (York's Hollow)

The below table summarises the in-situ records collected during one (1) round of surface water monitoring and one (1) round of post rainfall event monitoring at Barrambin (York's Hollow), the surface water receiver for the Northern Corridor.

Results in blue exceed / do not meet the Water Quality Objectives nominated in the relevant Environmental Protection Policy (Water and Wetland Biodiversity) 2019 documentation (EPP Water).

Results in red exceed / do not meet the Project Discharge Criteria for Compliance with Imposed Conditions 15 and 18.

Table 6: Barrambin (York's Hollow)

Date	Location	Sampling Purpose	Turbidity (NTU)	TSS (mg/L)	DO (%)	pH (pH Unit)
WQO (EPP Water)			50	6	85-110% saturation	6.5-8.0
Discharge Criteria			Nil until Turbidity / TSS correlation achieve	50	Nil	Stable pH reading; and General sites: 6.5 – 8.5, or Wallum/Acidic Ecosystems: 5.0 – 7.0
6/08/2020	SW 4 – Downstream of Northern Corridor	Monthly Dis-1 Monitoring	In field: 7.3 Lab: 11.3	16	60	7.0
8/08/2020	SW 4 – Downstream of Northern Corridor	Discharge / post rainfall Monitoring	In field: 24 Lab: 21.5	6	76	7.3



### 3.3.4.3 Moolabin Creek, Rocky Water Holes Creek and Stable Swamp Creek

The below tables summarise the in-situ records collected during one (1) round of routine surface water monitoring at Moolabin Creek, Rocky Water Holes Creek and Stable Swamp Creek, the relevant surface water receivers for the Southern Corridor (F2S).

Results in blue exceed / do not meet the Water Quality Objectives nominated in the relevant Environmental Protection Policy (Water and Wetland Biodiversity) 2019 documentation (EPP Water).

Results in red exceed / do not meet the Project Discharge Criteria for Compliance with Imposed Conditions 15 and 18.

Table 7: Moolabin Creek

Date	Location	Sampling Purpose	Turbidity (NTU)	TSS (mg/L)	DO (%)	pH (pH Unit)
WQO (EPP Water)			50	6	85-110% saturation	6.5-8.0
Discharge Criteria			Nil until Turbidity / TSS correlation achieve	50	Nil	Stable pH reading; and General sites: 6.5 – 8.5, or Wallum/Acidic Ecosystems: 5.0 – 7.0
06/08/20	SW 5 – Upstream rail corridor	Monthly Dis-1 Monitoring	Field: 2.3 Lab: 9.9	11	82	7.4
06/08/20	SW 6 – Downstream rail corridor	Monthly Dis-1 Monitoring	Field: 0.1 Lab: 5.6	12	96	7.4

Table 8: Rocky Water Holes Creek

Date	Location	Sampling Purpose	Turbidity (NTU)	TSS (mg/L)	DO (%)	pH (pH Unit)
WQO (EPP Water)			50	6	85-110% saturation	6.5-8.0
Discharge Criteria			Nil until Turbidity / TSS correlation achieve	50	Nil	Stable pH reading; and General sites: 6.5 – 8.5, or Wallum/Acidic Ecosystems: 5.0 – 7.0
6/08/2020	SW 7 – Upstream Rail corridor	Monthly Dis-1 Monitoring	Field: 0.6 Lab: 6.2	12	82	7.1
6/08/2020	SW 8 – Downstream Rail corridor	Monthly Dis-1 Monitoring	Field: 0.4 Lab: 5.8	12	75	7.3

Table 9: Stable Swamp Creek

Date	Location	Sampling Purpose	Turbidity (NTU)	TSS (mg/L)	DO (%)	pH (pH Unit)
WQO (EPP Water)			50	6	85-110% saturation	6.5-8.0
Discharge Criteria			Nil until Turbidity / TSS correlation achieve	50	Nil	Stable pH reading; and General sites: 6.5 – 8.5, or Wallum/Acidic Ecosystems: 5.0 – 7.0
6/08/2020	SW 9 – Downstream Rail corridor	Monthly Dis-1 Monitoring	Field: 0.2 Lab: 3.5	11	75	7.5

### 3.3.5 Interpretation

Review of the Mayne Yard and Barrambin (York's Hollow) post rainfall inspection and monitoring confirmed the following

- The rainfall event did not exceed the design standard for the sediment controls (0.5 x the 1 in 1 year critical storm or 4 EY) therefore the Project discharge criteria (as per MRTS51 and MRTS52) which are nominated in the ESC-P developed in accordance with Imposed Condition 18.
- The erosion and sediment controls within the Project Boundary were either installed in accordance with the ESC-P requirements and interim and compensatory measures were in place where the work areas were being actively worked.
- None of the drainage controls or sediment controls (Type 2 and Type 3) were damaged by the rainfall
- There was no evidence of non-compliant discharges offsite during and post rainfall

Therefore, it has been concluded that the RIS scope of works is achieving the outcomes set out by the CGCR and OEMP.

## 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 is defined as Project Works that do not comply with the Imposed Conditions.

#### 4.1.1 Non - Compliance Events Summary

Table 10: 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 C-EMP Compliance

The below table summarise compliance status with the C-EMP and relevant Subplans monitoring requirements for the reporting period.

Table 11: C-EMP and relevant Subplans monitoring requirements – Compliance Status for the reporting period

Aspect	Monitoring requirement	Activities Risk profile	Monitoring undertaken	Compliance status with C-EMP / CEMP Subplan	Effect of the non-compliance
Air Quality	Visual monitoring program + Additional particulate monitoring as required based on the outcomes of the predictive assessment / risk profile	Moderate to High	Yes – visual monitoring undertaken as part of routine inspections Monitoring for TSP, PM10 and Deposited Dust also undertaken	Compliant	Not Applicable
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	-	Not required	Compliant	Not Applicable
Noise	Complaints response	-	Not triggered – no complaints	Compliant	Not Applicable
Vibration	Construction Monitoring at Sensitive Places / DAPs - Model Verification based on the outcomes of the predictive assessment based / risk profile of activities	Low	Not required	Compliant	Not Applicable
Vibration	Complaints response	-	Not triggered – no complaints	Compliant	Not Applicable
Water Quality	Monthly monitoring	-	Yes	Compliant	Not Applicable
Water Quality	Post Rainfall	Moderate to High	Yes	Compliant	Not Applicable
Water Quality	Dewatering	-	Not triggered – no dewatering to receiving water systems	Compliant	Not Applicable

## 5 Good News Stories

- No Non-Compliance events occurred during the reporting period. This is the ninth month in a row.

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

None for this reporting period.

## Attachment 2    Monitoring Locations – Noise





LEGEND

- Project Boundary RFPC7
- Brisbane Imagery (25/06/2020)
- Buffer Distance Test
- Construction Monitoring at Sensitive Places

Scale 1: 5,000

0 127.0 254

Meters

**FOR INFORMATION ONLY**

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Status	GIS OUTPUT <b>NOT USED FOR CONSTRUCTION</b>			
Original Size	A3	Drawn		
Coordinate System	MGA 56	Approved		
Height Datum	AHD	Date Printed	11-Sep-2020	

Assured Integration for a New Era

Cross River Rail - RIS Alliance

**Noise Monitoring Locations**

August 2020



## Attachment 3 Monitoring Locations – Vibration

No vibration monitoring undertaken during this reporting period.

## Attachment 4    Monitoring Locations – Air Quality





- Legend
- Project Boundary RFPC7
  - Brisbane Imagery (25/06/2020)
- Air Quality Monitoring
- DDG
  - DDG, TSP & PM10
  - TSP & PM10

A

FOR INFORMATION

Issue	Description	Date	Approved
	August 2020		

Scale 1: 20,000

1,016

0

508.0

1,016Meters

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Coordinate System	MGA94-56	Designed	
Height Datum	AHD	Date Printed	11-Sep-2020

Assured Integration  
for a New Era

Cross River Rail - RIS Alliance

Air Quality Monitoring locations

August 2020

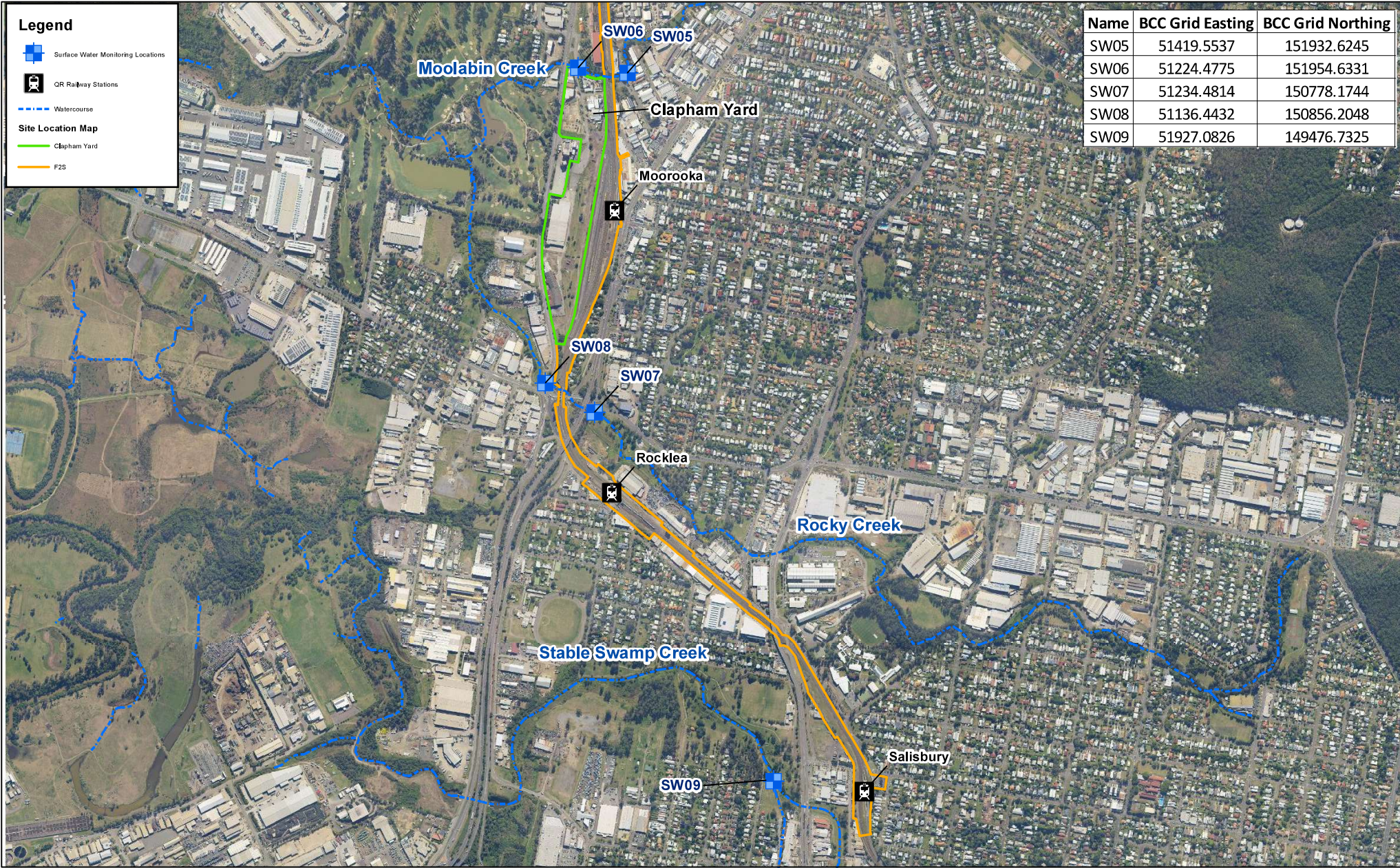


## Attachment 5    Monitoring Locations – Surface Water









Name	BCC Grid Easting	BCC Grid Northing
SW05	51419.5537	151932.6245
SW06	51224.4775	151954.6331
SW07	51234.4814	150778.1744
SW08	51136.4432	150856.2048
SW09	51927.0826	149476.7325

1	Southern Overview Map	17/09/2019	J Perry
Rev	Description	Date	Approved

0 100 200 400 600 m  
Scale 1 : 12,000 cm



Status	Issued for Information		
Original Size	A3	Drawn	GIS
Coordinate System	GDA 1994 BCSG02	Designed	J Clothier
Height Datum	AHD	Date Printed	2/13/2020
Filename:	Surface_Water_Southern_Area_Map.mxd		



Project Wide Surface Water Investigation				
Figure 2 - Surface Water Monitoring Locations				
Project Number	Discipline	Document	Document Number	Rev
	ENV	PL	002	1



## Appendix B – TSD Monthly Report

## COORDINATOR GENERAL MONTHLY REPORT: August 2020

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

### 1. Monthly Monitoring Summary

It is the project'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 thirteen (13) occasions, and noise monitoring was conducted on thirty-seven (37) occasions during August 2020. Each vibration and noise monitoring event confirmed works adhered to project requirements.

Ambient air quality monitoring was conducted at the Roma Street, Albert St, Woolloongabba and Boggo Rd precinct sites during August 2020. Air quality monitoring confirmed works adhered to project requirements.

Water quality monitoring was conducted before the release of water from the site on seventeen (17) occasions. Each monitoring event confirmed project requirements were adhered to. One (1) round of surface water quality monitoring was also conducted that 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	Project works have been conducted compliant 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	Construction Environmental Plan (CEMP) (Rev 6) was endorsed by the Environmental Monitor in August 2020 and continues to manage Relevant project Work.
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 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	Project works have been conducted in accordance with the approved hours of work.
11.	<b>Noise</b> – Work must aim to achieve internal noise goals for human health and well-being.	Yes	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	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	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	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	The project possesses processes that 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	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 Project 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	The project possesses processes that 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	The project possesses processes that ensure erosion & sediment control is managed in accordance with Imposed Condition 19.
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	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	Project works are designed and implemented in accordance with Condition 21.
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## 1. 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 – Whole of Project Refinements 2019 acknowledges instances exist that these goals may not be achieved.

Thirteen (13) vibration monitoring sessions were conducted during August 2020.

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

Table 2: Vibration Monitoring Data

Start Date	Time (AM/PM)	Finish Date	Location (Street Name) (Construction Precinct)	Average Vibration level (mm/s)	Max Vibration Level (mm/s)	Vibration Goal (mm/s)	Receiver / Goal Type	Adhered to Project Requirements (Yes / No)
5/08/2020	13:23	11/08/2020	Roma Street (Roma Street Precinct)	0.09	0.26	25	Structure	Yes
5/08/2020	7:30	5/08/2020	Albert Street (Albert Street Precinct)	NA	9.41	50	Controlled Blast	Yes
6/08/2020	15:02	15/08/2020	Joe Baker Street (Boggo Road Precinct)	0.08	0.09	50	Commercial	Yes
12/08/2020	7:03	18/08/2020	Roma Street (Roma Street Precinct)	0.09	0.29	25	Structure	Yes
12/08/2020	7:29	12/08/2020	Albert Street (Albert Street Precinct)	NA	0.11	50	Controlled Blast	Yes
15/08/2020	8:32	15/08/2020	Albert Street (Albert Street Precinct)	NA	14.62	50	Controlled Blast	Yes

20/08/2020	07:58	25/08/2020	Roma Street (Roma Street Precinct)	0.09	0.26	2	Heritage Structure	Yes
20/08/2020	15:00	20/08/2020	On-site (Woolloongabba Precinct)	NA	2.53	50	Controlled Blast	Yes
21/08/2020	10:17	21/08/2020	Albert Street (Albert Street Precinct)	NA	0.14	25	Residential	Yes
21/08/2020	10:17	25/08/2020	Albert Street (Albert Street Precinct)	0.2	3.99	25	Residential	Yes
25/08/2020	7:13	1/09/2020	Vulture Street (Woolloongabba Precinct)	0.10	0.13	5	Heritage Structure	Yes
27/08/2020	8:46	27/08/2020	Roma Street (Roma Street Precinct)	0.50	2.14	25	Court	Yes
28/08/2020	8:30	31/08/2020	Roma Street (Roma Street Precinct)	0.09	0.15	25	Court	Yes

## 3.2 Noise

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

The Coordinator-General Change Report – Whole of Project Refinements 2019 acknowledges instances exist that these goals may not be achieved.

Noise monitoring was conducted on thirty-seven (37) occasions during August 2020.

All noise monitoring data adhered to project requirements and is provided in the table below.

*Table 3: Noise Monitoring Data*

Date	Time (AM / PM)	Location (Street Name) (Construction Precinct)	Purpose of Monitoring	Internal or External <sup>[3]</sup> Monitoring	Activity	Dominate noise source	Noise Goal LA10 <sup>[1]</sup>	Noise level LA10 <sup>[1]</sup>	Noise Goal LAeq <sup>[2]</sup>	Noise level LAeq <sup>[2]</sup>	Adhered to Project Requirements (Yes / No)
3/08/2020	3:41:00 PM	Roma Street (Roma Street Precinct)	Construction Monitoring at Sensitive Places	Internal	Stage 3 Demolition and Tunnel Construction	Concourse - General Public / Station Noise	60	66.8	50	64.1	Yes
3/08/2020	4:12:00 PM	Roma Street (Roma Street Precinct)	Construction Monitoring at Sensitive Places	External	Stage 3 Demolition and Tunnel Construction	Construction	72	77.3	62	73	Yes
4/08/2020	2:45:00 PM	Roma Street (Roma Street Precinct)	Construction Monitoring at Sensitive Places	Internal	Stage 3 Demolition and Tunnel Construction	Concourse - General Public / Station Noise	60	69.8	50	66.5	Yes
4/08/2020	1:02:00 AM	Reid Street (Woolloongabba Precinct)	Construction Monitoring at Sensitive Places	External	Stage 2 Station Excavation, Tunnelling Excavation North, Spoil Shed Construction	Construction	49	56.7	42	55.4	Yes
4/08/2020	1:27:00 AM	Vulture Street (Woolloongabba Precinct)	Construction Monitoring at Sensitive Places	External	Stage 2 Station Excavation, Tunnelling Excavation North, Spoil Shed Construction	Road traffic	54	58.5	47	56.6	Yes

5/08/2020	7:30:00 AM	Mary Street (Albert Street Precinct)	Controlled blasting	External	Construction Stage 3	NA	130 <sup>[4]</sup>	132.5	NA	NA	Yes
6/08/2020	1:09:00 AM	Reid Street (Woolloongabba Precinct)	Construction Monitoring at Sensitive Places	External	Stage 2 Station Excavation, Tunnelling Excavation North, Spoil Shed Construction	Construction	49	52.5	42	52.1	Yes
6/08/2020	1:31:00 AM	Vulture Street (Woolloongabba Precinct)	Construction Monitoring at Sensitive Places	External	Stage 2 Station Excavation, Tunnelling Excavation North, Spoil Shed Construction	Road traffic	54	61	47	60.5	Yes
10/08/2020	1:49:00 PM	Roma Street (Roma Street precinct)	Construction Monitoring at Sensitive Places	Internal	Stage 3 Demolition and Tunnel Construction	Concourse - General Public / Station Noise	60	65.2	50	63.1	Yes
10/08/2020	2:06:00 PM	Roma Street (Roma Street precinct)	Construction Monitoring at Sensitive Places	External	Stage 3 Demolition and Tunnel Construction	Construction	72	75	62	71.1	Yes
10/08/2020	2:29:00 PM	Roma Street (Roma Street precinct)	Construction Monitoring at Sensitive Places	External	Stage 3 Demolition and Tunnel Construction	Road traffic	67	71.5	57	68.4	Yes
11/08/2020	11:47:00 AM	Roma Street (Roma Street precinct)	Construction Monitoring at Sensitive Places	Internal	Stage 3 Demolition and Tunnel Construction	Concourse - General Public / Station Noise	60	66.8	50	64.4	Yes
11/08/2020	12:04:00 PM	Roma Street (Roma Street precinct)	Construction Monitoring at Sensitive Places	External	Stage 3 Demolition and Tunnel Construction	Construction	72	76.1	62	72.6	Yes
12/08/2020	7:29:00 AM	Mary Street (Albert Street Precinct)	Controlled blasting	External	Construction Stage 3	NA	130 <sup>[4]</sup>	126.7	NA	NA	Yes
12/08/2020	9:28:00 PM	Reid Street (Woolloongabba Precinct)	Construction Monitoring at Sensitive Places	External	Stage 2 Station Excavation, Tunnelling Excavation North, Spoil Shed Construction	Non-project related construction works	57	56.7	47	57.7	Yes

15/08/2020	8:32:00 AM	Albert St (Albert Street Precinct)	Controlled blasting	External	Construction Stage 3	NA	130 <sup>[4]</sup>	118.6	NA	NA	Yes
17/08/2020	11:27:00 AM	Roma Street (Roma Street Precinct)	Construction Monitoring at Sensitive Places	Internal	Stage 3 Demolition and Tunnel Construction	Concourse - General Public / Station Noise and Construction	60	72.8	50	69	Yes
17/08/2020	11:45:00 AM	Roma Street (Roma Street Precinct)	Construction Monitoring at Sensitive Places	External	Stage 3 Demolition and Tunnel Construction	Construction	72	76.5	62	74	Yes
17/08/2020	12:05:00 PM	George Street (Roma Street Precinct)	Construction Monitoring at Sensitive Places	External	Stage 3 Demolition and Tunnel Construction	Construction	72	77.4	62	74.4	Yes
18/08/2020	10:41:00 AM	Roma Street (Roma Street Precinct)	Construction Monitoring at Sensitive Places	Internal	Stage 3 Demolition and Tunnel Construction	Concourse - General Public / Station Noise	60	70.6	50	67.6	Yes
18/08/2020	11:05:00 AM	Roma Street (Roma Street Precinct)	Construction Monitoring at Sensitive Places	External	Stage 3 Demolition and Tunnel Construction	Construction	72	77.4	62	73.2	Yes
18/08/2020	11:42:00 AM	Roma Street (Roma Street Precinct)	Construction Monitoring at Sensitive Places	External	Stage 3 Demolition and Tunnel Construction	Road Traffic & Construction	67	74.4	57	72.8	Yes
19/08/2020	6:45:00 PM	Peter Doherty Street (Boggo Road Precinct)	Model Verification	External	Station box Excavation	Road traffic and Trains	59	59.5	52	58.2	Yes
20/08/2020	1:10:00 AM	Vulture Street (Woolloongabba Precinct)	Construction Monitoring at Sensitive Places	External	Stage 2 Station Excavation, Tunnelling Excavation North, Spoil Shed Construction	Road traffic	54	63.9	47	60.9	Yes
20/08/2020	3:00:00 PM	On-site (Woolloongabba Precinct)	Controlled blasting	Internal	Construction Stage 2	N/A	130 <sup>[4]</sup>	<80 <sup>[5]</sup>	NA	NA	Yes

24/08/2020	12:05:00 PM	George Street (Roma Street precinct)	Construction Monitoring at Sensitive Places	Internal	Stage 3 Demolition and Tunnel Construction	Concourse - General Public / Station Noise and Construction	60	70.6	50	68.2	Yes
24/08/2020	12:23:00 PM	George Street (Roma Street precinct)	Construction Monitoring at Sensitive Places	External	Stage 3 Demolition and Tunnel Construction	Construction	72	71.1	62	68.8	Yes
25/08/2020	8:52:00 AM	Wickham Terrace (Roma Street precinct)	Complaint response	External	Stage 3 Demolition and Tunnel Construction	Construction	67	64	57	61.5	Yes
25/08/2020	9:16:00 AM	Wickham Terrace (Roma Street precinct)	Complaint response	External	Stage 3 Demolition and Tunnel Construction	Construction	67	67.2	57	64.5	Yes
25/08/2020	12:40:00 PM	Roma Street (Roma Street precinct)	Construction Monitoring at Sensitive Places	External	Stage 3 Demolition and Tunnel Construction	Construction	72	73.3	62	69.3	Yes
25/08/2020	12:57:00 PM	Roma Street (Roma Street precinct)	Construction Monitoring at Sensitive Places	Internal	Stage 3 Demolition and Tunnel Construction	Concourse - General Public / Station Noise and Construction	60	73.3	50	69.3	Yes
25/08/2020	10:06:00 AM	Mary Street (Albert Street)	Construction Monitoring at Sensitive Places	External	Construction stage 3	Road traffic and Construction	72	69.3	62	67.2	Yes
25/08/2020	10:29:00 AM	Albert Street (Albert Street)	Construction Monitoring at Sensitive Places	External	Construction stage 3	Road traffic	72	70.1	62	67.8	Yes
27/08/2020	3:49:00 PM	Albert Street (Albert Street)	Construction Monitoring at Sensitive Places	External	Construction stage 3	Construction and traffic	72	68.7	62	68.1	Yes
27/08/2020	4:05:00 PM	Albert Street (Albert Street)	Construction Monitoring at Sensitive Places	External	Construction stage 3	Road traffic and Construction	72	70.5	62	68.8	Yes

31/08/2020	8:09:00 AM	Roma Street (Roma Street precinct)	Construction Monitoring at Sensitive Places	Internal	Stage 3 Demolition and Tunnel Construction	Concourse - General Public / Station Noise with Construction at times	60	71.2	50	68.3	Yes
31/08/2020	8:26:00 AM	Roma Street (Roma Street precinct)	Construction Monitoring at Sensitive Places	External	Stage 3 Demolition and Tunnel Construction	Construction	72	79.9	62	76.7	Yes

- [1] Intermittent noise goal (LA10)
- [2] Continuous noise goal (LAeq)
- [3] In accordance with Imposed Condition 11 where internal noise levels were unable to be measured, external noise goals were developed by an acoustic specialist using the following standards: ISO 140-5:1998 Acoustics – Measurement of Sound Insulation in Buildings and of Building Elements, Part 5: Field measurements of airborne sound insulation of façade elements and facades and ISO 354:1985 Acoustics – Measurement of sound absorption in a reverberation room.
- [4] Blasting is measured in dB Linear Peak.
- [5] Overpressure monitor was set to record results >80dB. Overpressure did not occur over the trigger level.



### 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 – Whole of Project Refinements 2019 acknowledges instances exist that these goals may not be achieved.

Dust deposition monitoring was performed during August 2020.

The dust deposition gauges result for the reporting period are detailed below, and all monitoring data adhered to project requirements.

*Table 4: Air Quality Monitoring – Deposited Dust Data*

Location	Project Wide Air Quality Criteria & Goals <sup>[1]</sup>			Monitoring results	Comments
	Criterion	Air Quality Indicator	Goal		
Roma Street Precinct/ Northern Portal	Nuisance	Deposited dust	120 mg/m <sup>2</sup> /day	100.0 mg/m <sup>2</sup> /day	Air quality monitoring was performed during the reporting period. All results adhered to project requirements.
Albert Street Precinct				13.3 mg/m <sup>2</sup> /day	
Woolloongabba Precinct				13.3 mg/m <sup>2</sup> /day 20.0 mg/m <sup>2</sup> /day	
Boggo Road Precinct/ Southern Portal				10.0 mg/m <sup>2</sup> /day <sup>[2]</sup> 20.0 mg/m <sup>2</sup> /day	

- <sup>[1]</sup> 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.
- <sup>[2]</sup> During the monitoring period, the Boggo Road dust deposition gauge was tampered with by an unknown person. As such, CBGU considers this sample invalid.

### 3.3.2 Particulates and Ambient Air Quality Results

Total Suspended Particules (TSP) and particulate matter less than 10µm (PM10) monitoring was conducted during August 2020.

TSP and PM10 are monitored using portable air quality units, as well as nearby Government air quality stations. Targeted monitoring of potential dust-generating activities is conducted by the mobile air quality units and was completed at the Roma Street, Albert Street, Woolloongabba, and Boggo Road Precincts during August 2020. Three (3) Government air quality stations near to the Construction Precincts are also utilised.

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

Woolloongabba					Roma Street				Boggo Road				Albert Street			
Date	TSP GOAL	TSP	PM10 GOAL	PM10	TSP GOAL	TSP	PM10 GOAL	PM10	TSP GOAL	TSP	PM10 GOAL	PM10	TSP GOAL	TSP	PM10 GOAL	PM10
	(µg/m3/24 hr)				(µg/m3/24 hr)				(µg/m3/24 hr)				(µg/m3/24 hr)			
1-August-20	80	6.39	50	6.33	80	11.67	50	11.29	80	-	50	-	80	7.10	50	7.07
2-August-20	80	14.97	50	14.94	80	13.78	50	13.68	80	-	50	-	80	9.33	50	9.32
3-August-20	80	10.56	50	10.49	80	11.34	50	11.15	80	-	50	-	80	5.71	50	5.67
4-August-20	80	12.94	50	12.88	80	12.51	50	12.35	80	-	50	-	80	120.73 <sup>[1]</sup>	50	120.33 <sup>[1]</sup>
5-August-20	80	37.81	50	37.71	80	60.32	50	60.08 <sup>[1]</sup>	80	43.87	50	43.81	80	32.19	50	32.16
6-August-20	80	34.32	50	34.20	80	48.33	50	48.06	80	36.77	50	36.64	80	.. <sup>[2]</sup>	50	.. <sup>[2]</sup>
7-August-20	80	8.69	50	8.66	80	9.84	50	9.75	80	7.66	50	7.61	80	-	50	-
8-August-20	80	7.41	50	7.37	80	10.03	50	9.89	80	5.34	50	5.3	80	-	50	-
9-August-20	80	2.02	50	1.99	80	2.22	50	2.14	80	1.47	50	1.45	80	-	50	-
10-August-20	80	4.95	50	4.86	80	3.74	50	3.54	80	1.84	50	1.8	80	-	50	-
11-August-20	80	5.59	50	5.56	80	8.97	50	8.69	80	4.8	50	4.77	80	-	50	-
12-August-20	80	9.93	50	9.89	80	13.44	50	13.21	80	7.95	50	7.93	80	-	50	-
13-August-20	80	13.55	50	13.51	80	15.1	50	14.85	80	12.4	50	12.38	80	-	50	-
14-August-20	80	19.08	50	19.04	80	25.57	50	25.49	80	18.13	50	18.11	80	-	50	-
15-August-20	80	6.53	50	6.47	80	7.22	50	7.19	80	5.42	50	5.39	80	-	50	-
16-August-20	80	2.09	50	2.07	80	2.07	50	2	80	1.26	50	1.24	80	-	50	-
17-August-20	80	4.30	50	4.19	80	2.49	50	2.36	80	1.2	50	1.16	80	-	50	-
18-August-20	80	5.00	50	4.94	80	5.81	50	5.63	80	3.63	50	3.59	80	-	50	-
19-August-20	80	13.46	50	13.11	80	8.93	50	8.71	80	6.45	50	6.35	80	-	50	-

20-August-20	80	23.86	50	23.45	80	19.5	50	19.1	80	11.58	50	11.45	80	-	50	-
21-August-20	80	12.94	50	12.71	80	13.71	50	13.53	80	9.9	50	9.85	80	-	50	-
22-August-20	80	18.68	50	18.18	80	18.69	50	18.09	80	11.39	50	11.19	80	-	50	-
23-August-20	80	3.59	50	3.44	80	2.63	50	2.49	80	1.61	50	1.58	80	-	50	-
24-August-20	80	5.42	50	5.23	80	6.39	50	6.12	80	4.39	50	4.34	80	-	50	-
25-August-20	80	9.20	50	9.02	80	13.18	50	12.91	80	11.76	50	11.63	80	-	50	-
26-August-20	80	7.31	50	7.17	80	11.03	50	10.77	80	9.84	50	9.81	80	-	50	-
27-August-20	80	8.88	50	8.83	80	13.03	50	12.9	80	13.38	50	13.37	80	-	50	-
28-August-20	80	10.40	50	10.31	80	13.63	50	13.46	80	13.11	50	13.07	80	-	50	-
29-August-20	80	9.17	50	9.08	80	12.01	50	11.91	80	11.04	50	11.01	80	-	50	-
30-August-20	80	8.35	50	8.26	80	12.6	50	12.59	80	12.05	50	12.02	80	-	50	-
31-August-20	80	7.33	50	7.23	80	10.22	50	10.17	80	10.45	50	10.41	80	-	50	-

- [1] The Greater Brisbane Area experienced poor regional air quality due to Brisbane City Council Hazard Reduction Burns (Karawatha Forest and Chermiside). Poor regional air quality was recorded at Government (DES) Air Quality Stations throughout Brisbane during this time.
- [2] Due to a technical fault, the Albert Street mobile air quality unit stopped functioning on 5 August 2020. The fault has since been rectified. A nearby (Brisbane CBD) DES Air Quality Station demonstrated nil impact by the Project on air quality during August. The levels are also consistent with levels recorded early in the month when the unit was operating.

CBGU also utilises three (3) Government air quality monitoring stations to monitor PM<sub>10</sub> near to the project sites. The results during this reporting period were as follows:

- Brisbane CBD: PM<sub>10</sub> daily Maximum average: **85.3 µg/m<sup>3</sup>/24 hr** (<https://apps.des.qld.gov.au/air-quality/chart/?station=cbd&parameter=18&date=1/08/2020&timeframe=month>)
- South Brisbane: PM<sub>10</sub> daily Maximum average: **93.3 µg/m<sup>3</sup>/24 hr** (<https://apps.des.qld.gov.au/air-quality/chart/?station=sbr&parameter=18&date=1/08/2020&timeframe=month>)
- Woolloongabba: PM<sub>10</sub> daily Maximum average: **87.6 µg/m<sup>3</sup>/24 hr** (<https://apps.des.qld.gov.au/air-quality/chart/?station=woo&parameter=18&date=1/08/2020&timeframe=month>)

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

During 4<sup>th</sup> to 6<sup>th</sup>, and 19<sup>th</sup> to the 24<sup>th</sup> of August 2020, South East Queensland experienced poor regional air quality. The regional ambient air quality levels were influenced by external events outside of CBGU's control (e.g. hazard reduction butrning, high wind, and dust storms). On 20<sup>th</sup> August 2020, the Department of Environment and Science issued an air quality alert stating that that South East Queensland and South West Queensland was experiencing elevated health action levels.

## Particle PM10 at Brisbane CBD, 1–31 August 2020

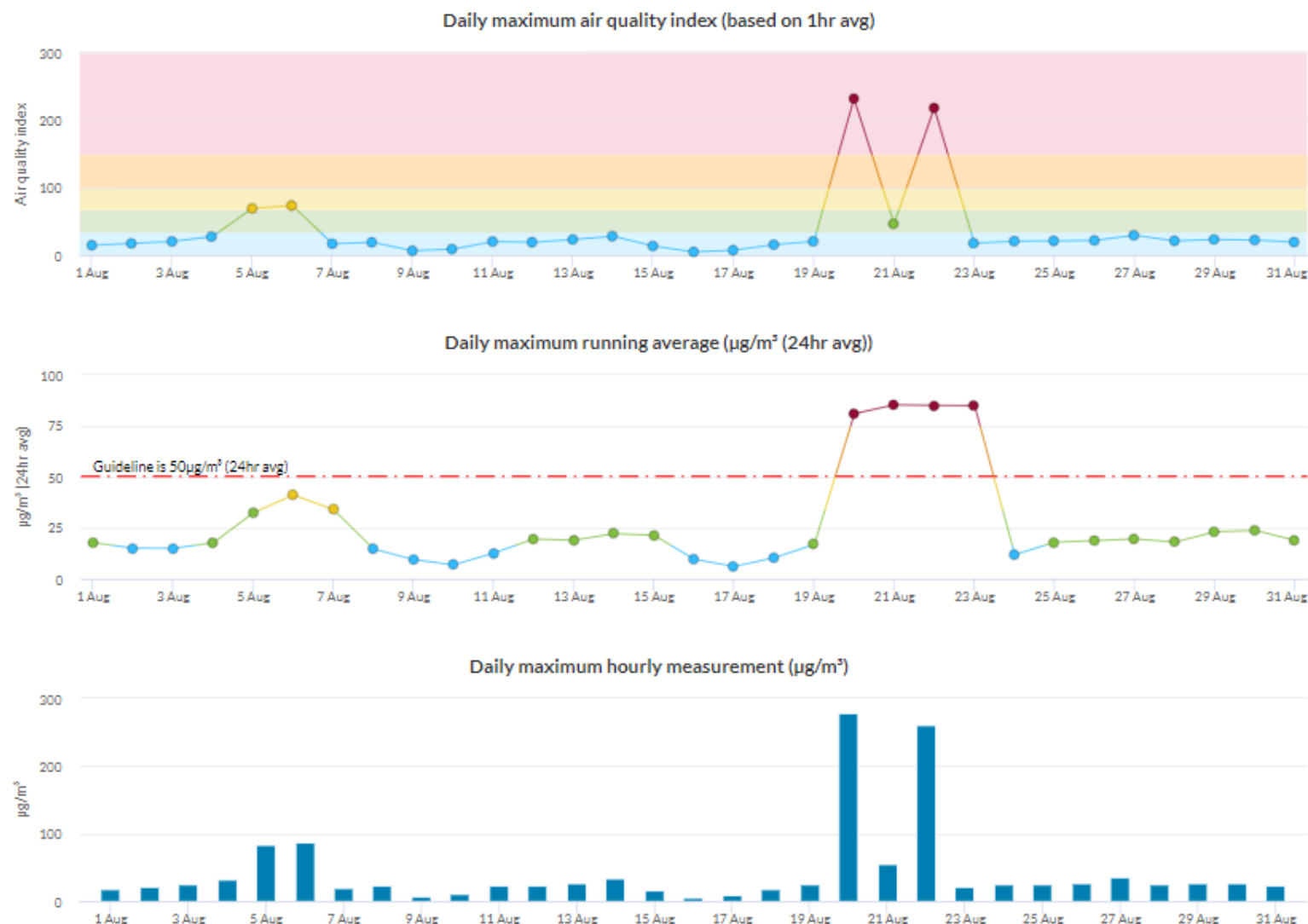


Figure 1: Brisbane CBD – DES Station - PM10 graph for August 2020 (reproduction from the DES website accessed September 2020)

## Particle PM10 at South Brisbane, 1–31 August 2020

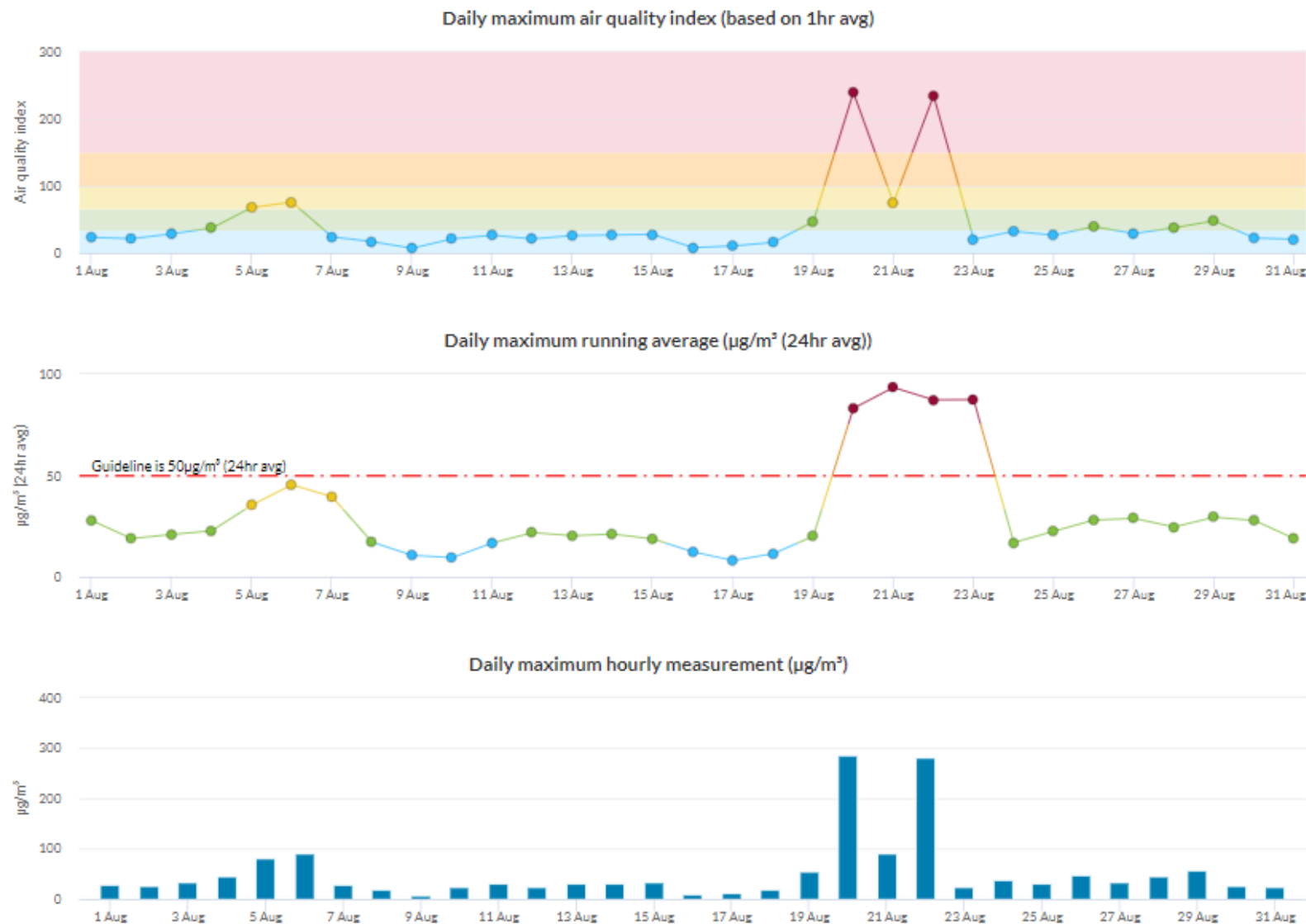


Figure 2: South Brisbane – DES Station - PM10 graph for August 2020 (reproduction from the DES website accessed September 2020)

## Particle PM10 at Woolloongabba, 1–31 August 2020

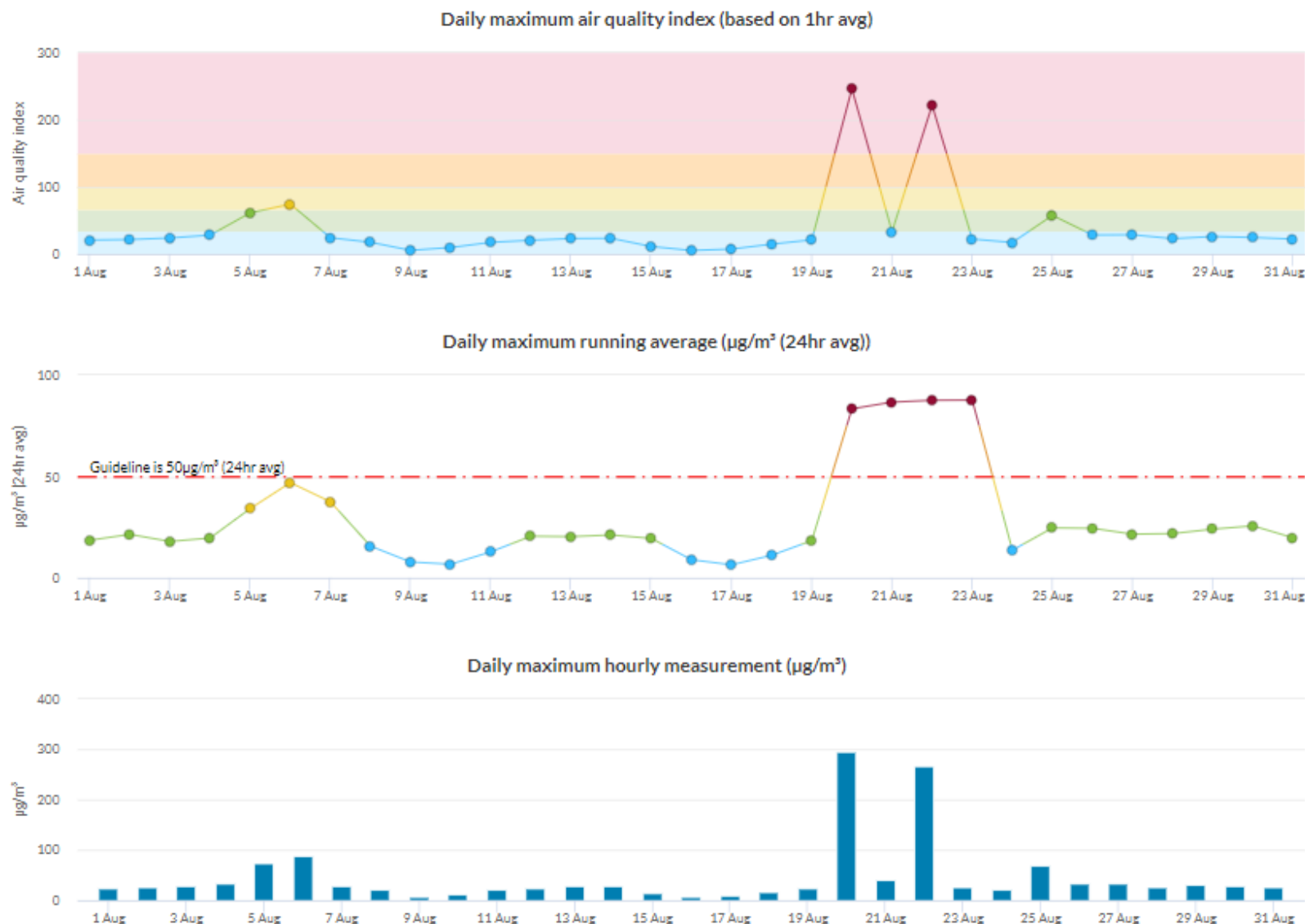


Figure 3: Woolloongabba – DES Station - PM10 graph for August 2020 (reproduction from the DES website accessed September 2020)

### 3.4 Water Quality – Discharge

CBGU undertook seventeen (17) water quality monitoring events prior to the release from site during August 2020.

Water quality monitoring data is provided in the table below.

Table 6: Water Quality Monitoring Data

Location	Date	Water Quality Objectives <sup>[6]</sup>											Adhered to Project Requirements (Yes / No)
		Turbidity (NTU)	Suspended solids (mg/L)	Chlorophyll a (µg/L)	Total nitrogen (µg/L)	Oxidised N (µg/L)	Ammonia N (µg/L)	Organic N (µg/L)	Total phosphorus (µg/L)	Filterable reactive phosphorus (FRP) (µg/L)	Dissolved oxygen (µg/L) <sup>[1]</sup>	pH(µg/L)	
Woolloongabba	30/07/2020 <sup>[2]</sup>	6.43	5.00	<1	1000.00	1430.00	220.00	500.00	10.00	<10	101.67	8.04	Yes
Roma Street	3/08/2020	0.10	<5	<1	7700.00	160.00	370.00	7100.00	10.00	<10	112.56	7.19	Yes
Roma Street	3/08/2020	0.10	<5	<1	7700.00	160.00	370.00	7100.00	10.00	<10	112.56	7.19	Yes
Roma Street	10/08/2020	0.50	<5	<1	5800.00	430.00	620.00	4800.00	20.00	<10	66.57	7.20	Yes
Albert Street	17/08/2020	0.76	13.00	<1	6500.00	1940.00	2680.00	1900.00	10.00	<10	99.94	7.54	Yes
Roma Street	18/08/2020	1.40	<5	<1	3000.00	50.00	550.00	2400.00	40.00	<10	44.78	7.44	Yes
Boggo Road	18/08/2020	6.11	6.00	<1	1100.00	530.00	160.00	400.00	10.00	<10	77.76	7.84	Yes
Albert Street	20/08/2020	0.31	10.00	<1	18800.00	980.00	5610.00	4300.00	30.00	<100	85.42	7.55	Yes
Roma Street	24/08/2020	0.30	<5	<1	6800.00	210.00	940.00	5700.00	30.00	<10	91.98	7.56	Yes
Albert Street	24/08/2020	1.22	<5	<1	31400.00	2520.00	10500.00	2600.00	<10	<10	96.79	7.48	Yes
Albert Street	26/08/2020	0.20	<5	<1	26100.00	1640.00	7940.00	4900.00	60.00	<10	96.28	7.44	Yes



Woolloongabba	5/08/2020	5.63	<5	<1	3900.00	1430.00	1420.00	1100.00	<10	<10	89.56	7.45	Yes
Woolloongabba	10/08/2020	7.89	8.00	<1	4300.00	1630.00	1480.00	1200.00	<10	<10	62.94	8.00	Yes
Woolloongabba	12/08/2020	6.45	<5	<1	2700.00	900.00	870.00	900.00	90.00	<10	50.83	8.10	Yes
Woolloongabba	21/08/2020	7.89	7.00	<1	2200.00	440.00	530.00	1300.00	20.00	<10	89.56	8.00	Yes
Woolloongabba	28/08/2020	At the time of preparation of this report, the laboratory results had not been received. The results will be presented in next month's report.											

- 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.
- [1] 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.
- [2] The result was unavailable at the time of reporting last month, so has been included within this month's report.

### 3.5 Water Quality – Surface Water

During August 2020, CBGU JV undertook one (1) round of surface water sampling at five (5) locations (upstream and downstream).

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

*Table 7: Offsite Upstream & Downstream Water Quality Data*

Location	Date	Purpose of Monitoring	Turbidity (NTU)	Suspended solids (mg/L)	EC (μS/cm)	Dissolved oxygen (%)	pH
Albert Street - Upstream	13/08/2020	Monthly	6.94	<5	>3999	96.0	7.78
Albert Street - Downstream	13/08/2020	Monthly	7.30	<5	>3999	95.2	7.73
Boggo Road <sup>[1]</sup>	13/08/2020	Monthly	12.69	6	>3999	53.2	6.95
Gabba - Upstream	13/08/2020	Monthly	13.23	<5	>3999	100.4	7.86
Gabba - Downstream	13/08/2020	Monthly	11.58	<5	>3999	99.2	7.79
Roma Street - Upstream	13/08/2020	Monthly	2.94	6	>3999	105.0	7.92
Roma Street - Downstream	13/08/2020	Monthly	2.33	<5	>3999	111.3	7.91

- [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 8: Non-Compliance Events*

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

## 5 Complaints

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

During August 2020, seven (13) complaints relating to the project were received as detailed in Table 9 below.

*Table 9: Summary of Complaints*

No.	Date	Location	Description of Issue	Responses	Status of Event
1.	3/08/2020	Roma Street (Roma Street precinct)	Noise	<p>A stakeholder called the project hotline regarding noise from the Roma Street precinct during standard construction hours.</p> <p>CBGU provided the stakeholder with an overview of the works occurring and their duration at the Roma Street site. The Project also outlined the mitigation measures used to alleviate potential impacts and ensure compliance.</p> <p>The Project also reviewed the circumstances and monitoring confirmed works adhered to project noise requirements.</p>	Closed

2.	03/08/20	Roma Street (Roma Street precinct)	Dust	<p>A stakeholder called the project hotline to report dust. Dust was investigated and appears uncharacteristic to that potentially generated onsite.</p> <p>The project reviewed the circumstances and advised the stakeholder that monitoring confirmed works adhered to project air quality requirements.</p>	Closed
3.	11/08/2020	Albert Street (Albert Street precinct)	Noise	<p>A stakeholder called the project hotline regarding noise from Albert Street precinct.</p> <p>CBGU provided the stakeholder with an overview of the works occurring and their duration at the Albert Street site. The Project also outlined the mitigation measures used to alleviate potential impacts and ensure compliance.</p> <p>The Project also reviewed the circumstances and monitoring confirmed works adhered to project noise requirements.</p>	Closed
4.	17/08/2020	Roma Street (Roma Street precinct)	Property Condition	<p>A stakeholder contacted the project regarding property condition.</p>	Closed
5.	17/08/2020	No Street Address (Woolloongabba precinct)	Dust	<p>A stakeholder contacted the project regarding dust at the Woolloongabba precinct.</p> <p>CBGU provided the stakeholder with an overview of the works, outlined the mitigation measures used to alleviate dust and ensure compliance.</p> <p>The Project also reviewed the circumstances and monitoring confirmed works adhered to project air quality requirements.</p>	Closed
6.	19/08/2020	Boggo Road (Boggo Road precinct)	Dust	<p>A stakeholder contacted the project regarding dust at the Boggo Road precinct.</p> <p>CBGU provided the stakeholder with an overview of the works, outlined the mitigation measures used to alleviate dust and ensure compliance.</p> <p>The Project also reviewed the circumstances and monitoring confirmed works adhered to project air quality requirements.</p> <p>Note: heightened air quality levels were recorded by Government air quality stations at this time resulting from external influences (hazard reduction burning). On 20 August 2020, the Department of Environment and Science issued an air quality alert stating that that South East Queensland and South West Queensland was experiencing elevated health action levels.</p>	Closed

7.	20/08/2020	Peter Doherty Street (Boggo Road precinct)	Noise	<p>A stakeholder called the project hotline regarding noise from the Boggo Road precinct.</p> <p>CBGU provided the stakeholder with an overview of the works occurring and their duration at the Boggo Road site. The Project also outlined the mitigation measures used to alleviate potential impacts and ensure compliance.</p> <p>The Project also reviewed the circumstances and monitoring confirmed works adhered to project noise requirements.</p>	Closed
8.	24/08/2020	Roma Street (Roma Street precinct)	Workforce behaviour	<p>A stakeholder contacted the project regard inappropriate workforce behaviour at Roma Street precinct.</p> <p>CBGU addressed the workforce via toolbox talk about appropriate behaviour when interacting with the public.</p>	Closed
9.	25/08/2020	Roma Street (Roma Street precinct)	Noise	<p>A stakeholder called the project hotline regarding noise from Roma Street precinct.</p> <p>CBGU provided the stakeholder with an overview of the works occurring and their duration at the Boggo Road site. The Project also outlined the mitigation measures used to alleviate potential impacts and ensure compliance.</p> <p>The Project also reviewed the circumstances and monitoring confirmed works adhered to project noise requirements.</p>	Closed
10.	25/08/2020	Boggo Road (Boggo Road precinct)	Noise and dust	<p>A stakeholder contacted the project regarding noise and dust at the Boggo Road precinct.</p> <p>CBGU provided the stakeholder with an overview of the works occurring and their duration at the Boggo Road site. The Project also outlined the mitigation measures used to alleviate potential impacts and ensure compliance.</p> <p>The Project also reviewed the circumstances and monitoring confirmed works adhered to project noise and air quality requirements.</p>	Closed
11.	25/08/2020	Boggo Road (Boggo Road precinct)	Temporary facility	<p>A stakeholder contacted the project relating to construction of a temporary car park. Feedback was valued.</p>	Closed
12.	27/8/2020	Roma Street (Roma Street precinct)	Vibration	<p>A stakeholder contacted the project regarding vibration at the Roma Street precinct.</p> <p>CBGU provided the stakeholder with an overview of the works occurring and their duration at the Roma Street site. The Project also outlined the</p>	Closed

				<p>mitigation measures used to alleviate potential impacts and ensure compliance.</p> <p>The Project also reviewed the circumstances and monitoring confirmed works adhered to project vibration requirements.</p>	
13.	28/08/2020	(Woolloongabba precinct)	Noise	<p>A stakeholder called the project hotline regarding noise at the Woolloongabba precinct.</p> <p>CBGU provided the stakeholder with an overview of the works occurring and their duration at the Woolloongabba site. The Project also outlined the mitigation measures used to alleviate potential impacts and ensure compliance.</p> <p>The Project also reviewed the circumstances and monitoring confirmed works adhered to project noise requirements.</p>	Closed