

The background of the entire page is a dark blue map. It shows a network of streets and roads, with a prominent river or waterway winding through the center. The map is rendered in a lighter shade of blue, creating a subtle, textured background for the text.

Cross River Rail Project

Monthly Environmental Report

March 2023

Table of Contents

Monthly Environmental Report	1
Executive Summary	3
Non-Compliance Events.....	7
Definitions	8
1. Introduction.....	9
1.1. Background	9
1.2. Project Delivery	9
1.3. Reporting Framework	11
1.4. Monthly Environment Report Endorsement	11
2. Compliance Review	11
2.1. Relevant Project Works	11
2.2. Key Environmental Elements.....	13
2.2.1. <i>Noise</i>	13
2.2.2. <i>Vibration</i>	14
2.2.3. <i>Air Quality</i>	15
2.2.4. <i>Water Quality</i>	17
2.2.5. <i>Erosion and Sediment Control</i>	20
2.3. Complaints Management	21
2.4. New Upcoming Project Works	22
2.5. Non-Compliance Events	24
Appendix A RIS Monthly Report	25
Appendix B TSD Monthly Report	26

Executive Summary

This Monthly Environmental Report (MER) has been produced for Project Works undertaken on site for March 2023 for the Rail, Integration and Systems (RIS), and Tunnel, Stations and Development (TSD) packages. The report addresses the obligations outlined in the Coordinator-General's change report – *Coordinator-General's change report – no. 13 (March 2022)*. Plus, the individual contractor's Construction Environmental Management Plans (CEMPs), which have been developed generally in accordance with the Project's Outline Environmental Management Plan (OEMP). The Cross River Rail Delivery Authority (Delivery Authority), as the Proponent of the Cross River Rail Project, is required to submit a monthly report to the Coordinator-General to demonstrate compliance with the imposed conditions.

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

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

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

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

Imposed Condition	Requirement Summary	Compliance Met (Yes/No/NA)	Comment
1.	General conditions – compliance with the Project Changes relevant to the contractor's scope	Yes	The CEMP and site management plans are in accordance with the Project Changes.
2.	Outline Environmental Management Plan – timely submission to the Coordinator-General including required sub-plans	Yes	OEMP dated June 2020 is effective for the reporting period.
3.	Design – achievement of the Environmental Design Requirements	NA	Ongoing progress with design packages.
4.	Construction Environmental Management Plan – all relating to Relevant Project Works.	Yes	RIS – CEMP Revision 13 covering full scope of RIS works is effective from 14 March 2022. TSD – CEMP Revision 11 covering full scope of TSD works is effective from 24 November 2022.
5.	Compliance and Incident management – Non-compliance events, notifications and reporting.	Yes	No Non-Compliance Events (NCEs) occurred in March 2023.

Imposed Condition	Requirement Summary	Compliance Met (Yes/No/NA)	Comment
6.	Reporting – Monthly and Annual reporting.	Yes	This MER, including RIS and TSD Monthly Reports, has been submitted in accordance with the conditioned requirements. Refer to Appendix A and Appendix B .
7.	Environmental Monitor (EM) – engaged and functions resumed.	Yes	Ongoing weekly site inspections and document reviews continue to take place.
8.	Community Relations Monitor (CRM) – engaged and functions resumed	Yes	Ongoing.
9.	Community Engagement Plan – developed and endorsed by Environmental Monitor.	Yes	CEMPs endorsed with Community Engagement Plan.
10.	Hours of work – Project Works undertaken during approved hours.	Yes	Project Works have been undertaken in accordance with project requirements. This has been achieved through Standard Working Hours, Extended work hours and Managed Work.
11.	Noise – Project Works must aim to achieve internal noise goals for human health and well-being.	Yes	Noise monitoring met project noise requirements at Sensitive Places. RIS – Noise monitoring was not triggered for the reporting month. Refer to Appendix A (Section 3.1.6). TSD – Noise monitoring was undertaken to validate predicted noise modelling. Noise monitoring confirmed project requirements were met. Refer to Appendix B (Table 3 and Section 3.2).
	Vibration – Project Works must aim to achieve vibration goals for cosmetic damage, human comfort and sensitive building contents.	Yes	Vibration monitoring met project vibration requirements at Sensitive Places. RIS – Vibration monitoring occurred at Mayne Yard East and RNA. The results met the requirements of the endorsed CEMP. Refer to Appendix A (Table 5 and Section 3.1.3). TSD – Vibration monitoring occurred at Roma Street, Albert Street, Northern Portal and Woolloongabba. The results met the requirements of the endorsed CEMP. Refer to Appendix B (Section 3.1)

Imposed Condition	Requirement Summary	Compliance Met (Yes/No/NA)	Comment
12.	Property damage – relating to ground movement.	Yes	<p>RIS – Vibration modelling has been undertaken for Relevant Project Works, and Property Damage Sub-plans have been developed and implemented. Pre-condition surveys have been completed at heritage, commercial and residential buildings at RNA, Northern Corridor and Dutton Park to Salisbury stations.</p> <p>TSD – Vibration modelling has been prepared and is ongoing. Where required, building condition survey reports are completed for heritage and residential buildings. No enquiries relating to property damage were received during March 2023.</p>
13.	Air quality – Works must aim to achieve air quality goals for human health and nuisance.	Yes	<p>Air quality monitoring met Project air quality project requirements.</p> <p>RIS – Contractor confirmed they continued to meet the requirements under Condition 13 and the OEMP. Refer to Appendix A (Tables 7, 8 and 9 and Section 3.1.8, plus Figures 1, 2, 3 and 4).</p> <p>TSD – Refer to Appendix B (Tables 4.2 and 5 plus Section 3.3).</p>
14.	Traffic and transport – Works must minimise adverse impacts on road safety and traffic flow.	Yes	Traffic Management Plans are covered in the CEMPs. Sub-plans for all active worksites have been reviewed by the EM.
15.	<p>Water quality – Works must not discharge groundwater from the construction site above the relevant environmental values and water quality objectives.</p> <p>Monitor and report on water quality in accordance with CEMP and Sub-plans.</p>	Yes	<p>Monitoring and reporting on groundwater and surface water quality was undertaken in accordance with RIS and TSD Water Quality Management Plans.</p> <p>RIS – No groundwater discharges occurred during March.</p> <p>Post-rainfall monitoring occurred at Breakfast Creek, Moolabin Creek and Rocky Water Holes Creek. See Appendix A (Section 3.1.13 and Tables 10) for further details.</p> <p>Routine surface water monitoring occurred in the receiving waters in accordance with ongoing baseline monitoring requirements.</p> <p>TSD – Active discharge of groundwater occurred from Roma Street, Albert Street, Woolloongabba and Boggo Road worksites. Monitoring results of groundwater quality prior to discharge is consistent with the pre-construction water quality levels.</p>

			<p>Surface water discharges occurred at the Northern Portal worksite on 26 occasions and 3 occasions at the Southern Portal. The monitoring results demonstrated surface water discharges met project water quality discharge criteria.</p> <p>Post-rainfall / routine monitoring occurred in receiving waters of the Northern Portal, Roma Street, Albert Street, Woolloongabba, Southern Portal and Boggo Road sites due to multiple rainfall events. See Appendix B (Section 3.5 and Table 8) for further details.</p> <p>Refer to Appendix B (Table 6) for ground water monitoring results.</p> <p>Refer to Appendix B (Tables 7 and 8) for surface water monitoring results.</p>
16.	<p>Water resources – Evaluate potential impact, plan works, implement controls and monitor inflow of groundwater associated with drawdown.</p>	Yes	<p>RIS – There is no sustained groundwater extraction involved in the RIS scope of works so predictive modelling of groundwater drawdown is not required. Collection of hydrological data to model potential inflow rates into excavations during construction has been undertaken.</p> <p>TSD – Inflow of groundwater into the worksites is being continuously monitored to validate the predictive modelling.</p>
17.	<p>Surface water – Must be designed to avoid inundation from stormwater due to a 2-year (6hr) ARI rainfall event and flood waters due to a 5-year ARI rainfall event and constructed to avoid afflux or cause the redirection of uncontrolled surface water flows, including stormwater flows, outside of worksites.</p>	Yes	<p>Contractors continue to consider this condition in their site planning and design.</p>
18.	<p>Erosion and sediment control – Provisions for erosion and sediment control must be consistent with the Guidelines for Best Practice Erosion and Sediment Control (International Erosion Control Association, 2008) and the Department of Transport and Main Roads' Technical Standard MRTS52.</p>	Yes	<p>Site specific ESC plans for all active work sites have been reviewed by the EM and implemented on site.</p>
19.	<p>Acid sulfate soils – managed as per the Queensland Acid Sulfate Soil Technical Manual.</p>	Yes	<p>Acid Sulfate Soil Management Plans have been prepared and implemented for all active worksites.</p>

20.	Landscape and open space – general requirement to minimise impacts on landscapes and open space values and specific requirements around Victoria Park.	Yes	The construction of a temporary access road through Victoria Park was undertaken under a Heritage Exemption Certificate approved by the Department of Environment and Science (DES) on 24 June 2021. Consideration has been taken to minimise loss of trees and the area of park impacted during these temporary works.
21.	Worksite rehabilitation – worksites rehabilitated as soon as practicable upon completion of works or commissioning, and in consultation with Brisbane City Council.	N/A	N/A

Non-Compliance Events

There were no NCEs raised in March 2023.

Definitions

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

1. Introduction

1.1. Background

The Cross River Rail Project (the Project) is a declared coordinated project under the *State Development and Public Works Organisation Act 1971* (SDPWO Act). The CRR Environmental Impact Statement (EIS) was evaluated by the Coordinator-General who recommended the Project proceed, subject to Imposed Conditions and recommendations. Since the evaluation of the EIS, several Requests for Project Change (RfPC) submissions have been evaluated by the Coordinator-General. RfPC 13 was endorsed in March 2022 by the Coordinator-General.

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

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

1.2. Project Delivery

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

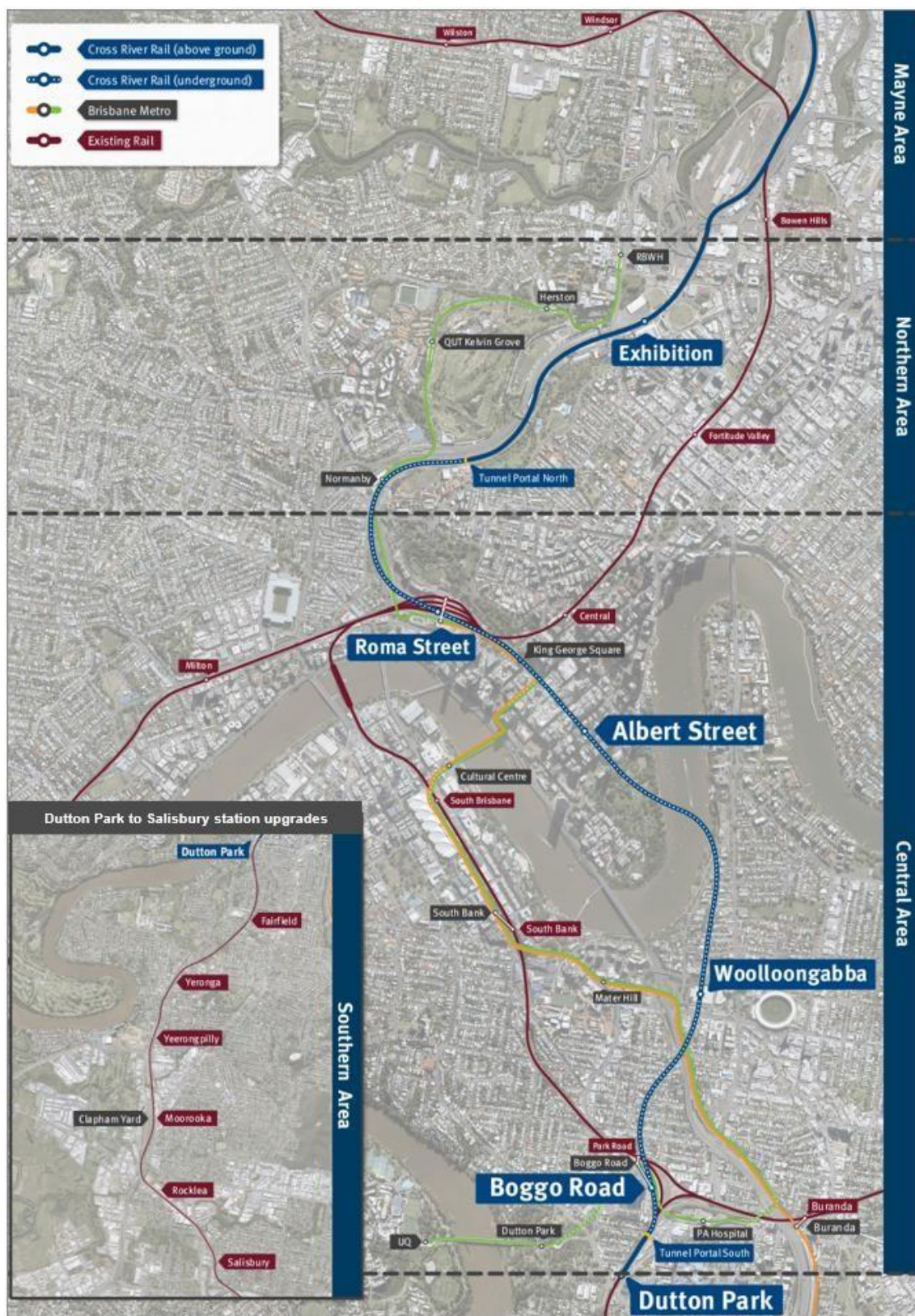
The two main delivery packages which require reporting under the Coordinator-General's imposed conditions are:

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

The Project is geographically divided into four areas:

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

These areas and delivery packages are shown in the figure below.



1.3. Reporting Framework

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

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

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

1.4. Monthly Environment Report Endorsement

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

2. Compliance Review

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

2.1. Relevant Project Works

The following Project Works were undertaken in March 2023:

Area	Project Works
Mayne Area	Mayne Yard North – <ul style="list-style-type: none">• Mayne Yard East entry road removals and demolition of redundant facilities has commenced• BR11/13 (vehicle access tripod bridge over future CRR lines) road barrier installation continues• BR08 (Breakfast Creek Bridge) temporary support works for Pier 3 and 4 completed, piling of Pier 3 complete and centre span girder lifts scheduled for 17 April 2023• BR12 (pedestrian bridge from Bowen Hills Station to MY-West) truss structure installation completed during EXT-18 SCAS• Civil scope for Shunt Road and vehicle access road continuing incl drainage, CSR and earthworks• Sewer underbore at Campbell Street completed; and• QR requested modifications in Mayne Yard North continuing – currently focusing on shunters shed redesign Mayne Yard East / West – <ul style="list-style-type: none">• Mayne Yard East entry road removals and demolition of redundant facilities has commenced• BR11/13 (vehicle access tripod bridge over future CRR lines) road barrier installation continues• BR12 (pedestrian bridge from Bowen Hills Station to MY-West) truss structure installation during current EXT-18 SCAS; and• Sewer underbore at Campbell Street completed.
Northern Area	RNA/ Northern Corridor – <ul style="list-style-type: none">• RIS-N-9C switch into Stg 2 alignment over new BR43 viaduct allows Station to commence• Demolition of redundant QR embankment, underpath and bridge structure has commenced• Excavation work commenced for new station and BR44 viaduct; and

Central Area

- Station and Shared path service install ongoing.

Northern Portal –

- One interface slab pour remaining to be completed at the top of the dive structure
- Remaining back fill to the top of the covered section complete; and
- Demolition of gantry slab and structure ongoing.

Roma Street –

- Mechanical and Engineering Superstructure
- Main Station Building Entry
- Western Back of House FRP works complete
- Main station verticals to L00 to L0; and
- Platform 2 – Canopy steel complete, ready for roofing.

Albert Street –

- Lot 1 – B10 basement slab, internal stairwells and lands struck completed, B10 to B9 external perimeter and internal load bearing walls and columns complete and B9 suspended slabs complete
- Lot 2 – final arch pour complete and arch form dis-assembly commenced and mezzanine span 1 installation complete; and
- Lot 3 – B4 base slab complete, SW103 to SW107 walls complete and a range of other pours complete.

Woolloongabba –

- Main Station Box external wall complete to SW4, SW5 South up to last lift
- M&E Services to Service Building continue with Chillers installed
- M&E Services substantially complete to first two RIS Rooms in South Cavern, North Cavern RIS rooms have commenced
- Goods Lift commissioned and handed over by Kone; and
- Platform culvert topping slabs complete in Station box past GL P15.

Tunnel fitout –

- Bracket installation underway
- Ongoing Walkway construction
- Completion of rail installation; and
- Cable trays and bracket installation in cross passages.

Boggo Road –

- Concrete to in-situ structure at 68% complete
- Reinforcement to in-situ structure 76% complete; and
- Mezzanine precast trusses - 93 of 222 installed.

Southern Area

Southern Portal / Dutton Park –

- PAH Bridge installation underway
- CSR Scope including UTX's during possession windows
- Cope St Noise barrier panels installed
- Commencement of RW435A Capping Beam (Cope St)
- Completion of Piling works for RW425 and commencement of Pile break back (Kent St)
- Demolition of Platform 01 following asbestos removal
- Drainage scope installation ;and
- Soil Nailing works for RW455 completed for offline section, remainder to be completed during SCAS.

Fairfield station –

- Continue with station building fit-out works
- Mildmay Street gravity wall Stage 2 continuation
- Lift 1 glazing commenced complete
- Lift 2 – lift construction commenced late February
- Lift 3 – Lift construction commenced late March; and
- Equity street stormwater connection underway.

Yeronga station –

- Station buildings, ticket office, bicycle shelter opened to the public
- Testing and commissioning of permanent power and downstream sub-boards, lighting, lifts, and mechanical items; and
- Testing and commissioning of ROS systems back to the QR network.

Clapham Yard –

- BR93 (Moolabin Creek Track Bridge) Stage 1 complete (except walkways and Northern relieving slab)
- BR94 (Chale Street Bridge) Southern Span 2, FRP scope and RSS wall RW640 completed with deck pours and barrier installation continuing
- HV relocation to Underground (along Chale Street) complete; and
- Landscaping of available areas completed.

Rocklea station –

- Continued inground services throughout platform areas – PL1 and PL2/3
- Continued FRP work for structural foundations for the overpass, lift pits, stair foundations, canopy foundations; and
- Excavation and FRP for DG retaining wall.

2.2. Key Environmental Elements

2.2.1. Noise

The Coordinator-General's conditions establish a framework for managing the impacts of noise. The Imposed Conditions do not establish noise limits. Compliance with the Imposed Conditions noise requirements involves demonstrating the implementation of the endorsed CEMP and associated Noise and Vibration Management Plan. This establishes the management measures to be applied which aims to achieve the identified noise goals as far as reasonably practicable. The CEMP also includes requirements for the provision of the required community notifications of upcoming work, potential impacts, and how the project team can be contacted in relation to any potential impacts.

For Project Works where potential noise impacts are modelled to be above the noise goal but below the noise goal plus 20dBA, this work is authorised where the endorsed CEMP and associated Noise and Vibration Management Plan is being implemented, including communicating construction activities to potential and actual Directly Affected Persons (DAPs). For Project Works where potential noise impacts are predicted to be more than 20dBA above the relevant noise goal, specific engagement is required with DAPs for these works.

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

In the Northern Area, noise monitoring was undertaken at sensitive places along Gregory Terrace near the Northern Portal where demolition works were occurring on site. The TSD contractors reported that the project noise requirements have been met during this reporting month. Monitoring results for the Northern area are detailed in **Appendix B** (Table 3).

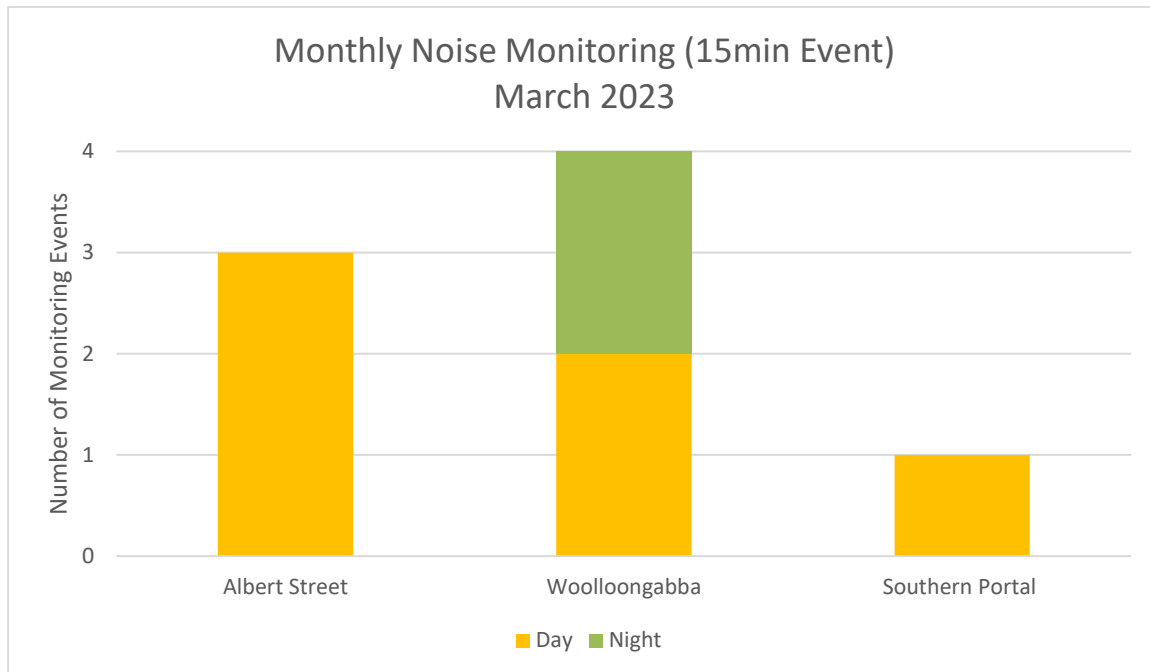
In the Central Area, noise monitoring was undertaken for both model verification and construction monitoring at sensitive places for locations in proximity to Woolloongabba and Albert Street. The TSD contractors reported that the project noise requirements have been met during this reporting month. Monitoring results for the Central Area are detailed in **Appendix B** (Table 3).

In the Southern Area, noise monitoring was conducted for construction monitoring at sensitive places on Peter Doherty Street at the Southern Portal worksite. The TSD contractors reported that the project

noise requirements have been met during this reporting month. Monitoring results for the Southern Area are detailed in **Appendix B** (Table 3).

Noise monitoring was not triggered for any of the RIS worksites for the reporting period based on the predictive noise assessments for the relevant project works.

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



2.2.2. Vibration

In the Northern Area, vibration monitoring continued at the foundation of the State heritage listed John MacDonald Stand inside a storeroom. The monitor is located approximately 50 meters from the hydraulic hammer and 31.7 metres from the façade. Rock breaking works occurred during the monitoring period with reading peaks of 1.08mm/s, the recorded peak was attributed to the demolition of the existing bridge. The RIS contractor reported that the vibration requirements have been met and the monitoring results are as detailed in **Appendix A** (Table 5).

Vibration monitoring was also undertaken as a contingency at the Queensland Rail Facility Building at Mayne Yard East for model verification for construction monitoring at sensitive places. The monitor was installed at the façade of the building at Block A, approximately 11 metres from the closest potential hammering location. The recorded peak of 0.15mm/s was recorded during the hammering and breaking of foundation of the redundant building. The RIS contractor reported that the vibration requirements have been met and the monitoring results are as detailed in **Appendix A** (Table 5).

Monitoring was also conducted on Kalinga Avenue in proximity to the Northern Portal worksite for an educational receiver. The TSD contractor reported that the vibration requirements have been met and the monitoring results are as detailed in **Appendix B** (Table 3).

In the Central Area, vibration monitoring was conducted on eight occasions throughout March at Roma Street, Albert Street and Woolloongabba precincts. All vibration monitoring adhered to the project requirements and is detailed in **Appendix B** (Table 3).

2.2.3. Air Quality

2.2.3.1. Dust Deposition

Dust deposition monitoring was conducted at Mayne, Northern, Central and Southern Areas. Results met the project air quality goal¹ for all active worksites.

At the RNA worksite, the measured dust deposition level of 260 mg/m²/day exceeded the goal of 120 mg/m²/day. These elevated levels were primarily due to the dust deposition gauge being in close proximity to the work site and dust generating activities, due to previous issue with vandalizing of the dust gauges when located outside from the work sites. The gauge is located on the fence line delineating the construction area boundary from the RNA Showgrounds, which is representative of the work area, although closer than the nearest sensitive receiver. This depositional dust gauge location was directly above the rock breaking that occurred last month. The scale, duration and intensity of the activities were consistent with the activities reviewed as part of the predictive air quality assessment.

It is noted that the project team continues to actively implement a range of dust mitigation measures at the site. This includes erosion control, dust suppression using water carts, using stabilized access points and utilising the street sweepers as required. There were no complaints from nearby sensitive receptors regarding air quality from the RNA works during the monitoring period. Dust deposition results are detailed in **Appendix A** (Table 7 and Figure 1) and **Appendix B** (Table 4.2).

At the Dutton Park worksite, the Project's air quality professional (CAQP) recommended visual air quality monitoring to be undertaken during construction to observe the accumulation of construction dust and to identify if dust is being transported outside the project boundaries. Despite the short duration of the works, the Unity team elected to install a depositional dust gauge due to the proximity of numerous sensitive receivers surround the worksite. In consultation with the Project Certified Air Quality Professional (CAQP), the dust deposition gauge was installed at the fence line delineating 211 Annerley Road and the construction boundary to reduce data loss due to vandalism. It is noted that the dust deposition gauge is located closer to the dust emissions than the nearest sensitive receptor.

The measured dust deposition level of 256 mg/m²/day exceeded the goal of 120 mg/m²/day, these elevated results are likely attributed to the project works that occurred during the monitoring period. Additionally, during the monitoring period, the CSR Works required temporary materials handling at the Cope Street access point due to time and space constraints due to the SCAS. As a result, higher than predicted dust emissions were recorded. Complaints associated with the elevated result were previously reported in the February 2023 report due to the lab analysis turnaround time of two (2) weeks, which delayed the receipt of the dust deposition results.

It is noted that the project team continues to actively implement a range of dust mitigation measures at the site. This includes erosion control, dust suppression, using stabilized access points and utilising the street sweepers as required with the frequency being increased during the SCAS. A summary of dust deposition monitoring is provided in the table below.

Air Quality – Dust Deposition Monitoring			
Area	Worksite	Monitoring Location	Comments
Mayne Area	Mayne Yard	Mayne Yard East	- Results met air quality goal
Northern Area	RNA / Exhibition	RNA Showgrounds	- Exceedance of the goal recorded however an investigation confirmed UNITY were implementing mitigation measures to reduce potential impacts meeting Project Outcome requirements.

	Northern Portal	Northern Portal (near Brisbane Girls Grammar School)	- Results met air quality goal
Central Area	Albert Street	Mary Street	- Results met air quality goal
		Elizabeth Street	- Results met air quality goal
	Boggo Road	Quarry Street (north of the site)	- Results met air quality goal
		Peter Doherty Street/Leukemia Foundation	- Results met air quality goal
	Southern Portal	Dutton Park Station	- Results met air quality goal
		PA Hospital - Central Energy Unit along Kent Street	- Results met air quality goal
	Roma Street	Roma Street Station	- Results met air quality goal
	Woolloongabba	Russian Orthodox Cathedral	- Results met air quality goal
		Woolloongabba Busway	- Results met air quality goal
Southern Area	Dutton Park	Dutton Park	- Exceedance of the goal recorded however an investigation confirmed UNITY were implementing mitigation measures to reduce potential impacts meeting Project Outcome requirements
	Clapham Yard	Clapham Yard	- Results met air quality goal

¹ CG air quality goal for dust deposition - 120µg/m² (over an averaging period of 30 days).

2.2.3.2. Particulate Matter and Total Suspended Particulates

Monitoring for particulate matter (PM10) and total suspended particulates (TSP) was conducted at Northern, Central and Southern Area worksites. Results met the project goals at all active worksites.

In the Northern Area, the Clapham Yard DMP which was temporarily installed at Mayne Yard East was relocated to Clapham Yard to minimise further data loss. The relocation and installation of the DMP occurred on the 27 March 2023, however shortly after began experiencing repeated battery issues which invalidated the data recorded from the 27-31 March 2023.

The Mayne Yard East DMP was removed from Clapham Yard and reinstalled at Mayne Yard East. In the absence of particulates data at Mayne Yard East, Unity undertook an investigation to provide supplementary information to confirm the RIS scope of works met the project outcomes set out by the CGCR and the OEMP.

The RNA particulates monitor (DMP) located at the Lanham Street yard recorded elevated results on the 1 March 2023. During the reporting period, project works consisted of primarily of rock breaking, cut and fill works, realignment of track and formation rebuild associated with the SCAS Works. The scale, duration and intensity of the activities was consistent with the activities reviewed as part of the predictive air quality assessment. On the day, there were no other activities in the vicinity that would have produced particulate matter above the predicted levels. Therefore, it can be concluded that this exceedance is due to project works. Noting that the results were only minimally above the air quality goal with measured PM10 24-hour average of 52 µg/m³/day, minimally higher than the air quality goal of 50 µg/m³/day.

It is noted however that dust mitigation measures such as hose spraying and water trucks during rock breaking were actively in use on the day. In addition, there were no complaints received on the day regarding air quality around the RNA worksite. Particulates results are detailed in **Appendix A** (Section 3.1.9, Table 8 and 9, and Figures 12, 13 and 14).

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

Air Quality – PM ₁₀ / TSP Monitoring			
Area	Worksite	Monitoring Location	Comments
Mayne Area	Mayne Yard	Mayne Yard North	- Monitoring not required as per Project's CAQP advice
	Mayne Yard	Mayne Yard East	- Results met air quality goals
Northern Area	RNA / Exhibition	RNA showgrounds	- Recorded exceedance of the goal however an investigation confirmed UNITY were implementing mitigation measures to reduce potential impacts meeting Project Outcome requirements
	Northern Portal	Brisbane Girls Grammar School	- Results met air quality goals
Central Area	Albert St	iStay River City and Capri (Corner of Mary Street and Albert Street)	- Results met air quality goals
	Boggo Rd / Southern Portal	North-east of Boggo Road worksite	- Results met air quality goals
	Woolloongabba	Place Park, Woolloongabba	- Results met air quality goals
Southern Area	Clapham Yard	Clapham Yard	- Results met air quality goals - Power supply issues prevented data from being recorded between 27-31 March 2023.

2.2.4. Water Quality

Water quality monitoring and reporting was undertaken in accordance with the contractors CEMP and Water Quality Management Plans.

2.2.4.1. Surface Water

During March, active surface water discharges occurred in the Northern and Central Areas. Post-rainfall water quality monitoring occurred in the receiving waters in the Mayne, Northern, Central and Southern Areas.

In the Northern Area, water quality monitoring was triggered on twenty-six occasions from the Northern Portal worksite as water used for construction activities and stormwater was treated and actively discharged to the stormwater network. The TSD contractors confirmed the discharge criteria was met on all occasions. See **Appendix B** (Table 7) for further details.

In the Central Area, water quality monitoring was triggered on three occasions from the Southern Portal worksite as stormwater was treated and actively discharged to the stormwater network. The TSD contractors confirmed the discharge criteria was met on all occasions. See **Appendix B** (Table 7) for further details.

Post-rainfall monitoring was triggered in the receiving waters of Mayne Yard North, Northern Portal, Albert Street, Boggo Road, Roma Street, Woolloongabba, Southern Portal, Clapham Yard and Rocklea worksites due to rainfall events on the 13 March, 22 March and 30 March in the reporting

period that exceeded the trigger to monitor. Erosion and Sedimental Control measures across the sites were appropriately implemented and there is no evidence to suggest the increase in TSS was project related. Therefore, compliance with Imposed Conditions 15 and 18 were met. See **Appendix A** (Section 3.3.2.1, Table 10 and 11) and **Appendix B** (Table 8) for further details.

Routine surface water quality monitoring was undertaken in the receiving waters of all TSD and RIS worksites in accordance with the Contractor's Water Quality Management Plan. The monitoring results reflect the condition of a broader catchment upstream from the worksites. See **Appendix B** (Table 8) for further details.

Surface water quality monitoring is summarised in the table below:

Surface Water Quality Monitoring					
Area	Worksite	Discharge	Post-Rain Monitoring	Routine Monitoring	Comments
Mayne Area	Mayne Yard North	No	Yes	No	<ul style="list-style-type: none"> - ESC was implemented in accordance with site specific ESC Plan. - Post-rainfall monitoring undertaken. - Routine in-stream monitoring undertaken in accordance with WQMP.
	Exhibition/RNA	No	No	No	<ul style="list-style-type: none"> - ESC was implemented in accordance with site specific ESC Plan.
	Northern Portal	Yes	Yes	Yes	<ul style="list-style-type: none"> - Post-rainfall monitoring undertaken. - Routine in-stream monitoring undertaken in accordance with WQMP. - Active surface water discharge met water quality investigation criteria.
Central Area	Northern Corridor	No	No	N/A	<ul style="list-style-type: none"> - ESC was implemented in accordance with site specific ESC Plan.
	Albert Street	No	Yes	Yes	<ul style="list-style-type: none"> - Post-rainfall monitoring undertaken. - Routine in-stream monitoring undertaken in accordance with WQMP.
	Boggo Road	No	Yes	Yes	<ul style="list-style-type: none"> - Post-rainfall monitoring undertaken. - Routine in-stream monitoring undertaken in accordance with WQMP.
Central Area	Roma Street	No	Yes	Yes	<ul style="list-style-type: none"> - Post-rainfall monitoring undertaken. - Routine in-stream monitoring undertaken in accordance with WQMP.

	Woolloongabba	No	Yes	Yes	<ul style="list-style-type: none"> - Post-rainfall monitoring undertaken. - Routine in-stream monitoring undertaken in accordance with WQMP.
	Southern Portal	Yes	Yes	Yes	<ul style="list-style-type: none"> - Active surface water discharge met water quality investigation criteria. - Post-rainfall monitoring undertaken. - Routine in-stream monitoring undertaken in accordance with WQMP.
Southern Area	Fairfield station	No	No	No	<ul style="list-style-type: none"> - ESC was implemented in accordance with site specific ESC Plan.
	Clapham Yard	No	Yes	No	<ul style="list-style-type: none"> - Post-rainfall monitoring undertaken. - ESC was implemented in accordance with site specific ESC Plan. - Routine in-stream monitoring undertaken in accordance with WQMP.
	Rocklea station	No	Yes	No	<ul style="list-style-type: none"> - Post-rainfall monitoring undertaken. - ESC was implemented in accordance with site specific ESC Plan. - Routine in-stream monitoring undertaken in accordance with WQMP.

2.2.4.2. Groundwater

Groundwater discharge occurred in the Central Area at Albert Street, Boggo Road, Roma Street and Woolloongabba worksites. The groundwater discharge results exceeded relevant water quality objectives (WQO's)² for total phosphorus, organic nitrogen, ammonia nitrogen, oxidised nitrogen, total nitrogen and dissolved oxygen. However, these results are consistent with the receiving environment baseline monitoring pre-construction data. The contractor confirmed no changes have occurred onsite to the construction methodologies that would have affected the groundwater results. See **Appendix B** (Table 6) for further details.

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

Groundwater quality monitoring is summarised in the table below:

Groundwater Quality Monitoring			
Area	Worksite	Discharge	Comments
Mayne Area	Mayne Yard North	No	- No groundwater discharges.

Northern Area	RNA/Exhibition	No	- No groundwater discharges.
	Northern Portal	No	- No groundwater discharges.
Central Area	Albert Street	Yes	- Discharge of groundwater met Project requirements
	Boggo Road / Southern Portal	Yes	- Discharge of groundwater met Project requirements
	Roma Street	Yes	- Discharge of groundwater met Project requirements
	Woolloongabba	Yes	- Discharge of groundwater met Project requirements
Southern Area	Clapham Yard	No	- No groundwater discharges.

² The Brisbane River Estuary environmental values and water quality objectives (Basin no 143 – mid-estuary) in the Environmental Protection (Water) Policy 2009

2.2.5. Erosion and Sediment Control

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

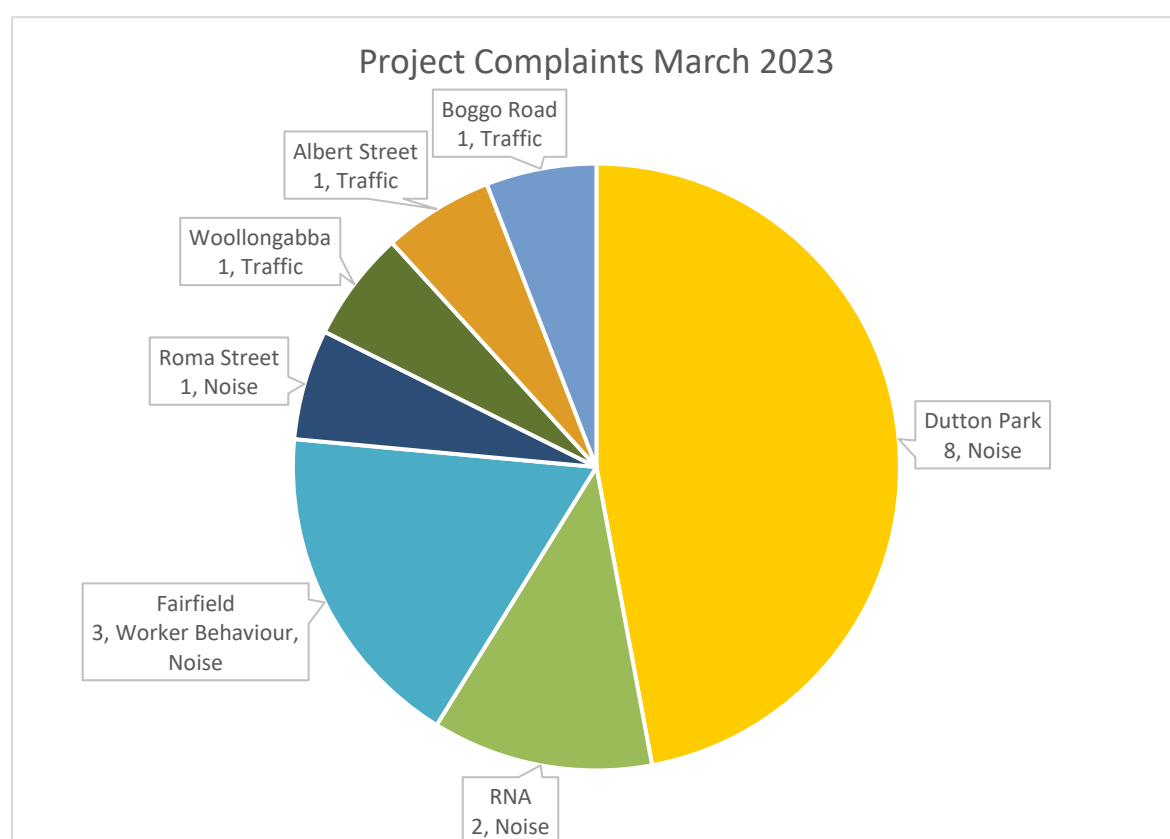
2.3. Complaints Management

A total of seventeen complaints were received during the month, all of which were project related.

RIS works received thirteen complaints during March related to traffic and noise at Dutton Park, noise and worker behavior at Fairfield and noise at RNA. For further details and breakdown of complaints, refer to **Appendix A** (Table 3).

The TSD works received four complaints related to noise at Roma Street and Traffic at Boggo Road, Albert Street and Woollongabba. For further details refer to **Appendix B** (Table 10).

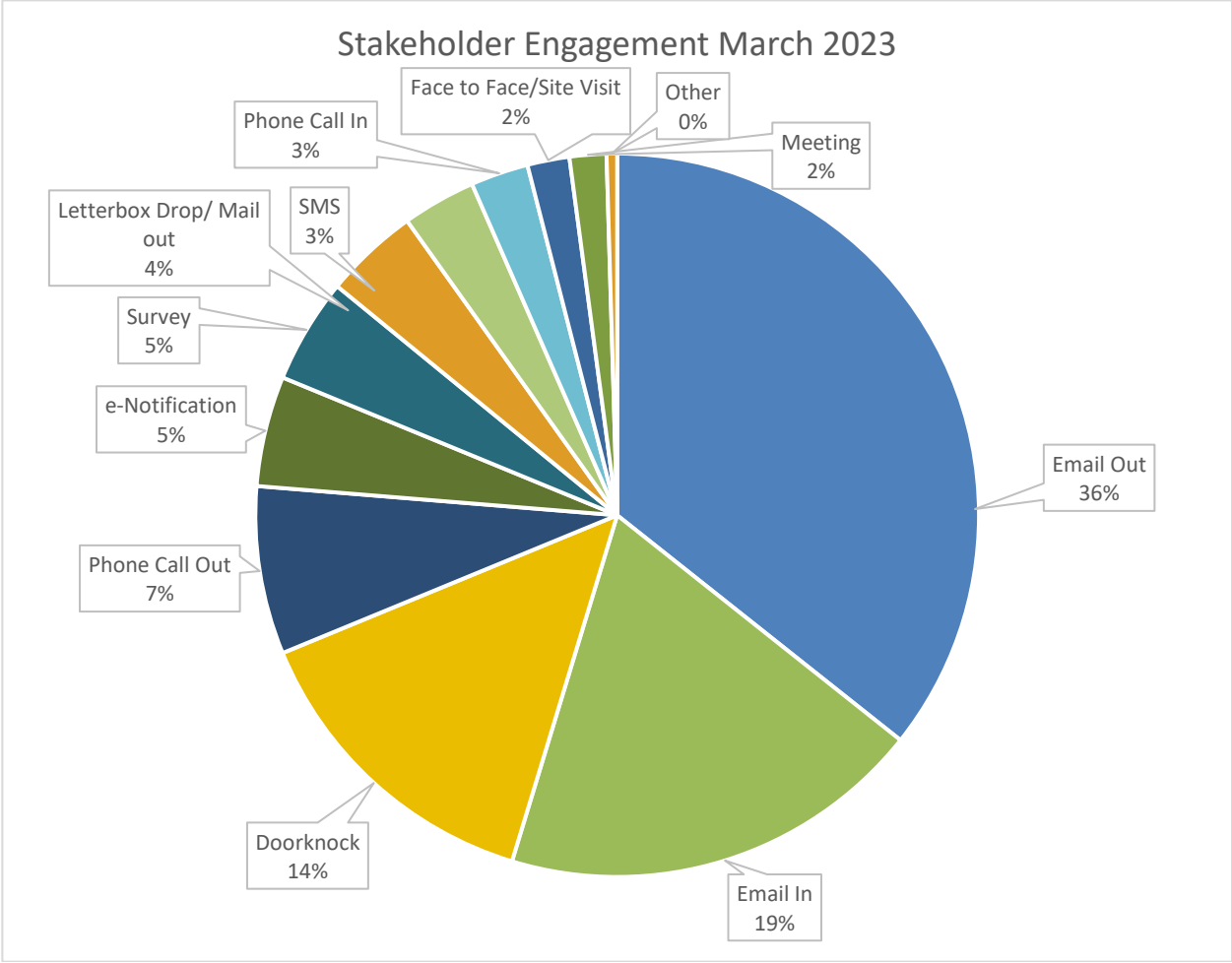
The Project Works complaints summary for the month is provided in the following chart.



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

To close out a complaint, the monitoring data is reviewed (where applicable) against compliance with the CEMP, site environmental management plans and permits, and checks that required community notification has taken place. Contractors have also confirmed that planned mitigation to reduce the impact was implemented. This is reviewed together to verify if project requirements have been met.

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



2.4. New Upcoming Project Works

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

Area	New planned works in the coming months
Mayne Area	Mayne Yard North – <ul style="list-style-type: none"> Access Road and Shunt Road construction (North of Ferny Grove Flyover) Cross drainage modifications of pre-load impacted area BR08 (Breakfast Creek Bridge) girder installation; and SCAS N-7A entry road mods to QR's Western Maintenance Facilities. Mayne Yard East / West – <ul style="list-style-type: none"> Complete Demolition of Mayne Eastern facilities; and Commence Earthworks and CSR for new Vehicle Access Road between MY-East and MY-West.
Northern Area	RNA – <ul style="list-style-type: none"> Complete earthworks and rock removal Ground retention rock bolting Inground services including electrical, comms, stormwater, sewer, and wet fire Piling to commence from 17th April; and FRP of station footings. Northern Corridor – <ul style="list-style-type: none"> Investigation works in preparation of CSR, TFR and drainage scope in Northern Portal Area Minor civil works (pavements, Earthing and Bonding, footings) around VP FSC Corridor widening (earthworks and ground retention) North of Bowen Bridge Road, which are now accessible after the SCAS EXT-18; and

Central Area

- SCAS EXT-19 planning, predominately rail deflection walls of Bowen Bridge.

Northern Portal –

- Site demobe and removal of temporary support commencing
- Watermain installation to commence this month; and
- QR pedestrian bridge works.

Roma Street –

- Ongoing mezzanine beam installation
- Blockwork substantially complete in WSB substructure, MSB blockwork continues,
- Services installation progressing WSB basement
- Mezzanine FRP works commenced
- Station building ongoing wall and slab and column pours; and
- Services building pre-cast panel installation and concrete pours.

Albert Street –

- Lot 1 – Slip 8 to Slip 10 on B3 Slipform ongoing B9 jump form system
- Lot 2 – back of house north B6 Walls and stairs concrete pours commenced, back of house south commenced and
- Lot 3 – B1slab pour and reo installation in progress..

Woolloongabba –

- M&E Services - HV transformer and switchgear installed, cabling underway
- M&E Services substantially complete to first two RIS Rooms in South Cavern, North Cavern RIS rooms have commenced.
- Ceiling and Partitions in progress on B9, B7, B4, B3, B2 and B1; and
- Sewer Underbore TBM has commenced.

Boggo Road –

- Precast platform culverts and planks – 368 of 451 installed.
- Super T's – 22 of 39 installed; and
- Delivery and installation of precast mezzanine beams, platform culverts and super-T ongoing.

Southern Portal / Dutton Park –

- Retaining wall FRP works to Cope St and Kent St retaining walls
- Closure and demolition of Platform 2 (inbound platform) in April SCAS
- Formation rebuild and Platform construction during Easter SCAS
- Continue CSR network construction
- Continue Soil Nailing and Shotcrete works; and
- Continue Noise Wall construction at Cope Street then move down to Fenton Street.

Southern Area

Fairfield Station –

- Commence construction of Lift 1
- Continue lift construction, Lift 02, Lift 03
- Complete Stair 01 and entrance area, then switch to temp stage 2C to enable removal of scaffold stairs
- Continue station building construction and fitout
- Equity and Mildmay St finishing work
- Elec, comms and security cabling, installation of fittings; and
- Continue Mildmay Street Gravity Wall.

Yeronga Station –

- Focusing on finalising defect lists, closeout documentation.

Clapham Yard –

- Northern drainage (in front of Aurizon)
- Aurizon fence (on top of RW650)
- Light poles footing installation
- Open channel drains, driveways and stone pitching; and
- Energex cut-over O/H HV to Underground.

Rocklea Station –

- Continue inground services throughout platform areas – PL1 and PL2/3
- Continued FRP work for structural foundations

- Continue platform slab construction; and
- FRP for DG retaining wall.

2.5 Non-Compliance Events

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

Status	Date of Event	Category	Area as on the Report	Relevant Condition	Gate 1	Gate 2	Gate 3	Gate 4
▲								
☐ Open								
☐ Closed								
CRRDA-001-RIS-001	9/11/19	Noise	Yeronga Station	4, 10, 11	10/11/19	14/11/19	26/11/19	18/12/19
CRRDA-002-TSD-001	27/03/20	ESC	Woolloongabba	4, 15, 18	30/03/20	31/03/20	22/04/20	11/06/20
CRRDA-003-TSD-002	27/03/20	ESC	Boggo Rd	4, 15, 18	30/03/20	31/03/20	22/04/20	11/06/20
CRRDA-004-TSD-003	28/03/20	Traffic	Boggo Rd	4, 10, 14	30/03/20	31/03/20	22/04/20	11/06/20
CRRDA-005-TSD-004	27/03/20	Reporting	Multiple sites	4, 6, 11, 13	30/03/20	31/03/20	22/04/20	11/06/20
CRRDA-006-TSD-005	27/03/20	Air Quality	Multiple sites	13	30/03/20	31/03/20	22/04/20	11/06/20
CRRDA-009-RIS-003	6/05/22	ESC	Clapham Yard	4, 15, 18	28/10/22	28/10/22	12/12/22	12/12/22
CRRDA-010-RIS-004	10/05/22	Potential Acid Sulphate Soils Management	Clapham Yard	4, 19	28/10/22	28/10/22	12/12/22	12/12/22
☐ Withdrawn								
CRRDA-007-RIS-002	1/04/20	Air Quality	Multiple sites	13	28/04/20	30/04/20	Withdrawn	
CRRDA-008-TSD-006	8/04/20	Working Hours	Roma Street	4,10	28/04/20	30/04/20	Withdrawn	

Appendix A RIS Monthly Report

Monthly CGCR Report March 2023

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

Table of Contents

1	Progress Summary - Relevant Project Works	3
2	Complaints	7
3	Environmental Monitoring Results	10
	Acoustics	10
	Air Quality	13
	Water Quality	29
4	Compliance Review	33
	Non-Compliance Events	33
	C-EMP Compliance	33
Attachment 1	Imposed Conditions Non-Compliance Event Report (if required)	35
Attachment 2	Monitoring Locations – Noise and Vibration	36
Attachment 3	Monitoring Locations – Air Quality	39
Attachment 4	Monitoring Locations – Surface Water	43

1 Progress Summary - Relevant Project Works

The following Project Works were undertaken during the reporting period:

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

Area	Project Works
Mayne Area	Mayne Yard North <ul style="list-style-type: none"> Mayne Yard East entry road removals and demolition of redundant facilities has commenced BR11/13 (vehicle access tripod bridge over future CRR lines) road barrier installation continues BR08 (Breakfast Creek Bridge) temporary support works for Pier 3 and 4 completed, piling of Pier 3 complete and centre span girder lifts scheduled for 17 April 2023. BR12 (pedestrian bridge from Bowen Hills Station to MY-West) truss structure installation completed during EXT-18 SCAS. Civil scope for Shunt Road and vehicle access road continuing incl drainage, CSR and earthworks Sewer underbore at Campbell Street completed. QR requested modifications in Mayne Yard North continuing – currently focusing on shunters shed redesign Mayne Yard East / West <ul style="list-style-type: none"> Mayne Yard East entry road removals and demolition of redundant facilities has commenced BR11/13 (vehicle access tripod bridge over future CRR lines) road barrier installation continues BR12 (pedestrian bridge from Bowen Hills Station to MY-West) truss structure installation during current EXT-18 SCAS Sewer underbore at Campbell Street completed.
Northern Area	RNA <ul style="list-style-type: none"> RIS-N-9C switch into Stg 2 alignment over new BR43 viaduct allows Station to commence Demolition of redundant QR embankment, underpath and bridge structure has commenced Excavation work commenced for new station and BR44 viaduct Station and Shared path service install ongoing. Northern Corridor <ul style="list-style-type: none"> RIS-N-9C switch into Stage 2 (EXT-18 SCAS) Rock pitching in front of Victoria Park Feeder Station completed Access into Northern Portal for initial survey, investigation and planning works.
Southern Area	Southern Portal / Dutton Park <ul style="list-style-type: none"> CSR Scope including UTX's during possession windows Cope St Noise barrier panels installed Commencement of RW435A Capping Beam (Cope St) Completion of Piling works for RW425 and commencement of Pile break back (Kent St) Demolition of Platform 01 following asbestos removal Drainage scope installation Soil Nailing works for RW455 completed for offline section, remainder to be completed during SCAS.

Area	Project Works
Southern Area	Fairfield Station <ul style="list-style-type: none"> Continue with station building fit-out works Mildmay Street gravity wall Stage 2 continuation Lift 1 glazing commenced complete Lift 2 – lift construction commenced late February Lift 3 – Lift construction commenced late March Equity street stormwater connection underway.
Southern Area	Yeronga Station <ul style="list-style-type: none"> Station buildings, ticket office, bicycle shelter opened to the public Testing & commissioning of permanent power and downstream sub-boards, lighting, lifts, and mechanical items Testing & commissioning of ROS systems back to the QR network.
Southern Area	Clapham Yard <ul style="list-style-type: none"> BR93 (Moolabin Creek Track Bridge) Stage 1 complete (except walkways and Northern relieving slab) BR94 (Chale Street Bridge) Southern Span 2, FRP scope and RSS wall RW640 completed with deck pours and barrier installation continuing. HV relocation to Underground (along Chale Street) complete Landscaping of available areas completed.
Southern Area	Rocklea Station <ul style="list-style-type: none"> Continued inground services throughout platform areas – PL1 & PL2/3 Continued FRP work for structural foundations for the overpass, lift pits, stair foundations, canopy foundations Excavation and FRP for DG retaining wall.

Acronyms:

CIP – Cast in Situ Piles

CSR – Combined Services Route

DL – Drainage Line

FRP – Form Reo Pour

HV – High Voltage

OHLE – Overhead Line Equipment

OTV – On Track Vehicle

PUP – Public Utility Plant

RNA - Royal National Agricultural and Industrial Association of Queensland

R&R – Remove and Replace

RSS – Reinforced Soil Slopes

RW – Retaining Wall

SCAS – Scheduled Corridor Access Schedule

UTX – Under Track Crossing

The following table summarises the upcoming Project Works:

Table 2: Summary of upcoming Project Works

Area	Project Works
Mayne Area	<p>Mayne Yard North</p> <ul style="list-style-type: none"> Access Road and Shunt Road construction (North of Ferny Grove Flyover) Cross drainage modifications of pre-load impacted area BR08 (Breakfast Creek Bridge) girder installation SCAS N-7A entry road mods to QR's Western Maintenance Facilities. <p>Mayne Yard East / West</p> <ul style="list-style-type: none"> Complete Demolition of Mayne Eastern facilities Commence Earthworks and CSR for new Vehicle Access Road between MY-East and MY-West.
Northern Area	<p>RNA</p> <ul style="list-style-type: none"> Complete earthworks and rock removal Ground retention rock bolting Inground services including electrical, comms, stormwater, sewer, and wet fire. Piling to commence from 17th April FRP of station footings <p>Northern Corridor</p> <ul style="list-style-type: none"> Investigation works in preparation of CSR, TFR and drainage scope in Northern Portal Area Minor civil works (pavements, Earthing and Bonding, footings) around VP FSC Corridor widening (earthworks and ground retention) North of Bowen Bridge Road, which are now accessible after the SCAS EXT-18. SCAS EXT-19 planning, predominately rail deflection walls of Bowen Bridge.
Southern Area	<p>Southern Portal / Dutton Park</p> <ul style="list-style-type: none"> Retaining wall FRP works to Cope St and Kent St retaining walls Closure and demolition of Platform 2 (inbound platform) in April SCAS Formation rebuild and Platform construction during Easter SCAS Continue CSR network construction Continue Soil Nailing and Shotcrete works Continue Noise Wall construction at Cope Street then move down to Fenton Street.
Southern Area	<p>Fairfield Station</p> <ul style="list-style-type: none"> Commence construction of Lift 1 Continue lift construction, Lift 02, Lift 03 Complete Stair 01 and entrance area, then switch to temp stage 2C to enable removal of scaffold stairs Continue station building construction & fitout Equity and Mildmay Street finishing work Electrical, comms & security cabling, installation of fittings. Continue Mildmay Street Gravity Wall.
Southern Area	<p>Yeronga Station</p> <ul style="list-style-type: none"> Focusing on finalising defect lists, closeout documentation.
Southern Area	<p>Clapham Yard</p> <ul style="list-style-type: none"> Northern drainage (in front of Aurizon) Aurizon fence (on top of RW650) Light poles footing installation Open channel drains, driveways and stone pitching Energex cut-over O/H HV to Underground.

Area	Project Works
Southern Area	Rocklea Station <ul style="list-style-type: none"> • Continue inground services throughout platform areas – PL1 and PL2/3 • Continued FRP work for structural foundations for the canopy foundations • Continue platform slab construction • FRP for DG retaining wall.

2 Complaints

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

Table 3: Summary of Complaints

Date Received	Location	Issue	Project Works / Activity source of the concern	Reporting Period	Complaint Detail	Unity Response	Status
01 March 2023	Dutton Park	Traffic	Station upgrade works	March 2023	Stakeholder complained about pedestrian diversion and traffic control. Needed to improve signage. Pedestrians were not following the temporary detour.	Team advised that complaint was raised with the team to address, and additional signage was installed. Advised the stakeholder that the closure was to provide separation between the works and the public. Additional signage was installed and traffic controllers to assist with pedestrian movements.	Closed
01 March 2023	Dutton Park	Traffic	Station upgrade works	March 2023	Stakeholder complained about pedestrian diversion and traffic control. Needed to improve signage. Pedestrians were not following the temporary detour.	Team advised that complaint was raised with the team to address, and additional signage was installed. Advised the stakeholder that the closure was to provide separation between the works and the public. Additional signage was installed and traffic controllers to assist with pedestrian movements.	Closed
01 March 2023	Dutton Park	Traffic	Station upgrade works	March 2023	Stakeholder complained about pedestrian diversion and traffic control. Needed to improve signage. Pedestrians were not following the temporary detour.	Team advised that complaint was raised with the team to address, and additional signage was installed. Advised the stakeholder that the closure was to provide separation between the works and the public. Additional signage was installed and traffic controllers to assist with pedestrian movements.	Closed
02 March 2023	Dutton Park	Traffic	Station upgrade works	March 2023	Stakeholder complained about pedestrian diversion and traffic control.	Team advised that complaint was raised with the team to address, and additional signage was installed. Advised the stakeholder that the closure was to provide separation between the works and the public. Additional signage was installed and traffic controllers to assist with pedestrian movements.	Closed

Date Received	Location	Issue	Project Works / Activity source of the concern	Reporting Period	Complaint Detail	Unity Response	Status
03 March 2023	Dutton Park	Traffic	Station upgrade works	March 2023	Stakeholder complained about pedestrian diversion and traffic control.	Team advised that complaint was raised with the team to address, and additional signage was installed. Advised the stakeholder that the closure was to provide separation between the works and the public. Additional signage was installed and traffic controllers to assist with pedestrian movements.	Closed
03 March 2023	Dutton Park	Traffic	Station upgrade works	March 2023	Stakeholder complained about pedestrian diversion and traffic control.	Team advised that complaint was raised with the team to address, and additional signage was installed. Advised the stakeholder that the closure was to provide separation between the works and the public. Additional signage was installed and traffic controllers to assist with pedestrian movements.	Closed
06 March 2023	Dutton Park	Traffic	Station upgrade works	March 2023	Stakeholder complained about pedestrian diversion and traffic control.	Team advised that complaint was raised with the team to address, and additional signage was installed. Advised the stakeholder that the closure was to provide separation between the works and the public. Additional signage was installed and traffic controllers to assist with pedestrian movements.	Closed
07 March 2023	RNA	Noise	EXT_018 SCAS Works	March 2023	Stakeholder complained about rock breaking activities being undertaken within the RNA Showgrounds at night.	Team advised stakeholder that the activity had to be undertaken during night shift to meet critical programme milestone. Attended noise monitoring and formable ear plugs were offered to the stakeholder.	Closed
07 March 2023	Fairfield	Workforce behaviour	Station upgrade works	March 2023	Stakeholder complained about an interaction with a traffic controller.	Team raised the issue with the Area Manager to address. Team also provided an update on work activities in the area and mitigation measures undertaken on site to reduce construction impacts.	Closed
07 March 2023	RNA	Noise	EXT_018 SCAS Works	March 2023	Stakeholder complained about rock breaking activities being undertaken within the RNA Showgrounds at night.	Team advised stakeholder that the activity had to be undertaken during night shift to meet critical programme milestone. Team requested the stakeholders' address to confirm if their property was within the allowable limits. Team offered to add the stakeholder to the monthly project updates.	Closed
07 March 2023	Fairfield	Noise	Station upgrade works	March 2023	Stakeholder complained about the ongoing noise from Fairfield Station construction activities.	Team provided an update on the construction programme and upcoming activities.	Closed

Date Received	Location	Issue	Project Works / Activity source of the concern	Reporting Period	Complaint Detail	Unity Response	Status
11 March 2023	Dutton Park	Noise	Station upgrade works	March 2023	Stakeholder complained about the notification of night works in the most recent construction notice. They felt it wasn't clearly explained. They also complained about general construction activities noise, fumes, night works, street access and material on roads.	Team provided information on communication of works and advised the stakeholder that all night works are listed under the 'Out of Hours work' section within the notice. Team also provided an update on construction activities.	Closed
20 March 2023	Fairfield	Noise	Station upgrade works	March 2023	Stakeholder complained about ongoing construction at Fairfield station.	Team advised the stakeholder of Fairfield station completion timelines and information on timing of certain activities, in particular out of hours works. Stakeholder was added to project database to receive regular updates.	Closed

3 Environmental Monitoring Results

The below section summarises the monitoring results to be reported in accordance with Imposed Condition 6(b)(i).

Acoustics

Imposed Condition 11(b) 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 (C-EMP) occurs.

3.1.1 Noise Monitoring

Attended noise monitoring was not triggered based on the predictive noise assessments for the Relevant Project Works during the reporting period.

Complaint-based noise monitoring because of Project Works was not triggered during the reporting period.

3.1.2 Noise Monitoring Results

Table 4 Summary of Noise Monitoring Data

Location	Receiver Type Details	Type of Monitoring	Work Hours	Monitoring date and time	Noise Type	Purpose of Monitoring	Predictive model (dBA)	Performance Goal 1 (dBA) (Condition 11(a), Table 2, LA _{10/eq} noise goals)	Performance Goal 2 (dBA) – (Condition 11(c), Table 2 LA ₁₀ noise goal + 20dBA))	Measured LA ₁₀ (dBA)	Measured LA _{eq} (dBA)	DAP engagement prior to works	Is performance Goal exceeded?	Comments For interpretation, please refer to section Error! Reference source not found.
	Nil – not triggered													

- Note 2 of Imposed Condition 11 Table 2 states *Where internal noise levels are unable to be measured or monitored, the typical noise reductions presented in Guideline Planning for Noise Control, Ecoaccess, DEHP, January 2017 (PFNC) apply.*
- The monitoring was undertaken to validate the model therefore external noise measurements are appropriate to determine the impact of construction noise.
- Note (2) – Façade Attenuation
 - Note 2 of Imposed Condition 11 Table 2 states *Where internal noise levels are unable to be measured or monitored, the typical noise reductions presented in Guideline Planning for Noise Control, Ecoaccess, DEHP, January 2017 (PFNC) apply.*
 - The PFNC guideline can no longer be accessed. The Department of Environment and Science (DES) website still states this guideline is under review and is yet to release an alternative guideline
 - Former revisions of the PFNC table 7 stated the following regarding typical noise reductions through the building façade:
 - 5 dB – Window wide open
 - 10 dB – Partially closed
 - 20 dB – Single glazed, closed
 - 25 dB – Thermal double glazing, closed
 - The RfPC-4 Technical Report considered that all receptors had closed external single glazing for the assessment of construction noise impacts.
 - The Queensland Ombudsman assessed this assumption for the Airport Link Project and recommended that 10dB be adopted for major infrastructure projects in Queensland¹.
 - Additionally, several 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.

² Refer to the waterways and water quality management plan, a C-EMP sub-plan for details of derivation of the discharge criteria

3.1.3 Vibration Monitoring

Vibration monitoring to validate the predictive model was triggered for:

- The use of hydraulic hammers (1T, 3T and 7.5T) at the RNA Showgrounds in proximity to State heritage listed buildings (John MacDonald Stand).

Vibration monitoring not triggered by the predictive model but undertaken as a contingency was completed for:

- The use of a 3.5T hydraulic hammer at Mayne Yard East for foundation breaking works adjacent to a QR Facility occupied during dayshift

The results are presented in the below Table.

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

Vibration monitoring to address property damage was not triggered by the predictive assessment.

3.1.4 Vibration Monitoring Results

Table 5 Summary of Vibration Data

Location	Date (Start and Finish)	Time of day	Closest DAP / Sensitive Place	Receiver Type (table 3 – Imposed Condition 11(e))	Purpose of Monitoring	Vibration intensive equipment	Maximum predicted vibration level	Shortest distance between Equipment and Sensitive Place @Time of Monitoring"	Maximum recorded vibration level	Vibration goal for receiver	Exceedance of vibration limit?	Comments
Mayne Yard East (QR Facility Building)	03/03/2023 to 15/03/2023	24 hours/ 7days	QR Facility (Block A)	Commercial Human Comfort – According to AS2670	Construction Monitoring at Sensitive Places – Model Verification	3.5T rock breaker/ hydraulic hammer	4.4mm/s	11m	0.15mm/s	10mm/s	No	<p>Monitor was installed at QR Facility Block A at the façade of the building.</p> <p>The model was run for a 5T hammer as no data was available for the 3.5T hammer, therefore the model is considered to be conservative.</p> <p>The monitor was located approximately 11m from the closest potential hammering location (predicted 4.4mm/s).</p> <p>Due to the extent of the foundations being hammered (approximately 150m in length), it is possible that no hammering occurred within the direct vicinity of the vibration monitor.</p> <p>The recorded peak of 0.15mm/s was recorded on 10/3/23 at 16:42 during the hammering and breaking of the foundation of the redundant building.</p>
John MacDonald Stand	01/03/2023 to 31/03/2023	24 hours/ 7days	John MacDonald Stand	Heritage – DIN4150 Group 3	Construction Monitoring at Sensitive Places – Model Verification	7.5T, 3T and 1T rock breakers/ hydraulic hammers	1.2mm/s	32m	1.08mm/s	3mm/s State heritage building	No	<p>Monitor was installed at the John MacDonald Stand within a storeroom at the building's foundation.</p> <p>The monitor was approximately 49 – 50m from the hammer (predicted 1.2mm/s) and 31.7m from the façade (predicted 2mm/s).</p> <p>The recorded peak of 1.08mm/s can be attributed to the hammer being used during the bridge demo during the EXT_018 SCAS.</p>

3.1.5 Interpretation

The RIS scope of works continues to achieve the outcomes set out by the Imposed Conditions and OEMP.

3.1.6 Noise Monitoring

Not triggered during the monitoring period.

3.1.7 Vibration Monitoring

3.1.7.1 Model Verification

3.1.7.1.1 Mayne Yard East QR Building

Vibration monitoring during foundation breaking works of a redundant QR building was undertaken at the façade of the QR Facility Block A building. This location was selected due to its proximity to the works and because it was occupied by QR employees during the works.

Concrete foundation breaking activities was undertaken as part of Stage 3 Mayne Yard East Works prior to the EXT_018 SCAS. The peak reading of 0.15mm/s is attributed to the hammering and breaking of the redundant building.

Monitoring was not triggered by the predictive model and was only undertaken as a contingency.

No exceedances of the vibration goal were recorded.

3.1.7.1.2 John MacDonald Stand Results

Vibration monitoring during rock breaking works at the RNA Showgrounds was undertaken at the foundation of the State heritage John MacDonald Stand inside a storeroom. This location was selected based on the outcomes of predictive assessments.

Rock breaking activities were undertaken as part of Stage 2 demolition during the EXT_018 SCAS. The peak reading of 1.08mm/s is attributed to the rock breaking during the existing bridge demolition.

No exceedances of the revised vibration goal were recorded.

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

Air Quality

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

Visual monitoring was undertaken during routine environmental inspections. A total of 28 inspections were undertaken by the Environment Team across Mayne Yard, RNA Showgrounds, Northern Corridor, Southern Area, Fairfield Station, Yeronga Station, Clapham Yard and Rocklea Station.

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

Table 6 Summary of Air Quality monitoring devices

Monitoring Device Installed by UNITY	Area	Name	Date Installed	Status for the Reporting Period
Dust Deposition Gauge	RNA Showgrounds	AQ-01	13 December 2019	Active
Dust Deposition Gauge	Mayne Yard (Eastern Air Shed)	AQ-04	13 February 2020	Active

Monitoring Device Installed by UNITY	Area	Name	Date Installed	Status for the Reporting Period
Dust Deposition Gauge	Clapham Yard (Eastern Air Shed)	AQ-06	1 February 2021	Active
Dust Deposition Gauge	Yeronga Station	AQ-07	12 August 2021	Inactive DDG was decommissioned on 10 December 2021 following the completion of earthworks
Dust Deposition Gauge	Dutton Park	AQ-08	8 July 2022	Active
TSP / PM ₁₀ Monitor	Mayne Yard North (Eastern Air Shed)	Mayne Yard North	26 August 2022	Inactive as of 11 May 2022 CAQP confirmed that the Mayne Yard DMP can be temporarily decommissioned following the completion of Mayne Yard North earthworks. DMP was reinstated for Mayne Yard East Works on 26 August 2022 – see below
TSP / PM ₁₀ Monitor	Mayne Yard East (Eastern Air Shed)	Mayne Yard East	26 August 2022	Partially active (28 March 2023 onwards) DMP was relocated to Clapham Yard to prevent further data loss Particulates monitoring was not triggered for the scope of works undertaken during the reporting period.
TSP / PM ₁₀ Monitor	Clapham Yard (Eastern Air Shed)	Clapham Yard	9 August 2021	Active
TSP / PM ₁₀ Monitor	RNA (Western Air Shed)	RNA	25 August 2020	Active

3.1.8 Dust results

As passive dust deposition gauges (DDG) are analysed monthly, results span:

- Mayne Yard, RNA and Dutton Park:
 - 9 February 2023 to 10 March 2023
- Clapham Yard:
 - 14 February 2023 to 13 March 2023

The results are detailed below and compared against Imposed Condition 13(b).

Table 7 Dust deposition gauge results for the reporting period

CGCR Goal (mg/m ² /day)	AQ-01 - RNA Showgrounds (mg/m ² /day)	AQ-04 Grafton Street (E Mayne) (mg/m ² /day)	AQ-06 – Clapham Yard (mg/m ² /day)	AQ-08 – Dutton Park (mg/m ² /day)
120	260	30	43	256
Total Rainfall during Period (mm)	44	80.4	99.6	34.2

Note: Results recorded in red indicate an exceedance of the CGCR Goal

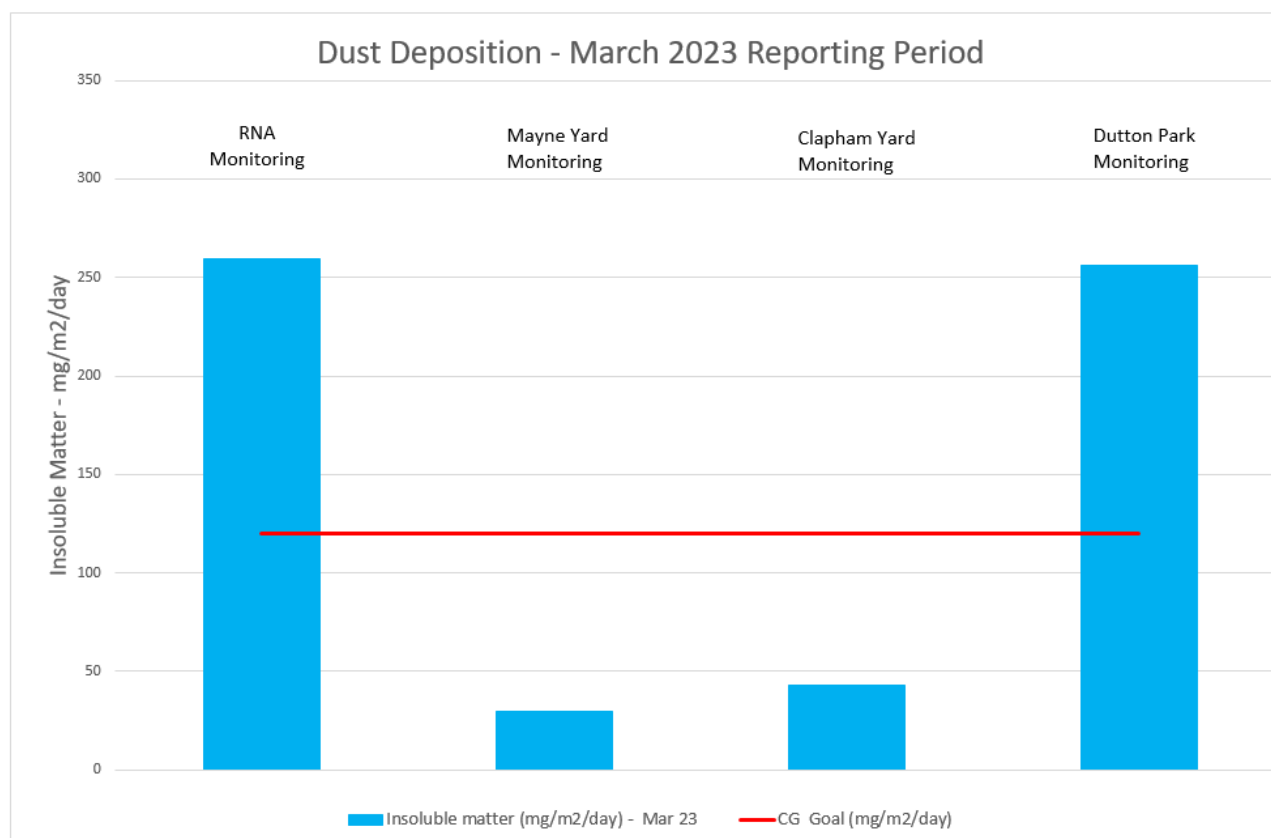


Figure 1 Air Quality Monitoring (Deposited Dust) Results

3.1.8.1 Interpretation

3.1.8.1.1 RNA Showgrounds Elevated Result

As mentioned in the February monthly report, a predictive air quality assessment was carried out by the Project's certified air quality professional (CAQP) prior to Relevant Project Works commencing.

The assessment triggered dust deposition monitoring during Stage 2 demolition and bulk earthworks. The RNA DDG is located on the fence line delineating the construction area boundary from the RNA Showgrounds directly above the rock breaking site (refer to Attachment 3). It is noted that the DDG is therefore located closer to dust emission sources than the nearest sensitive receptor (Royal International Convention Centre), acknowledging that the separation distance between the gauge and the nearest sensitive receptor is approximately 23m.

During the measurement period (9 February 2023 – 10 March 2023), construction works at RNA consisted primarily of rock breaking, cut and fill works and the demolition of the existing rail bridge associated with Stage 2 demolition works including the EXT_018 SCAS Works.

The scale, duration and intensity of the aforementioned activities was consistent with the activities reviewed as part of the predictive air quality assessment.

The measured dust deposition level of 260 mg/m²/day is a multitude of 2.1x higher than the air quality goal of 120 mg/m²/day, and therefore has been recorded as an exceedance.

A wind rose was completed (refer to Figure 2) to ascertain the predominant winds during the measurement period and whether abnormal wind conditions occurred during the period.

The wind rose confirmed that:

- The DDG was downwind of the Project Works 50% of the time, and

- Wind conditions were light to gentle (according to the Beaufort Scale) during the majority (98%) of the measurement period.

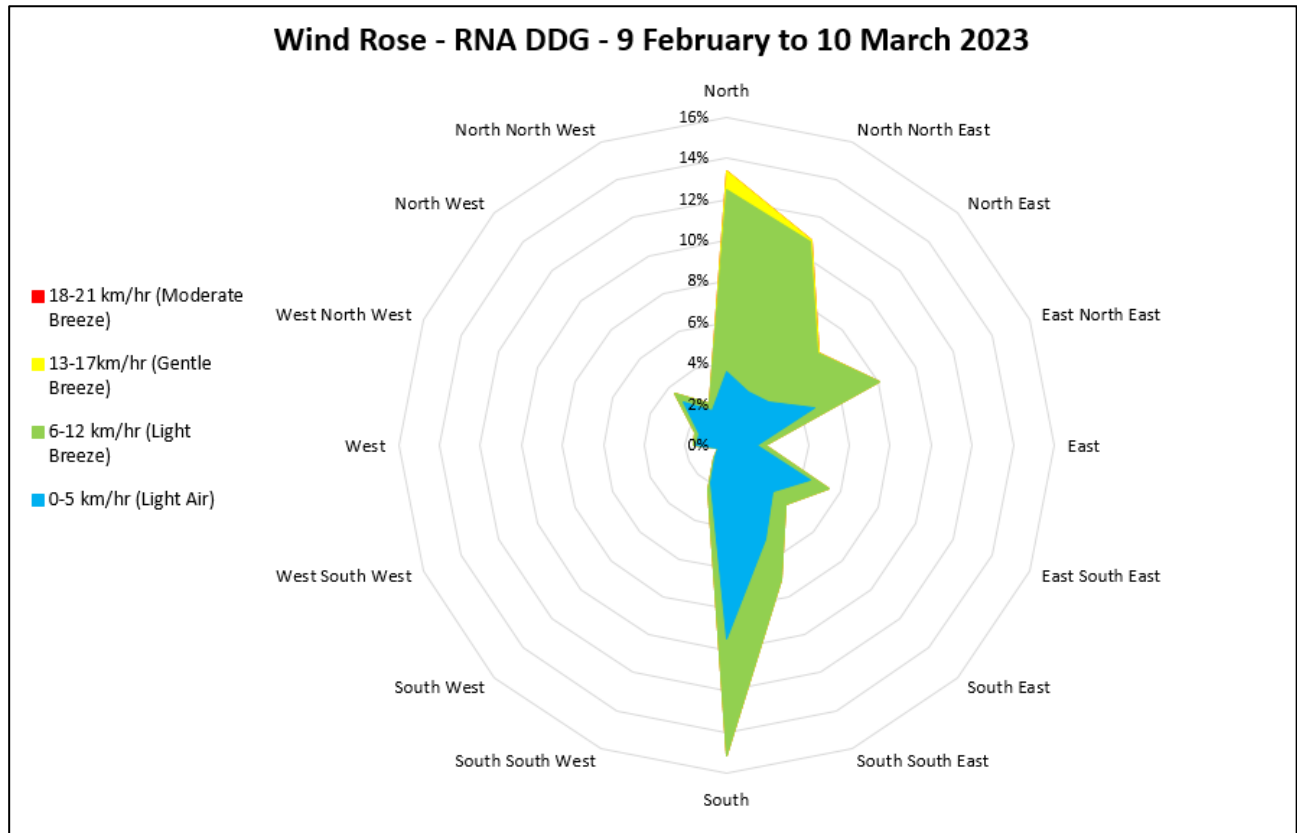


Figure 2 RNA Wind Rose During DDG Measurement Period

During the measurement period there were no other activities in the vicinity of the RNA Showgrounds that would have produced dust emissions above the predicted levels for the Stage 2 demolition and EXT_018 SCAS Works.

It is therefore concluded that the exceedance of the Air Quality Goal for the reporting period is likely attributable to Project Works. The location of the dust deposition gauge at the RNA worksite is located immediately adjacent to the project site. This location was selected to be representative of the work area for the site whilst ensuring the security of the DDG.

The DDG at this location provides limited representation of the sensitive receptors adjacent the site due to the gauge's proximity to the worksite and specifically the rock breaking and demolition activities undertaken.

It is however noted that the Project Team is actively implementing the following to manage dust emissions from the RNA worksite:

- Dust suppression (hose spraying during rock breaking and demolition and water carts spraying throughout site) (refer to Figure 3 and Figure 4 below)
- Erosion control (geofabric placed on exposed batters) (refer to Figure 5 below)
- Stabilised access points (minimising tracking onto roads) (refer to Figure 6 below)
- Street sweepers on rotation as required and frequency increased during EXT_018 SCAS (refer to Figure 6 below).

During the reporting period there were no complaints from nearby sensitive receptors regarding air quality for the RNA Works.



Figure 3 Hosing During Rock Breaking



Figure 4 Hosing During Rock Breaking



Figure 5 Disturbed Bridge Abutment Covered in Geofabric



Figure 6 Sweeper Truck Sweeping Stabilised Access Track After Water Cart Spray

3.1.8.1.2 Dutton Park Elevated Result

A predictive air quality assessment was carried out by the Project's certified air quality professional (CAQP) prior to Relevant Project Works commencing.

The assessment recommended visual air quality monitoring be undertaken during construction to observe the generation of construction dust and to identify if dust is being transported outside the project boundaries.

The CAQP deemed that quantitative monitoring such as dust deposition monitoring was not required due to the short duration of the works and limitations involving time constraints and the application of monitors. As dust deposition monitoring requires monitoring over a 30-day period with results then available two weeks later following lab analysis, it was deemed that this will limit the potential effectiveness of quantitative monitoring.

Following consultation with the UNITY Community and Stakeholder Team, the Environment Team elected to install a DDG due to the proximity of numerous sensitive residential receptors surrounding the worksite. In consultation with the CAQP, the DDG was installed at the fence line delineating 211 Annerley Road and the construction boundary to reduce data loss due to vandalism (refer to Attachment 3).

During the monitoring period (9 February 2023 – 10 March 2023), construction works at Dutton Park consisted primarily of cut and fill and bulk earthworks and CSR Works associated with Stage 1.6 works. The activities were undertaken near the DDG during standard hours and extended hours.

During the measurement period, the CSR Works required temporary materials handling at the Cope Street access point due to time and space constraints due to a weekend SCAS. As a result, higher than predicted dust emissions occurred which generated air quality complaints from nearby sensitive receptors. Complaints associated with the elevated result were reported in the February 2023 report. This is due to the lab analysis turnaround time of two (2) weeks delaying the receipt of the dust deposition results.

Following the complaints, the Environment Team addressed dust mitigation measures with the Site Supervisors, Area Manager and the Community and Stakeholder Team. A meeting was held on site to discuss potential additional measures and site constraints. It was agreed that the following would be implemented and/or investigated:

- Where possible, avoid double materials handling at the Cope Street access
- Increased water truck spraying during SCAS'
- Application of polymer spray that could be applied using a water truck
- Working with individual nearby sensitive receivers in response to their complaints.

The measured dust deposition level of 256 mg/m²/day is a multitude of 2.1x higher than the air quality goal of 120 mg/m²/day, and therefore has been recorded as an exceedance.

A wind rose was completed (refer to Figure 7) to ascertain the predominant winds during the measurement period and whether abnormal wind conditions occurred during the period.

The wind rose confirmed that:

- The DDG was downwind of the Project Works 62% of the time, and
- Wind conditions were light to gentle (according to the Beaufort Scale) during the majority (98%) of the measurement period.

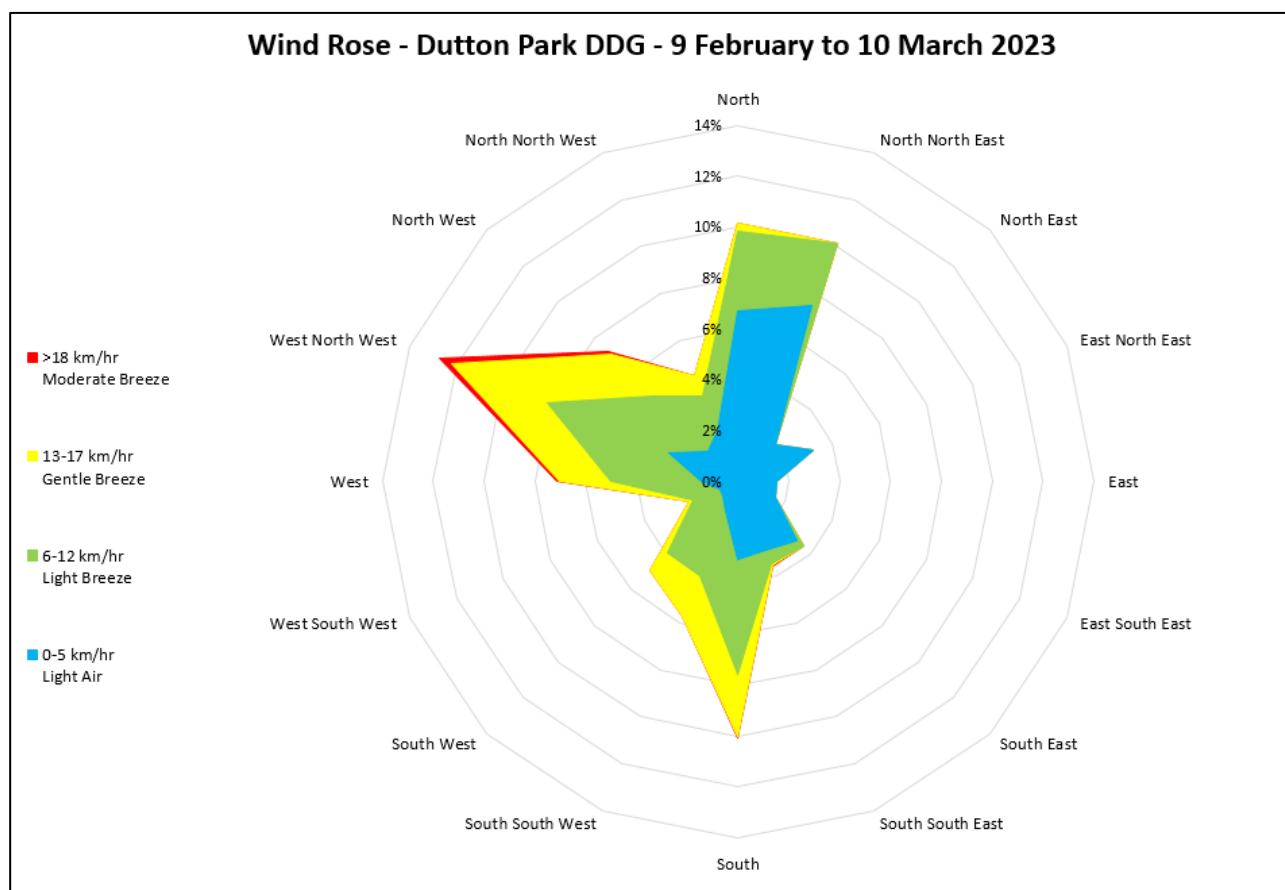


Figure 7 Dutton Park Wind Rose During DDG Measurement Period

During the measurement period the nearby Department of Environment and Science (DES) Woolloongabba weather station (refer to Figure 8) recorded elevated particulate matter (specifically PM₁₀) results on three separate days:

- 14 February 2023
- 16 February 2023
- 01 March 2023

Although the elevated results refer to particulate matter instead of deposited dust, it speaks to a change in normal air quality conditions and can indicate the presence of a regional event.

Figures 9 – 11 below demonstrate the elevated results recorded at the DES Woolloongabba weather station during the days with elevated results.

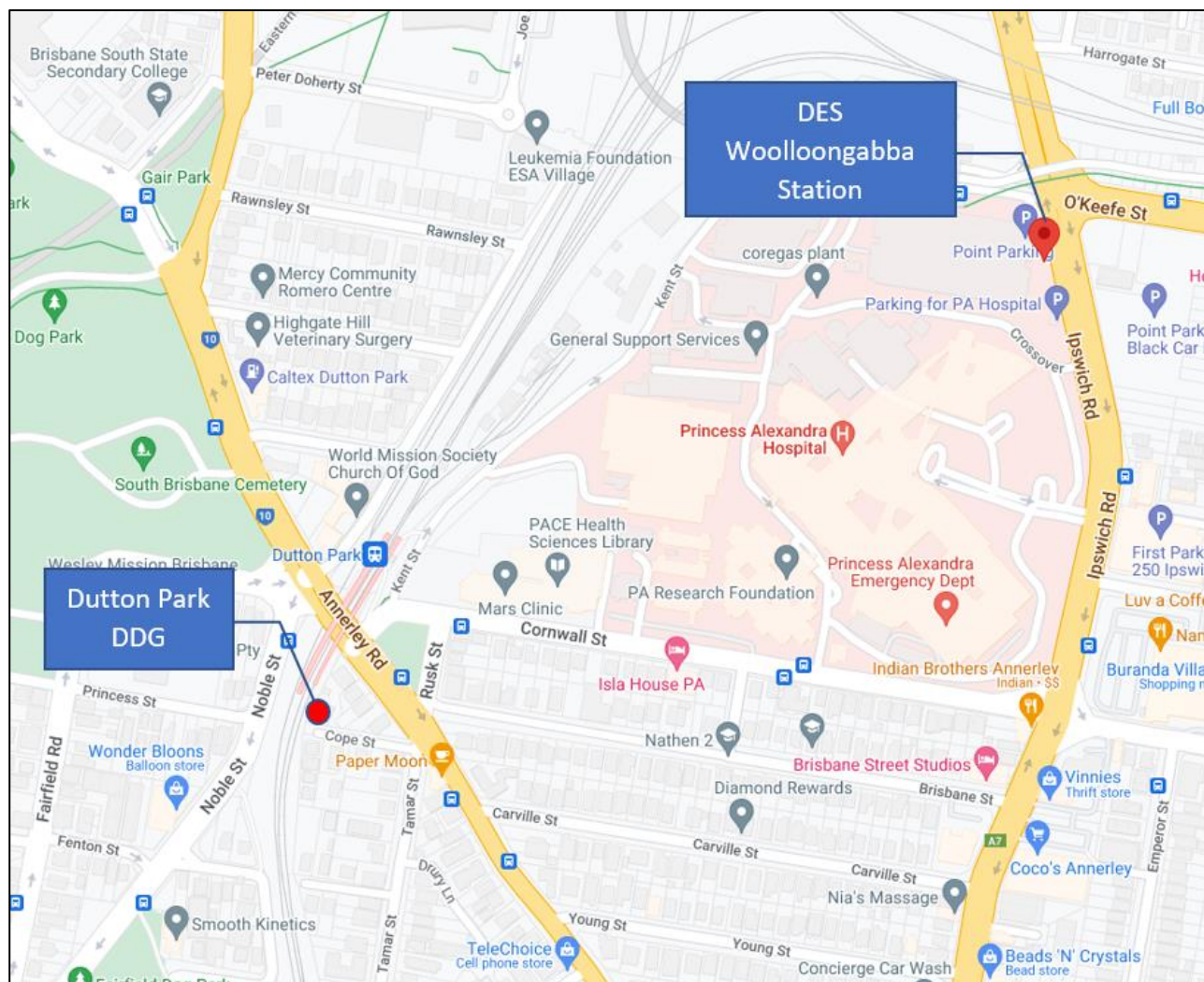


Figure 8 DES Woolloongabba Weather Station Location

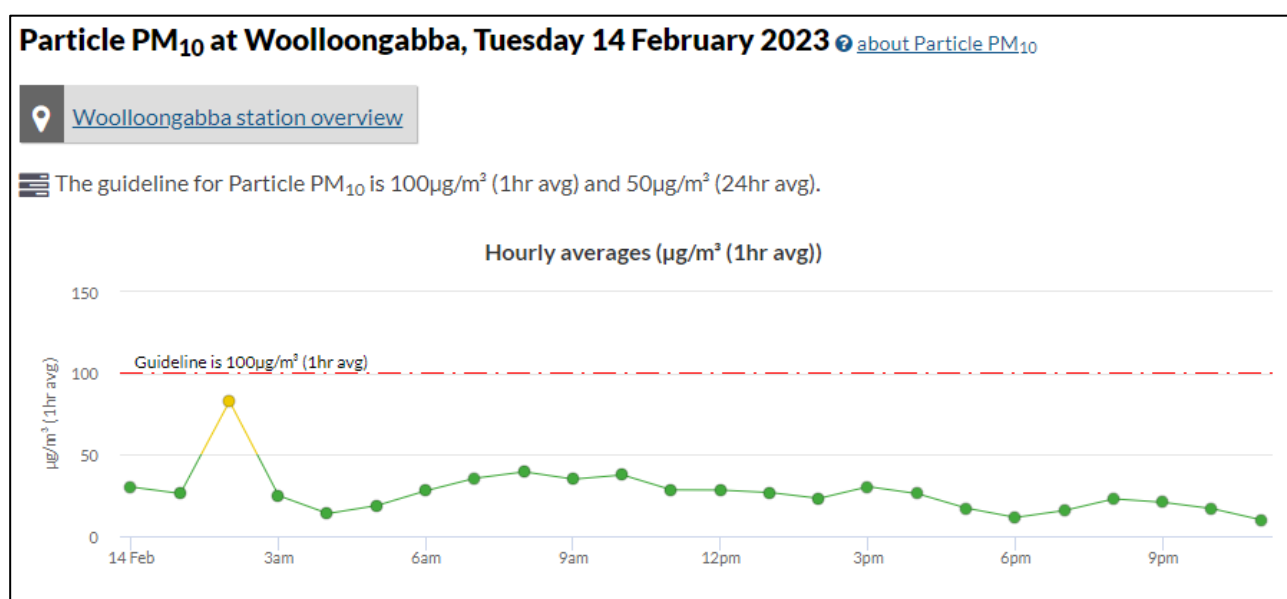


Figure 9 DES Woolloongabba Weather Station PM₁₀ Results 14 February 2023

Particle PM₁₀ at Woolloongabba, Thursday 16 February 2023 [about Particle PM₁₀](#)

[Woolloongabba station overview](#)

The guideline for Particle PM₁₀ is 100µg/m³ (1hr avg) and 50µg/m³ (24hr avg).

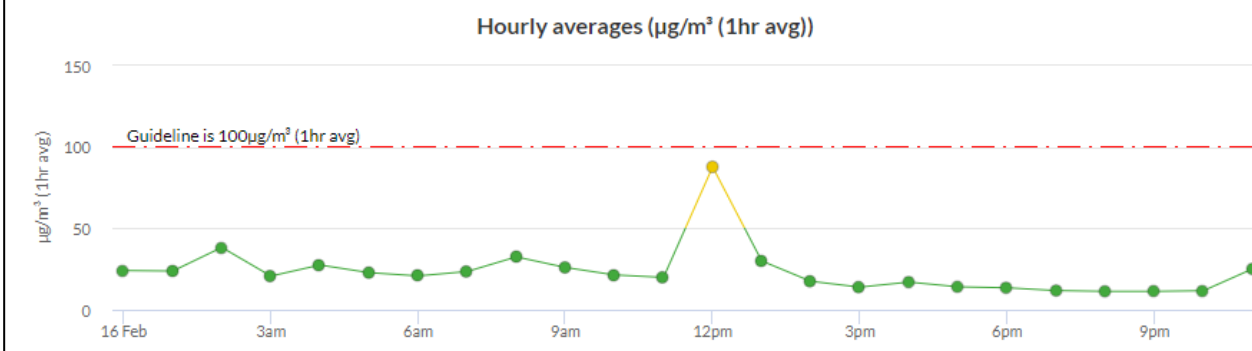


Figure 10 DES Woolloongabba Weather Station PM₁₀ Results 16 February 2023

Particle PM₁₀ at Woolloongabba, Wednesday 1 March 2023 [about Particle PM₁₀](#)

[Woolloongabba station overview](#)

The guideline for Particle PM₁₀ is 100µg/m³ (1hr avg) and 50µg/m³ (24hr avg).

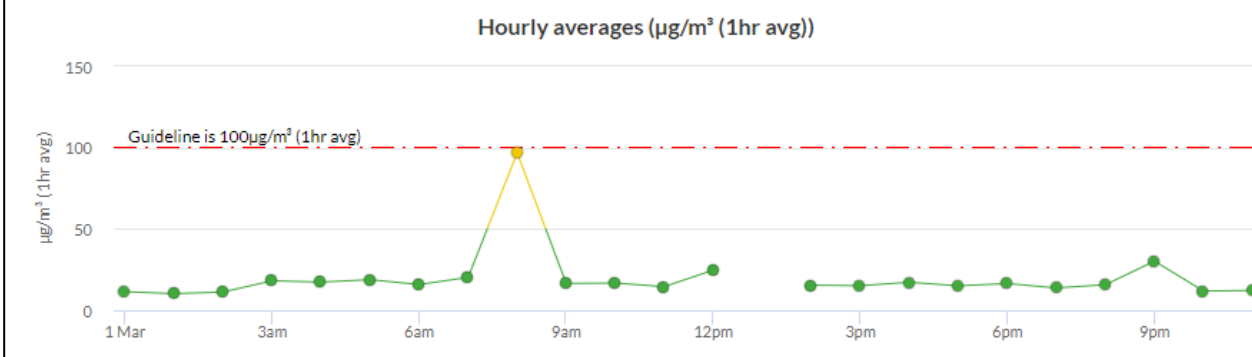


Figure 11 DES Woolloongabba Weather Station PM₁₀ Results 01 March 2023

During the reporting period there were no other activities in the vicinity of the Dutton Park worksite that would have produced dust emissions above the predicted levels for the Stage 1.6 activities.

It is therefore concluded that the exceedance of the Air Quality Goal for the reporting period is likely attributable to Project Works. The location of the DDG at the Dutton Park worksite is located immediately adjacent to the project site. This location was selected to be representative of the work area for the site while ensuring the security of the DDG.

The DDG at this location provides limited representation of the sensitive receptors adjacent the site due to the gauges' proximity to the worksite and specifically the earthworks activities undertaken.

It is however noted that the Project Team is actively implementing the following to manage dust emissions from the Dutton Park worksite:

- Dust suppression (water trucks spraying throughout work areas and hosing during breaking activities)

- Erosion control (geofabric placed on exposed batters)
- Stabilised access points (minimising tracking onto roads)
- Street sweepers on rotation as required and frequency increased during SCAS'.

Finally, despite the recorded exceedances of the CGCR Goal, the Project continues to meet their requirements under Imposed Condition 13 and the OEMP.

3.1.9 Particulates Results

3.1.9.1 Air Quality Monitoring Stations

UNITY had two (2) active and one (1) partially active air quality monitoring stations in place for the reporting period as detailed in Table 6.

3.1.9.2 Monitoring Results – Reporting Period

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

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

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

These stations have been installed on-site as per AS/NZS 3850 1.1 following consultation with UNITY air quality professionals. The results are represented in the below figures. Due to the ongoing data recording issues at Clapham Yard the DMP installed at Mayne Yard East was relocated to Clapham Yard to minimise the chance of further data loss. This approach was approved by the Project CAQP.

The Clapham Yard DMP returned from service on 27 March 2023 and was reinstalled at Clapham Yard the same day. The Mayne Yard East DMP was then removed from Clapham Yard and reinstalled at Mayne Yard East.

The Clapham Yard DMP began experiencing repeated battery issues which invalidated the data recorded from 27 – 31 March 2023 due to not meeting the minimum 18-hour or 75% threshold over a 24-hour period. This issue rectification is in progress and will be reported in the April 2023 monthly report.

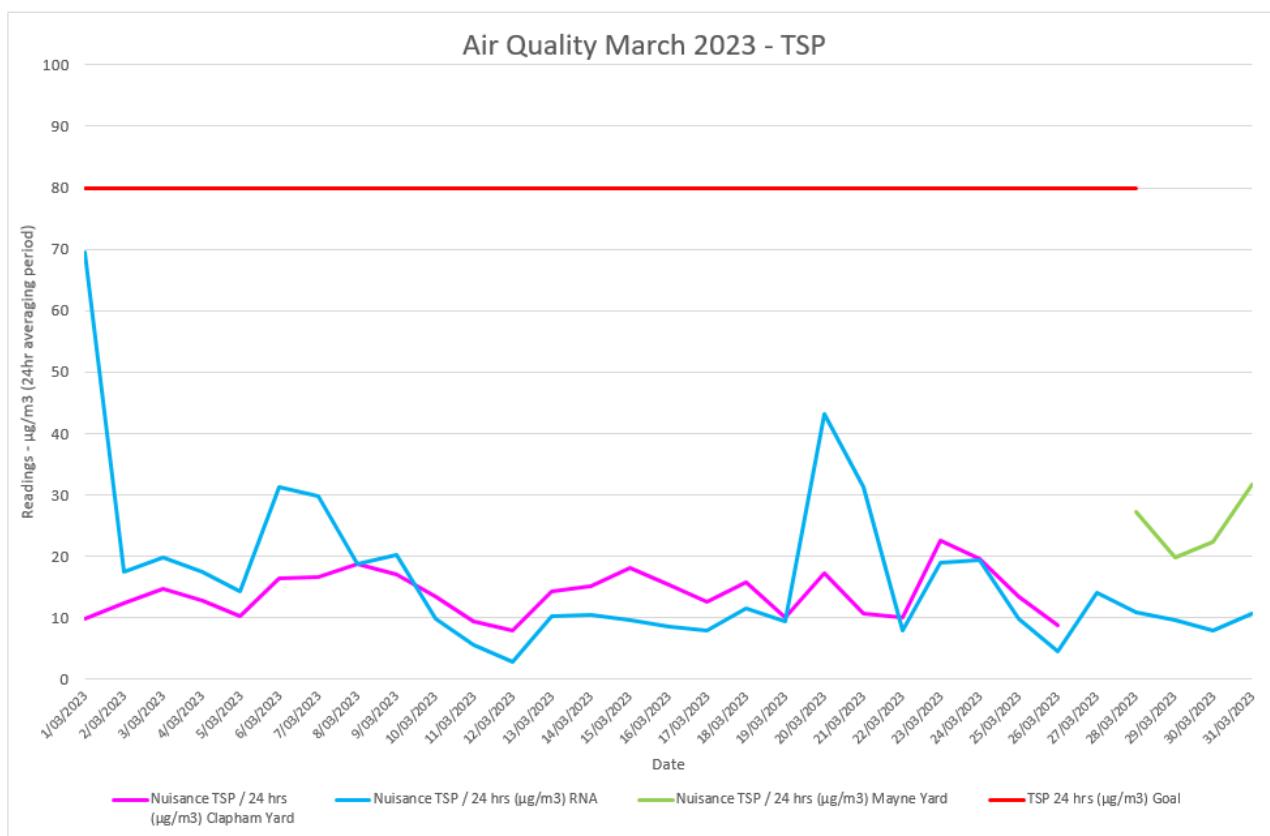


Figure 12 Air Quality Monitoring (TSP) Results

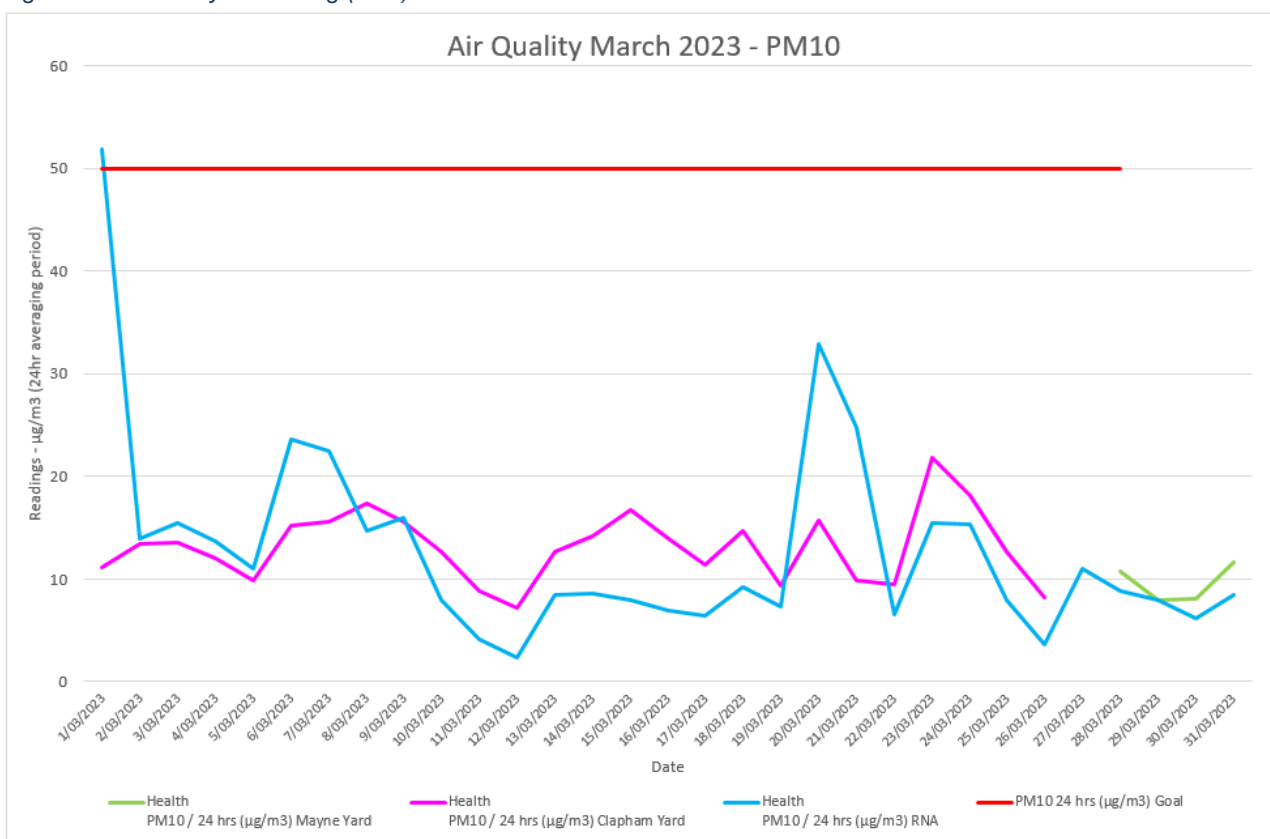


Figure 13 Air Quality Monitoring (PM10) Results

3.1.10 Monitoring Results – Annual Averaging

Imposed Condition 13 (a) sets annual average air quality goals for TSP (Human health) and PM₁₀ (Human health).

The below table summarises where TSP and PM₁₀ monitoring have been carried out over the last 12 months.

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

(<https://www.nepc.gov.au/system/files/resources/9947318f-af8c-0b24-d92804e4d3a4b25c/files/aaqprctp05datacollection200105final.pdf>).

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

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

In some instances, Relevant Project Works, which triggered TSP and PM₁₀ monitoring was carried out for less than 274 days (e.g., at the Northern Corridor). In such instances the annual averages are still reported but are indicative only as data capture did not meet the 75% data capture requirements of *National Environment Protection (Ambient Air Quality) Measure Technical Paper No. 5 – Data Collection and Handling*.

Table 8 Summary of Air Quality Monitoring Devices Over 12 months

Monitoring Device Installed by UNITY	Area	Date Installed	Date Decommissioned	Number of days data was captured over 365 days period	Data capture over an annual period	Annual performance reporting
TSP / PM ₁₀ Monitor	Northern Corridor (Eastern Air Shed)	23 April 2020	13 January 2021	260 over 365 days	71% over 365 days	<i>Indicative only</i> Data capture did not meet the minimum data capture requirements
TSP / PM ₁₀ Monitor	Mayne Yard North (Eastern Air Shed)	23 April 2020	11 May 2022	Period 1 (to 23 April 2021) 358 over 365 days Period 2 (24 April 2021 to 25 April 2022) 364 over 365 days Period 3 (26 April 2022 to 11 May 2022) 3 days over 47 days	Period 1 98% over 365 days Period 2 99% Over 365 days Period 3 17% Over 47 days	Applicable for Period 1 Data capture met minimum data capture requirements Applicable for Period 2 Data capture has met minimum data capture requirements Applicable for Period 3 Data capture has not met minimum data capture requirements

Monitoring Device Installed by UNITY	Area	Date Installed	Date Decommissioned	Number of days data was captured over 365 days period	Data capture over an annual period	Annual performance reporting
TSP / PM ₁₀ Monitor	Mayne Yard East (Eastern Air Shed)	26 August 2022	Not yet decommissioned	Period 1 (Started 26 August 2022) 126 days over 187 days	Period 1 67% Over 187 days	Not yet applicable for Period 1 Data capture has not yet met minimum data capture requirements
TSP / PM ₁₀ Monitor	RNA (Western Air Shed)	11 June 2020	Not yet decommissioned	Period 1 (to 11 June 2021) 314 over 365 days Period 2 (12 June 2021 to 12 June 2022) 290 over 365 days Period 3 (Started 13 June 2022) 214 over 231 days	Period 1 86% over 365 days Period 2 79% Over 365 days Period 3 93% Over 202 days	Applicable for Period 1 Data capture met minimum data capture requirements Applicable for Period 2 Data capture met minimum data capture requirements Not yet applicable for Period 3 Data capture has not yet met minimum data capture requirements
TSP / PM ₁₀ Monitor	Clapham Yard (Eastern Air Shed)	1 February 2021	Not yet decommissioned	Period 1 (to 31 January 2022) 326 over 364 days Period 2 (01 February 2022 to 31 January 2023) 190 over 365 days Period 3 (started 01 February 2023) 49 over 59 days	Period 1 90% over 364 days Period 2 57% Over 365 days Period 3 83% Over 59 days	Applicable for Period 1 Data capture met minimum data capture requirements Applicable for Period 2 Data capture did not meet the minimum data capture requirements Not yet applicable for Period 3 Data capture has not yet met the minimum data capture requirements

The below table summarises the applicable and indicative annual data results for TSP and PM₁₀ against the performance goals imposed under Condition 13(a). Results in *italic* are indicative only.

Table 9 Annual Performance Results

Air Quality Indicator	Goal	Period	Northern Corridor	Mayne Yard North	Mayne Yard East	RNA	Clapham Yard
TSP 90 µg/m ³		Period 1	8 µg/m ³	11 µg/m ³	Not yet applicable	18 µg/m ³	8 µg/m ³
		Period 2	-	10 µg/m ³	-	15 µg/m ³	16 µg/m ³
		Period 3	-	Not applicable	-	Not yet applicable	Not yet applicable
PM ₁₀ 25 µg/m ³		Period 1	5 µg/m ³	7 µg/m ³	Not yet applicable	11 µg/m ³	5 µg/m ³
		Period 2	-	7 µg/m ³	-	10 µg/m ³	14 µg/m ³
		Period 3	-	Not yet applicable	-	Not yet applicable	Not yet applicable

3.1.11 Interpretation

3.1.11.1 Particulates Results

External ambient air quality was collected for total suspended particulates (TSP) and particulate matter less than 10µm (PM₁₀).

TSP is one of the indicators for which the Coordinator General has imposed a goal of 80µg/m³ (over an averaging period of 24 hours) the project must aim to achieve under Imposed Condition 13(a).

PM₁₀ is one of the indicators for which the Coordinator General has imposed a goal of 50µg/m³ (over an averaging period of 24 hours) the project must aim to achieve under Imposed Condition 13(a).

These stations have been installed on-site as per AS/NZS 3850 1.1 following consultation with UNITY Certified Air Quality Professionals (CAQP).

During the reporting period:

- None of the particulate results exceeded their relevant goals for TSP and PM₁₀ at Mayne Yard, RNA and Clapham Yard
- There were no complaints received associated with air quality concerns during the reporting period for the sites of Mayne Yard, RNA and Clapham Yard.

3.1.11.2 Mayne Yard East March Interpretation

In the absence of particulates data for the reporting period at Mayne Yard East, UNITY has undertaken an investigation to provide supplementary information to confirm the RIS scope of works has met the project outcomes set out by the CGCR and the OEMP.

3.1.11.2.1 UNITY Works

During the reporting period Mayne Yard East Works consisted of demolition of redundant QR buildings and roads, BR11/13 road barrier install and BR12 truss structure install.

The Mayne Yard East site is almost entirely capped with a small, vegetated stockpile area which has remained undisturbed since UNITY took ownership of the work area.

3.1.11.2.2 Meteorological Conditions

As shown in the wind rose below (refer Figure 14) the predominant winds during the reporting period were from a north easterly and south easterly direction. As a result, any potential dust generated from UNITY

works would have travelled south-west towards the RNA Showgrounds work area and north-west away from the sensitive receptors located east of Mayne Yard East on Abbotsford Road.

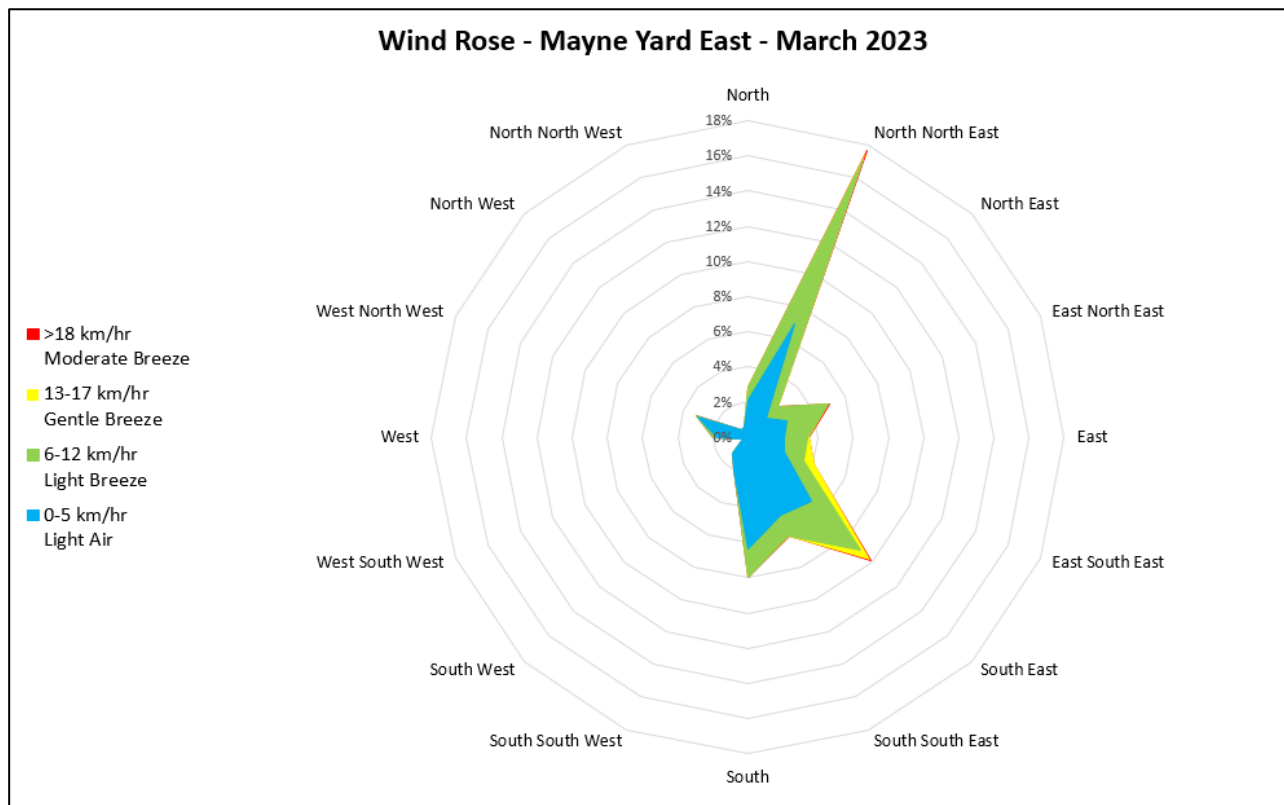


Figure 14 Mayne Yard East Wind Rose March 2023

3.1.11.2.3 Air Quality Complaints

During the reporting period, no air quality complaints were received for works associated with Mayne Yard East from nearby sensitive receivers.

Therefore, despite the absence of particulates data for the reporting period, the RIS scope of works has met the project outcomes set out by the CGCR and OEMP.

3.1.11.3 RNA Lanham Street 1 March 2023 Elevated Result

As mentioned above in section 3.1.8.1.1, a predictive air quality assessment was carried out by the Project's certified air quality professional (CAQP) prior to Relevant Project Works commencing.

The assessment triggered particulates monitoring during Stage 2 demolition and bulk earthworks. The RNA particulates monitor (DMP) is located at the Lanham Street yard (refer to Attachment 3). This location was selected based on the proximity of nearby sensitive receptors and to minimise the potential for vandalism and invalidating the data.

During the reporting period, construction works at Lanham Street consisted primarily of rock breaking, cut and fill works, realignment of track and formation rebuild associated with the EXT_018 SCAS Works. The scale, duration and intensity of the aforementioned activities was consistent with the activities reviewed as part of the predictive air quality assessment.

The measured PM₁₀ 24-hour average of 52 µg/m³/day is minimally higher than the air quality goal of 50 µg/m³/day, and therefore has been recorded as an exceedance.

A wind rose was completed (refer to Figure 15) to ascertain the predominant winds during the 24-hour measurement period and whether abnormal wind conditions occurred that day.

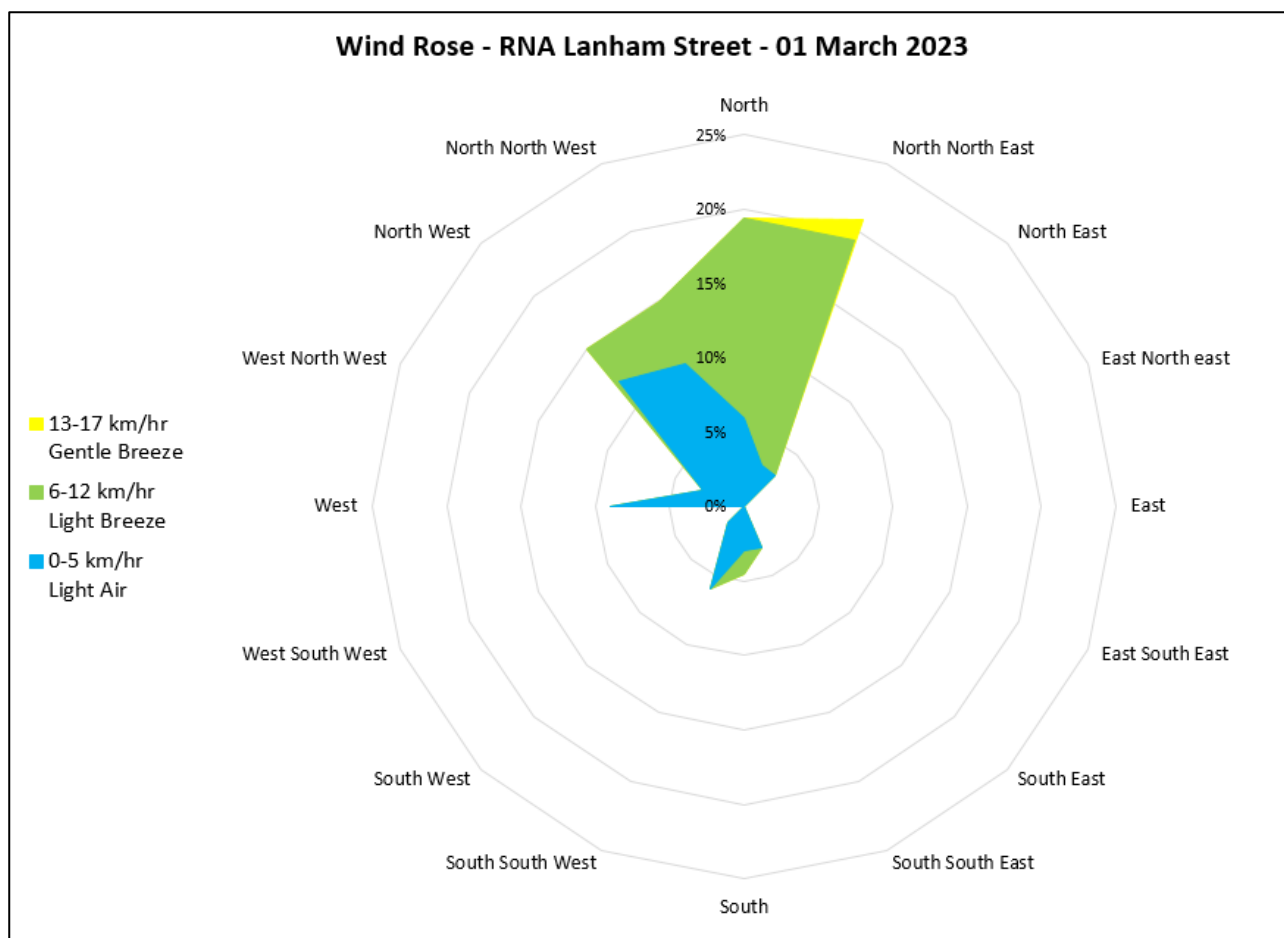


Figure 15 Wind Rose RNA Lanham Street 01 March 2023

The wind rose confirmed that:

- The DMP was downwind of the Project Works 85% of the time, and
- Wind conditions were light to gentle (according to the Beaufort Scale) during the majority (93%) of the 24-hour period
- The winds travelled in a predominantly southerly direction past nearby sensitive receptors located east of the works on Tufton Street.

On the day there were no other activities in the vicinity of the Lanham Street Works that would have produced particulate matter above the predicted levels for the EXT_018 SCAS Works. It is therefore concluded that the exceedance of the Air Quality Goal is likely attributable to Project Works.

It is however noted that the Project Team was actively implementing hose spraying during rock breaking and water trucks were spraying haul roads to reduce dust generation on the day.

There were no complaints received on the day about air quality at Lanham Street or the RNA Showgrounds.

Finally, despite the recorded marginal exceedance of the CGCR Goal, the Project continues to meet their requirements under Imposed Condition 13 and the OEMP.

Water Quality

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

Imposed 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*.

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

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

Water quality monitoring to demonstrate compliance with Condition 15(b) and Condition 18 was triggered during the reporting period. Post rainfall response monitoring was undertaken.

3.1.12 Rainfall Records

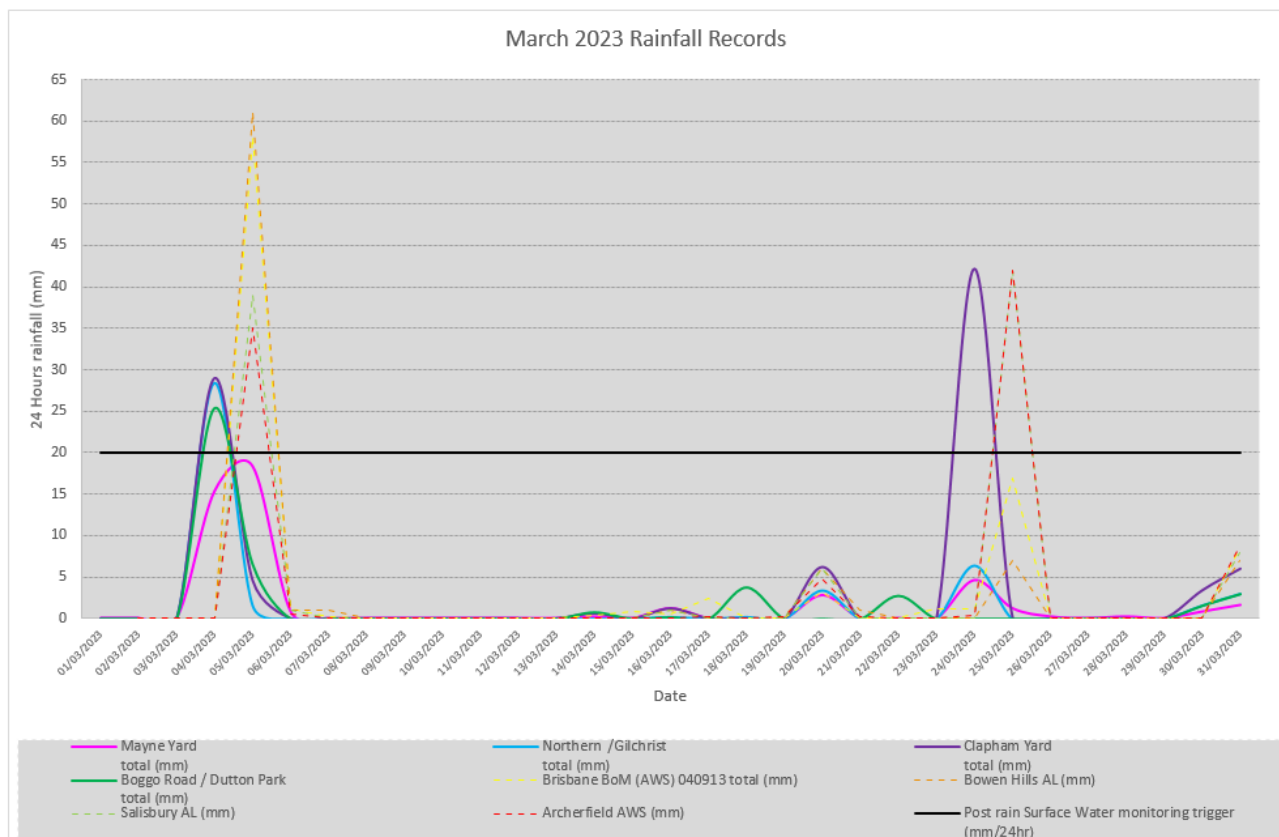


Figure 16 March 2023 Rainfall Records

3.1.13 Post Rainfall Monitoring Results

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

Post rainfall monitoring was triggered as per Condition 15(b) and Condition 18.

Table 10 Post Rainfall Monitoring Results

Date	Location	Waterway	Tide	Discharge Criteria ²				TSS Delta change of 5mg/L or 10% increase (whichever is the greatest)
				Turbidity (NTU) Nil until Turbidity / TSS correlation achieved ³	TSS (mg/L) <50	DO (%) Nil	pH (pH Unit) Stable pH reading; and General sites: 6.5 – 8.5, or Wallum/Acidic Ecosystems: 5.0 – 7.0	
13 March 2023	SW-1 (downstream)	Breakfast Creek	Ebb tide	Field: 17.3 Lab: 3.3	19	70	7.7	N/A Water quality improved downstream
13 March 2023	SW-2 (midstream)	Breakfast Creek	Ebb tide	Field: 47.3 Lab: 6.0	40	69	7.2	
13 March 2023	SW-3 (upstream)	Breakfast Creek	Ebb tide	Field: 39.0 Lab: 3.6	33	69	7.3	
13 March 2023	SW-5 (upstream)	Moolabin Creek	N/A	Field: 11.7 Lab: 6.8	6	77	7.1	No
13 March 2023	SW-6 (downstream)	Moolabin Creek	N/A	Field: 14.4 Lab: 10.4	8	64	6.5	
13 March 2023	SW-7a (upstream)	Rocky Water Holes Creek	N/A	Field: 25.7 Lab: 18.3	8	84	8.0	Yes Refer to section 3.1.13.1
13 March 2023	SW-7 (midstream)	Rocky Water Holes Creek	N/A	Field: 14.8 Lab: 17.7	10	92	7.4	
13 March 2023	SW-8 (downstream)	Rocky Water Holes Creek	N/A	Field: 39.5 Lab: 22.4	16	61	6.8	
22 March 2023	SW-5* (upstream)	Moolabin Creek	N/A	Field: 7.0 Lab: 14.6	<5	89	6.8	N/A Indicative result only
22 March 2023	SW-6 (downstream)	Moolabin Creek	N/A	Field: 13.5 Lab: 16.2	15	88	6.6	
22 March 2023	SW-7a (upstream)	Rocky Water Holes Creek	N/A	Field: 11.7 Lab: 17.0	11	93	7.3	No
22 March 2023	SW-7 (midstream)	Rocky Water Holes Creek	N/A	Field: 14.8 Lab: 17.7	10	74	6.9	
22 March 2023	SW-8 (downstream)	Rocky Water Holes Creek	N/A	Field: 15.5 Lab: 16.5	14	85	6.9	
30 March 2023	SW-5 (upstream)	Moolabin Creek	N/A	Field: 18.2 Lab: 22.4	14	87	7.6	Yes Refer to section 3.1.13.1
30 March 2023	SW-6 (downstream)	Moolabin Creek	N/A	Field: 35.9 Lab: 44.0	22	85	6.3	
30 March 2023	SW-7a (upstream)	Rocky Water Holes Creek	N/A	Field: 31.9 Lab: 36.6	21	95	7.6	Yes Refer to section 3.1.13.1
30 March 2023	SW-7 (midstream)	Rocky Water Holes Creek	N/A	Field: 46.1 Lab: 49.5	27	88	6.9	
30 March 2023	SW-8 (downstream)	Rocky Water Holes Creek	N/A	Field: 56.5 Lab: 60.8	34	85	6.6	

**Water column depth in-stream at SW-05 (refer to Figure 17) was ca. 100mm, therefore, a grab sample that would have complied with the AS/NZS 5667.6:1998 requirements (minimum 300mm depth) could not be collected.*

No alternative upstream location of the Clapham Yard works could be safely accessed along Moolabin Creek; therefore, the SW-05 data can only be considered an indicative representation of the upstream water quality at the time of sampling.

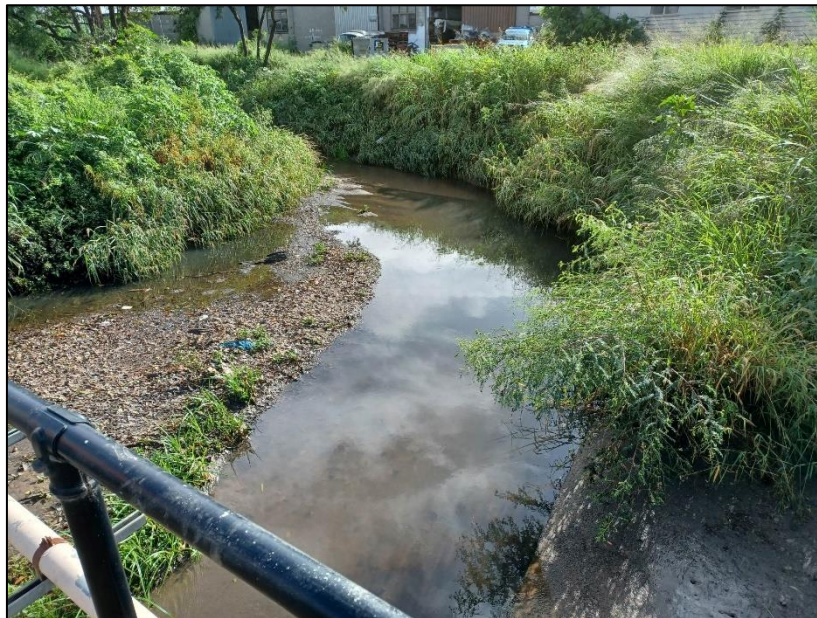


Figure 17 SW-05 Sampling Location Post Rainfall Monitoring 22 March 2023

3.1.13.1 Post Rainfall Monitoring Results Interpretation

Post rainfall monitoring events during the reporting period identified that water quality was visually more turbid than baseline conditions throughout the system at some of the monitoring locations.

Where in situ monitoring was carried out, some downstream locations' water quality data exhibited >10% increase in turbidity (NTU). Further investigation was required to ascertain whether this change in water quality is related to released water from the Project Works.

Therefore, a detailed review of the data was required to ascertain whether:

- The source of the increased turbidity could be reasonably attributed solely to the Project Works; and
- If so, had the Project implemented all reasonable and practicable measures to minimise environmental impacts.

3.1.13.1.1 13 March 2023 Monitoring Event

The assessment found that the storm event size was above the design criteria for the controls required for the Rocklea Station Works (the only RIS work site reporting to Rocky Water Holes Creek). The entire rainfall event was between a 1EY – 0.2EY.

² Refer to the waterways and water quality management plan, a C-EMP sub-plan for details of derivation of the discharge criteria

³ Correlations are typically run on the source water (i.e., basins) not the receiving system where there is a dilution component of potentially diffuse sources of sediments from non-Project related areas. Due to the very limited amount of discharges the RIS Scope of Works has experienced, there is no correlation available. Typically, a minimum of 20 data points is used to determine TSS / in field turbidity correlation for site waters.

The Site-Specific Erosion and Sediment Control Plan (ESCP) was developed by a suitably qualified person (SQP) consistent with the Guidelines for Best Practice Erosion and Sediment Control (IECA 2008) as per Imposed Condition 18.

3.1.13.1.2 30 March 2023 Monitoring Event

The assessment found that the storm event size was above the design criteria for the controls required for the Rocklea Station and Clapham Yard work sites. The entire rainfall event was a 2EY with microbursts exceeding the 0.2EY rainfall rate.

The Site-Specific ESCPs for both Rocklea Station and Clapham Yard were developed by a SQP in accordance with Imposed Condition 18.

Therefore, the RIS scope of works were compliant with Imposed Conditions 15 and 18.

3.1.14 Routine Surface Water Monitoring Results

During the reporting period, UNITY did not undertake routine surface water quality monitoring.

A review of the data sample has identified that over 12 months of continuous data collection has occurred with over 20 monitoring events. The frequency of background monitoring has therefore been reduced to bi-annually, with the wet season monitoring completed in February 2023.

Dry season (April to August) monitoring will be undertaken in the coming months.

This reduction of monitoring frequency is acceptable to continue informing the Dis-1 Credit for the ISCA 'Excellent Rating' the Project is pursuing.

3.1.15 Groundwater Discharge Monitoring Results

Groundwater discharge monitoring was not triggered during the reporting period.

3.1.16 Surface Water Discharge Monitoring

Surface water discharge monitoring was not triggered during the reporting period.

Table 11 Surface Water Discharge Results

Date	Location	Waterway	Discharge Criteria ⁴			
			Turbidity (NTU) Nil until Turbidity / TSS correlation achieved ⁵	TSS (mg/L) <50	DO (%) Nil	pH (pH Unit) Stable pH reading; and General sites: 6.5 – 8.5, or Wallum/Acidic Ecosystems: 5.0 – 7.0
Nil – Not Triggered						

⁴ Refer to the waterways and water quality management plan, a C-EMP sub-plan for details of derivation of the discharge criteria

⁵ Correlations are typically run on the source water (i.e., basins) not the receiving system where there is a dilution component of potentially diffuse sources of sediments from non-Project related areas. Due to the very limited amount of discharges the RIS Scope of Works has experienced, there is no correlation available. Typically, a minimum of 20 data points is used to determine TSS / in field turbidity correlation for site waters.

4 Compliance Review

Non-Compliance Events

The below section summarises the events to be reported in accordance with Imposed Condition 5 and Imposed Condition 6(b)(ii). A non-compliance event (NCE) is defined as Project Works that do not comply with the Imposed Conditions.

4.1.1 Non-Compliance Events Summary

Table 12 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
N/A for reporting period					

C-EMP Compliance

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

Table 13 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 / Subplan	Effect of the non-compliance
Air Quality	Visual monitoring program + Additional particulate monitoring as required based on the outcomes of the predictive assessment/risk profile	Moderate to High	Yes – visual monitoring is undertaken as part of routine inspections. Monitoring for TSP, PM ₁₀ , and deposited dust was also undertaken TSP, PM ₁₀ monitoring was carried out for two active Worksites	Compliant Compliant Compliant	Not Applicable
Air Quality	Complaint's response	Moderate to High	Yes – visual monitoring undertaken during inspection	Compliant	Not Applicable
Noise	Buffer distance tests based on the outcomes of the predictive assessment based / risk profile of activities	Moderate to High	Not triggered	N/A	Not Applicable
Noise	Plant noise audits for noisy plant to validate models input as required	Moderate to High	No	N/A	Not Applicable
Noise	Complaint's response	Moderate to High	Not triggered	N/A	Not Applicable
Vibration	Construction Monitoring at Sensitive Places / DAPs - Model verification based on the outcomes of the predictive assessment based / risk profile of activities	Moderate to High	Yes – monitoring triggered for MYE demolition Works and RNA Stage 2 demolition Works	Compliant	Not Applicable
Vibration	Complaint's response	Moderate to High	Not triggered No complaints	N/A	Not Applicable

Aspect	Monitoring requirement	Activities risk profile	Monitoring undertaken	Compliance status with C-EMP / Subplan	Effect of the non-compliance
Water Quality	Bi-Annual monitoring	N/A	Wet season monitoring completed during reporting period Dry Season monitoring to be completed between May – September 2023	Compliant	Not Applicable
Water Quality	Post Rainfall	Moderate to High	Yes – three monitoring events (5 locations) undertaken 13, 22 & 30 March 2023	Compliant	Not Applicable
Water Quality	Dewatering	Moderate to High	Not triggered No dewatering to stormwater	Compliant	Not Applicable

Attachment 1 Imposed Conditions Non-Compliance Event Report (if required)

Attachment 2 Monitoring Locations – Noise and Vibration

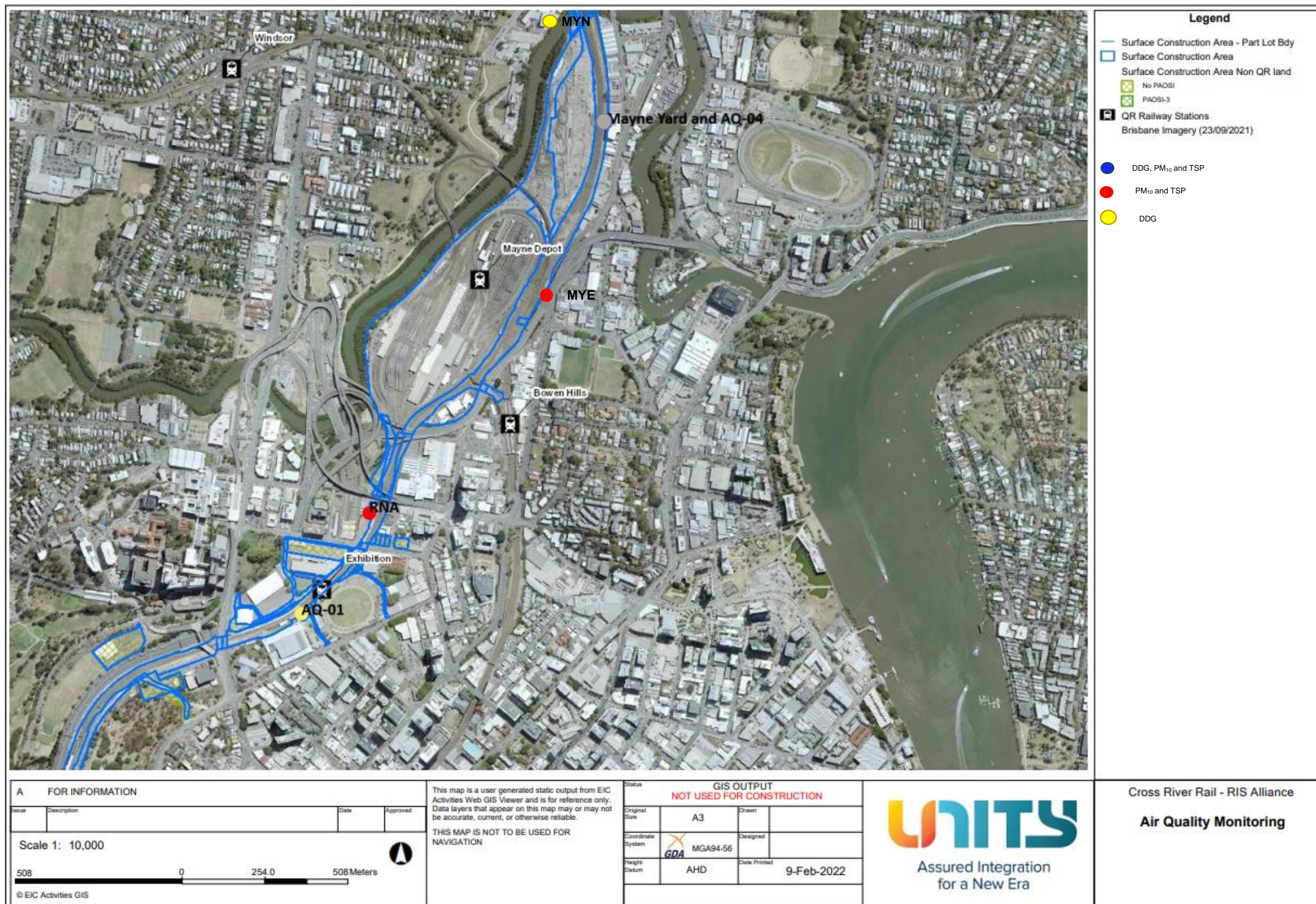


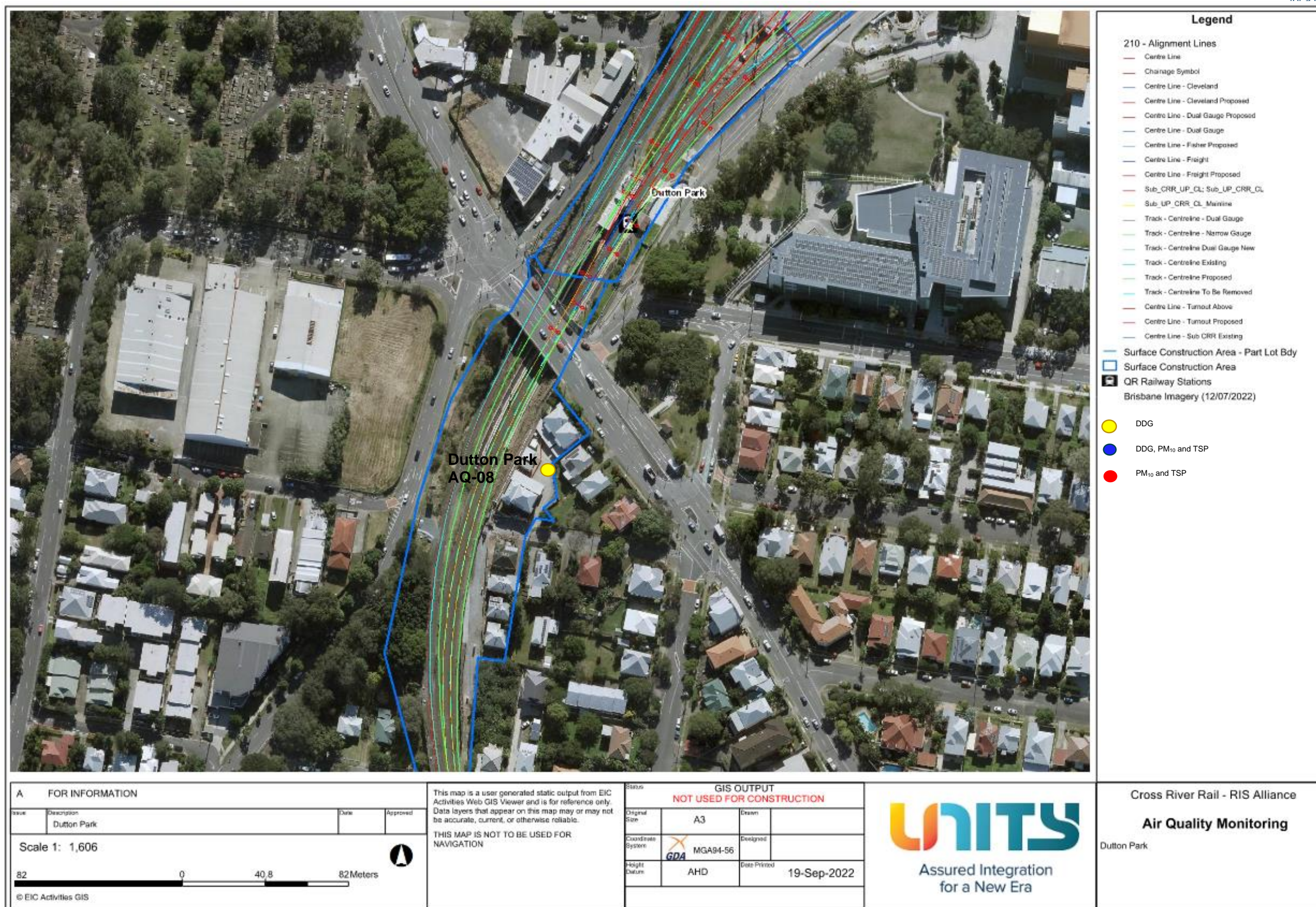
Figure 18 RNA March 2023 Vibration Monitoring

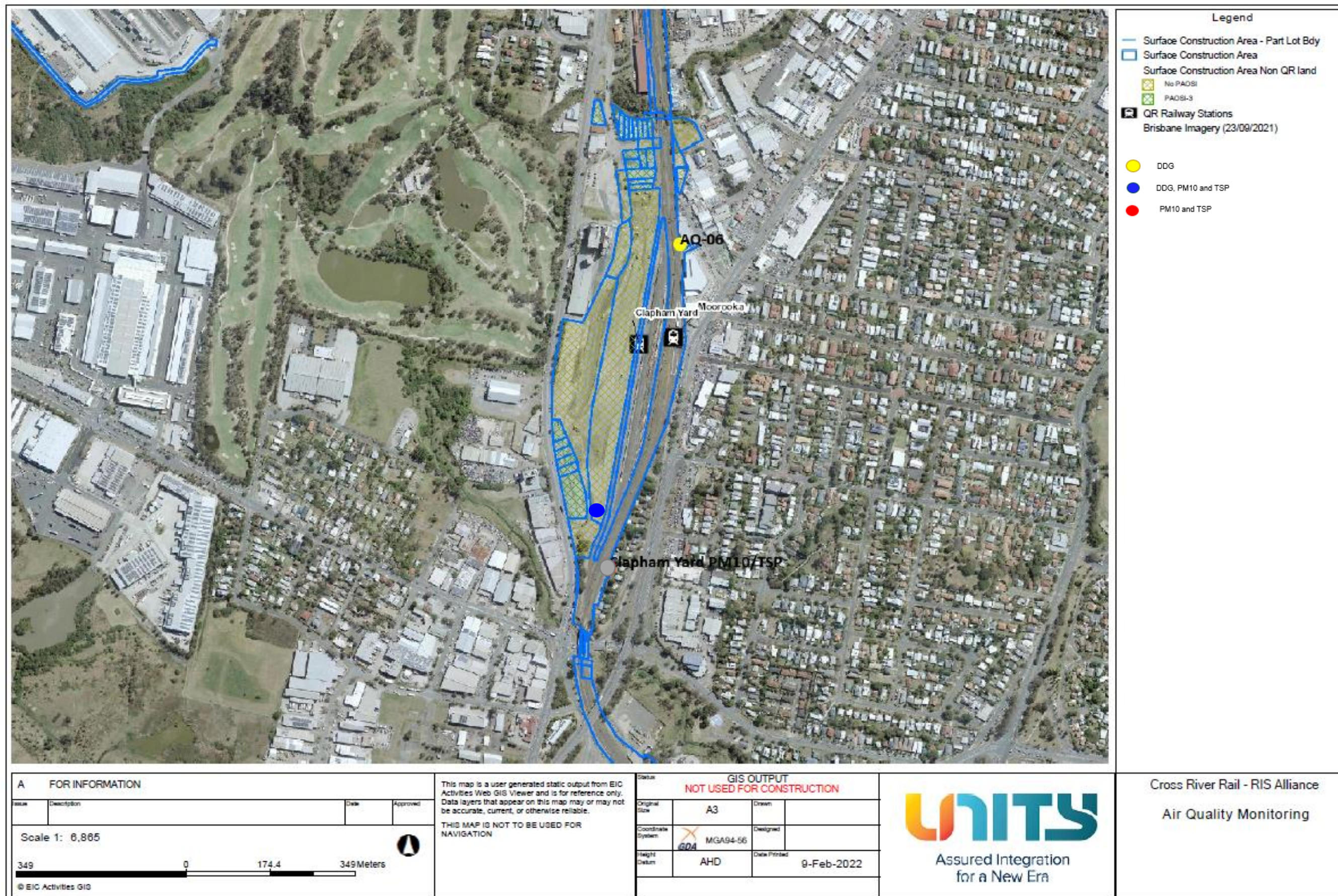


Figure 19 Mayne Yard East QR Building A Monitoring March 2023

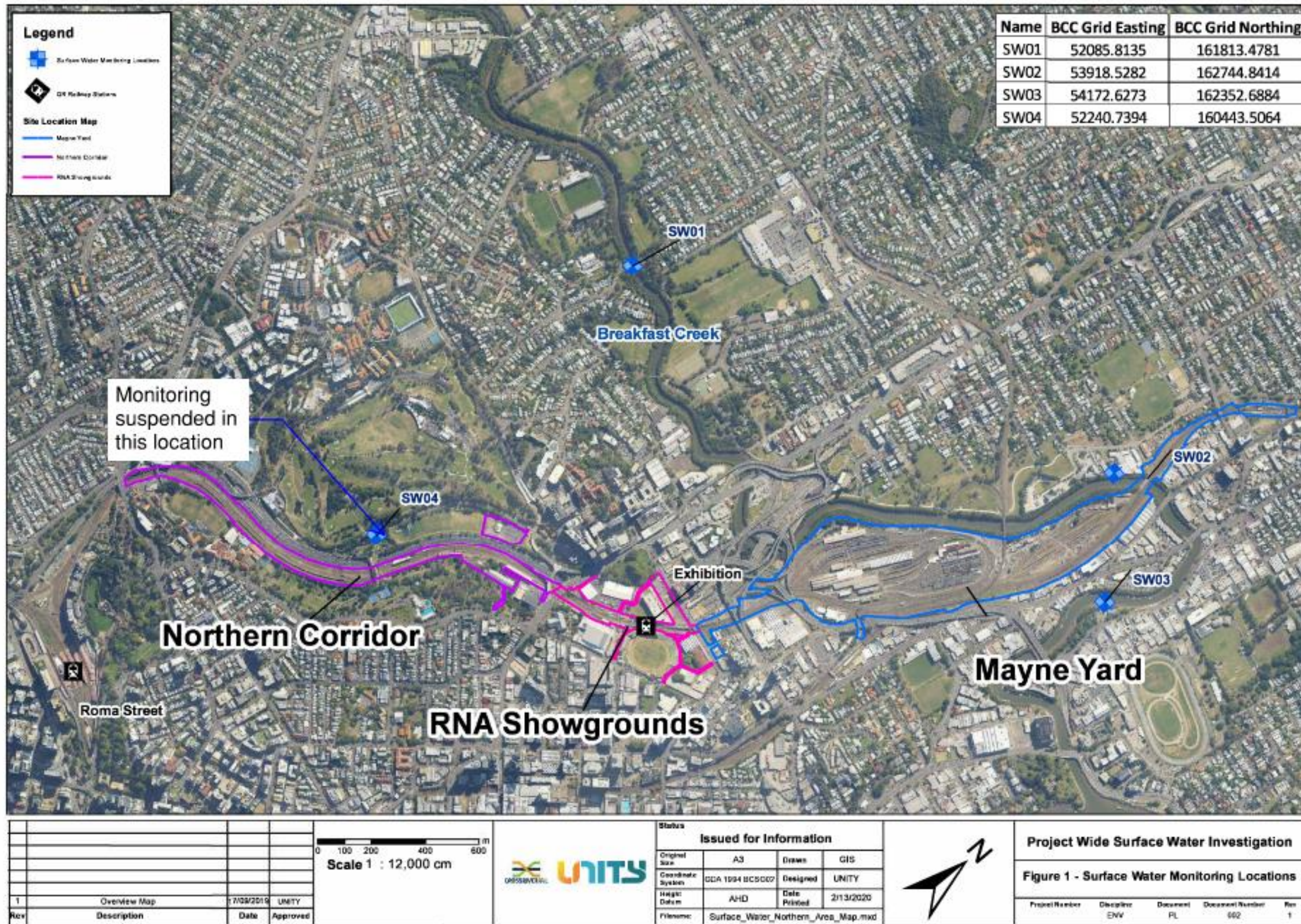
Attachment 3 Monitoring Locations – Air Quality

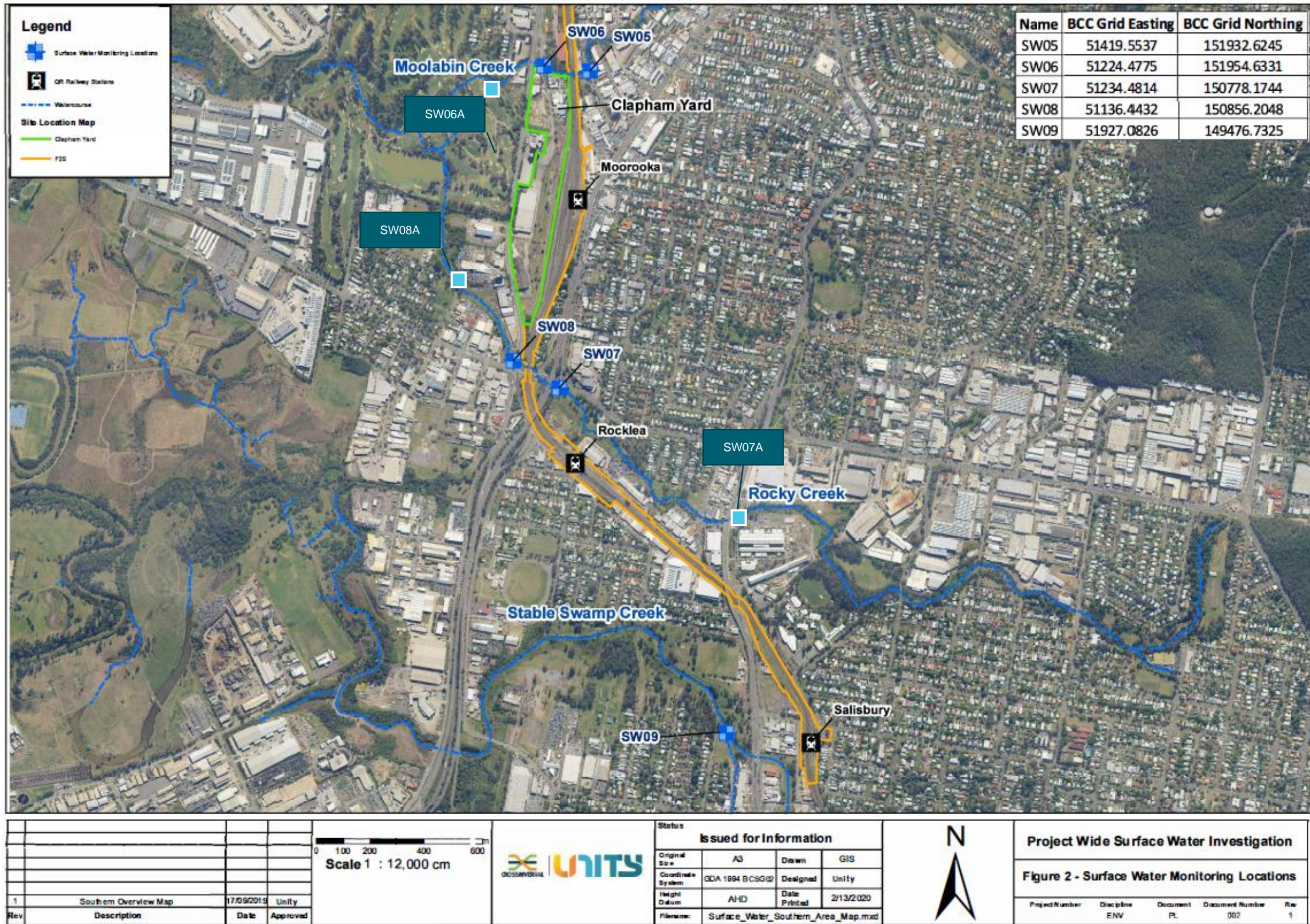






Attachment 4 Monitoring Locations – Surface Water





Appendix B TSD Monthly Report

COORDINATOR-GENERAL'S MONTHLY REPORT: MARCH 2023

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

1. Monthly Monitoring Summary

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

Vibration monitoring was conducted on eight (8) occasions during March 2023. Noise monitoring was conducted on nine (9) occasions during March 2023. Each noise and vibration monitoring event that was undertaken confirmed works adhered to project requirements.

Ambient air quality monitoring was conducted at Roma Street, Albert Street, Woolloongabba, Boggo Road, Southern Portal and Northern Portal precinct sites during March 2023. Air quality monitoring confirmed works adhered to project requirements.

Water quality monitoring was conducted before the release of water from the site on twenty-nine (29) occasions. Each monitoring event confirmed project requirements were adhered to. One (1) round of surface water quality monitoring was conducted; the monitoring events confirmed no impacts were generated by the Project.

2. CG Monthly Report – Compliance Assessment Against Imposed Conditions

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

Table 1: Compliance Status – CG Imposed Conditions

CG Condition	Requirement Summary	Compliance Met (Yes/No/NA)	Comment
1.	General Conditions – compliance with the Project Changes relevant to the Contractor's scope.	Yes	CBGU project works have been conducted in compliance with the Imposed Conditions.
2.	Outline Environmental Management Plan – timely submission to the Coordinator-General, including required sub-plans.	N/A	The OEMP is not an obligation of the CBGU Joint Venture.
3.	Design – the achievement of the Environmental Design Requirements.	Yes	Design and implementation proceeded in accordance with the Environmental Design Requirements.
4.	Construction Environmental Management Plan – all relating to Relevant Project Works.	Yes	All CBGU works were conducted in accordance with the Construction Environmental Management Plan (CEMP) (Rev 11).
5.	Compliance and Incident Management – Non-compliance events, notifications, and reporting.	Yes	Nil non-compliances occurred during the monitoring period (refer to Section 4).
6.	Reporting – Monthly and Annual reporting.	Yes	All reporting requirements are completed in accordance with Imposed Condition 6.
7.	Environmental Monitor – engaged and functions resumed.	Yes	An Environmental Monitor (EM) is appointed to the Project, and CBGU is committed to working collaboratively to aid the EM's functions under Imposed Condition 7.
8.	Community Relations Monitor – engaged and functions resumed.	Yes	A Community Relations Monitor (CRM) is appointed to the Project, and CBGU is committed to working collaboratively to aid the CRM's functions under Imposed Condition 8.
9.	Community Engagement Plan – developed and endorsed by Environmental Monitor.	Yes	A Community Engagement Plan (CEP) has been developed and implemented in accordance with Imposed Condition 9. The CEMP has been endorsed with the CEP.
10.	Hours of Work – works undertaken during approved hours.	Yes	CBGU project works have been conducted in accordance with the approved hours of work.

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

CG Condition	Requirement Summary	Compliance Met (Yes/No/NA)	Comment
18.	Acid Sulfate Soils managed as per the <i>Queensland Acid Sulfate Soil Technical Manual</i> .	Yes	CBGU has prepared and manages processes to ensure acid sulphate soils are managed in accordance with Imposed Condition 19.
19.	Landscape and Open Space – general requirement to minimise impacts on landscapes and open space values and specific requirements around Victoria Park	Yes	CBGU project works are designed and implemented in accordance with Condition 20.
20.	Worksite Rehabilitation – worksites rehabilitated as soon as practicable upon completion of works or commissioning, and in consultation with Brisbane City Council.	Yes	CBGU project works are designed and implemented in accordance with Condition 21.
21.	Flood Water – Temporary emission to allow the release of Flood Waters to high flow receiving waters.	Yes	CBGU project works have been conducted in accordance with the provisions available to manage floodwaters.

3. Environmental Monitoring Results

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

3.1 Vibration

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

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

Vibration monitoring was conducted on eight (8) occasions during March 2023. All vibration monitoring adhered to project requirements and is detailed in the table below.

Table 2: Vibration Monitoring Data

No.	Start Date	Time (AM/PM)	Finish Date	Location	Average Vibration level (mm/s)	Max Vibration Level (mm/s)	Vibration Goal (mm/s)	Receiver / Goal Type	Adhered to Project Requirements (Yes / No)
1.	27/02/2023	12:43	1/03/2023	Roma Street (Roma Street Precinct)	0.15	0.47	50	Residential	Yes
2.	28/02/2023	15:39	2/03/2023	Albert Street (Albert Street Precinct)	0.15	0.37	50	Commercial	Yes
3.	02/03/2023	09:15	9/03/2023	Kalinga Avenue (Northern Portal)	0.12	0.37	50	Educational	Yes
4.	07/03/2023	10:05	8/03/2023	Vulture Street (Woolloongabba Precinct)	0.12	0.29	50	Commercial	Yes

5.	07/03/2023	06:17	10/03/2023	Albert Street (Albert Street Precinct)	0.11	0.29	2	Heritage structure	Yes
6.	13/03/2023	09:39	14/03/2023	Stanley Street (Woolloongabba Precinct)	0.09	0.11	50	Residential	Yes
7.	14/03/2023	11:46	21/03/2023	Roma Street (Roma Street Precinct)	0.15	0.57	50	Residential	Yes
8.	23/03/2023	15:47	28/03/2023	Mary street (Albert Street Precinct)	0.11	0.24	50	Residential	Yes

3.2 Noise

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

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

Noise monitoring was conducted on nine (9) occasions during March 2023. All noise monitoring data adhered to Project requirements and is provided in the table below.

Table 3: Noise Monitoring Data

No.	Date	Time (AM / PM)	Location (Street Name) (Construction Precinct)	Purpose of Monitoring	Internal or External ^[3] Monitoring	Activity	Dominant Noise Source	Noise Goal LA10 ^[1]	Noise level LA10	Noise Goal LAeq ^[2]	Noise level LAeq	Adhered to Project Requirements (Yes / No)
1.	2/03/2023	9:48:00 AM	Gregory Terrace (Northern Portal)	Construction Monitoring at Sensitive Places	External	Demolition works	Construction	62	74.5	52	71.9	Yes
2.	8/03/2023	11:20:00 AM	Stanley Street (Woolloongabba Precinct)	Model Verification	External	Utilities works	Traffic	67	71.8	57	69.2	Yes
3.	9/03/2023	12:35:00 PM	Albert Street (Albert Street Precinct)	Construction Monitoring at Sensitive Places	External	Concrete works	Construction	72	73.5	62	70.8	Yes
4.	14/03/2023	8:26:00 AM	Peter Doherty Street (Southern Portal)	Construction Monitoring at Sensitive Places	External	Demolition works	Construction	67	73.8	62	69.9	Yes
5.	14/03/2023	11:07:00 AM	Albert Street (Albert Street Precinct)	Construction Monitoring at Sensitive Places	Internal	Concrete works	Construction	55	60.2	45	56.2	Yes

No.	Date	Time (AM / PM)	Location (Street Name) (Construction Precinct)	Purpose of Monitoring	Internal or External ^[3] Monitoring	Activity	Dominant Noise Source	Noise Goal LA10 ^[1]	Noise level LA10	Noise Goal LAeq ^[2]	Noise level LAeq	Adhered to Project Requirements (Yes / No)
6.	14/03/2023	11:27:00 AM	Albert Street (Albert Street Precinct)	Construction Monitoring at Sensitive Places	Internal	Concrete works	Construction	55	50.9	45	44.9	Yes
7.	20/03/2023	8:55:00 PM	Main Street (Woolloongabba Precinct)	Model Verification	External	Clearing	Traffic	62	69.3	52	67.1	Yes
8.	20/03/2023	9:28:00 PM	Stanley Street (Woolloongabba Precinct)	Construction Monitoring at Sensitive Places	External	Clearing	Traffic	62	63.4	52	70.2	Yes
9.	21/03/2023	2:30:00 PM	Reid Street (Woolloongabba Precinct)	Model Verification	External	Excavation	Traffic	62	60	52	57.9	Yes

- [1] Intermittent noise goal (LA10)

- [2] Continuous noise goal (LAeq)

- [3] Condition 11(c) implemented

- Note: In accordance with Imposed Condition 11, where internal noise levels were unable to be measured, external noise goals were developed by an acoustic specialist using the following standards: ISO 140-5:1998 Acoustics – Measurement of Sound Insulation in Buildings and of Building Elements, Part 5: Field measurements of airborne sound insulation of façade elements and facades and ISO 354:1985 Acoustics – Measurement of sound absorption in a reverberation room.

3.3 Air Quality

3.3.1 Deposited Dust Results

Air quality requirements (levels) are defined as goals within Imposed Condition 13. The goals are to be aimed for. The Coordinator-General Change Report acknowledges instances that exist that these goals may not be achieved. Dust deposition monitoring was performed in March 2023. The dust deposition gauges results for the reporting period are detailed below, and all monitoring data adhered to project requirements.

Table 4.2: Air Quality Monitoring – Deposited Dust Data

Location	Project Wide Air Quality Goals ^[1]			Monitoring results (mg/m ² /day)	Comments
	Criterion	Air Quality Indicator	Goal (mg/m ² /day)		
Northern Portal	Nuisance	Deposited dust	120	46.43	Air quality monitoring was performed during the reporting period. All results adhered to project requirements.
Roma Street Precinct				35.71	
Albert Street Precinct (North)				38.71	
Albert Street Precinct (South)				16.13	
Woolloongabba Precinct (North)				19.35	
Woolloongabba Precinct (South)				48.39	
Boggo Road Precinct (North)				50.00	
Boggo Road Precinct (South)				53.33	
Southern Portal (South)				30.00	
Southern Portal (East)				26.67	

3.3.2 Particulates and Ambient Air Quality Results

Total Suspended Particles (TSP) and particulate matter less than 10µm (PM10) monitoring were conducted during March 2023.

TSP and PM10 are monitored using portable air quality units and nearby Government air quality stations. Targeted monitoring of potential dust-generating activities is conducted by the mobile air quality units and was completed at Albert Street, Woolloongabba, Boggo Road and Northern Portal Precincts during March 2023. Three (3) Government air quality stations near the Construction Precincts are also utilised.

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

Date	TSP	PM10	Woolloongabba		Albert		Boggo Road		Northern Portal	
	Project Goal ^[1]	Project Goal	TSP	PM 10	TSP	PM 10	TSP	PM 10	TSP	PM 10
	(µg/m ³ /24 hr)									
01-Mar-23	80	50	5.75	5.57	11.59	8.01	2.24	2.24	3.91	3.88
02-Mar-23	80	50	10.80	10.65	20.37	15.54	7.82	7.80	9.15	9.14
03-Mar-23	80	50	10.23	10.07	20.36	15.02	5.55	5.55	8.33	8.31
04-Mar-23	80	50	8.04	7.89	14.05	10.76	3.82	3.81	6.93	6.91
05-Mar-23	80	50	7.20	7.12	8.46	7.49	3.37	3.37	8.15	8.14
06-Mar-23	80	50	9.34	9.15	15.34	11.61	4.65	4.64	8.71	8.69
07-Mar-23	80	50	10.28	10.10	13.78	10.86	4.62	4.62	7.90	7.87
08-Mar-23	80	50	12.64	12.42	18.39	14.14	6.71	6.70	9.86	9.84
09-Mar-23	80	50	14.99	14.69	28.00	19.45	9.20	9.18	11.58	11.55
10-Mar-23	80	50	17.63	17.46	19.77	16.14	13.27	13.26	16.48	16.46
11-Mar-23	80	50	13.52	13.38	11.45	10.11	10.34	10.33	13.90	13.89
12-Mar-23	80	50	8.43	8.30	7.40	6.50	6.38	6.38	7.75	7.74
13-Mar-23	80	50	12.85	12.62	14.88	11.97	8.72	8.71	13.18	13.16
14-Mar-23	80	50	7.54	7.39	17.62	13.09	3.79	3.79	8.89	8.87
15-Mar-23	80	50	9.82	9.69	14.62	11.93	5.38	5.37	8.61	8.59
16-Mar-23	80	50	12.87	12.53	17.98	13.68	7.56	7.55	12.26	12.23
17-Mar-23	80	50	14.70	14.51	16.91	13.43	12.14	12.14	14.74	14.72
18-Mar-23	80	50	14.60	14.43	18.10	14.37	10.61	10.61	13.30	13.28

Date	TSP	PM10	Woolloongabba		Albert		Boggo Road		Northern Portal	
	Project Goal ^[1]	Project Goal	TSP	PM 10	TSP	PM 10	TSP	PM 10	TSP	PM 10
	(µg/m ³ /24 hr)									
19-Mar-23	80	50	12.53	12.37	12.63	9.85	9.86	9.86	11.87	11.85
20-Mar-23	80	50	10.37	10.18	20.28	14.52	6.24	6.24	9.02	9.00
21-Mar-23	80	50	6.89	6.76	17.88	12.85	3.74	3.74	5.48	5.46
22-Mar-23	80	50	7.20	7.14	15.37	12.33	4.18	4.18	5.98	5.96
23-Mar-23	80	50	11.67	11.55	21.14	16.92	6.11	6.10	8.55	8.55
24-Mar-23	80	50	12.23	11.87	17.85	14.19	5.75	5.75	11.02	11.00
25-Mar-23	80	50	9.76	9.64	13.73	11.31	5.91	5.90	8.71	8.70
26-Mar-23	80	50	6.37	6.22	8.18	6.83	4.05	4.04	7.98	7.97
27-Mar-23	80	50	7.23	7.09	13.52	10.32	4.89	4.88	8.19	8.17
28-Mar-23	80	50	10.07	9.85	18.74	13.81	7.09	7.09	9.20	9.18
29-Mar-23	80	50	14.04	13.87	15.29	12.42	10.39	10.39	14.16	14.15
30-Mar-23	80	50	9.11	8.78	14.88	10.55	5.91	5.90	8.84	8.80
31-Mar-23	80	50	5.44	5.17	19.60	12.39	3.56	3.52	4.79	4.77

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

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

- Brisbane CBD: PM10 daily Maximum average: **22.7 µg/m3/24 hr** (<https://apps.des.qld.gov.au/air-quality/chart/?station=cbd¶meter=18&date=1/3/2023&timeframe=month>)
- South Brisbane: PM10 daily Maximum average: **24.5 µg/m3/24 hr** (<https://apps.des.qld.gov.au/air-quality/chart/?station=sbr¶meter=18&date=1/3/2023&timeframe=month>)
- Woolloongabba: PM10 daily Maximum average: **28.0 µg/m3/24 hr** (<https://apps.des.qld.gov.au/air-quality/chart/?station=woo¶meter=18&date=1/3/2023&timeframe=month>).

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

Particle PM₁₀ at Brisbane CBD, 1–31 March 2023 [about Particle PM₁₀](#)

[Brisbane CBD station overview](#)

The guideline for Particle PM₁₀ is 100µg/m³ (1hr avg) and 50µg/m³ (24hr avg).

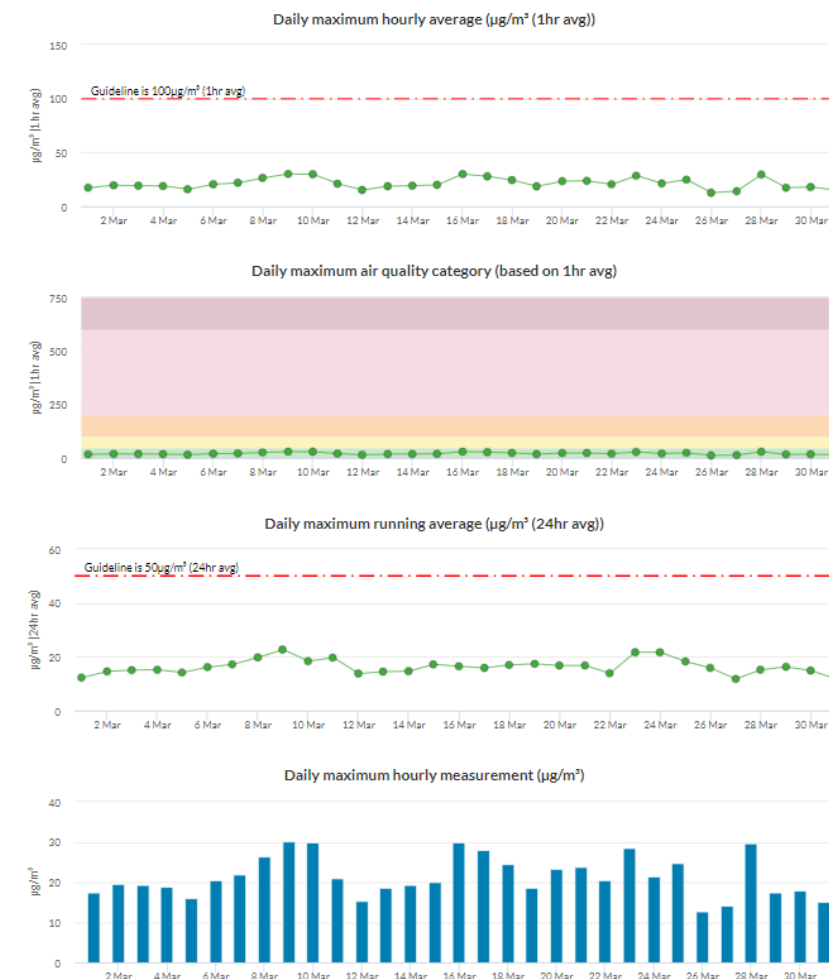


Figure 1: Brisbane CBD – DES Station - PM10 graph for March 2023 (reproduction from the DES website).

Particle PM₁₀ at South Brisbane, 1–31 March 2023 [about Particle PM₁₀](#)

[South Brisbane station overview](#)

The guideline for Particle PM₁₀ is 100µg/m³ (1hr avg) and 50µg/m³ (24hr avg).

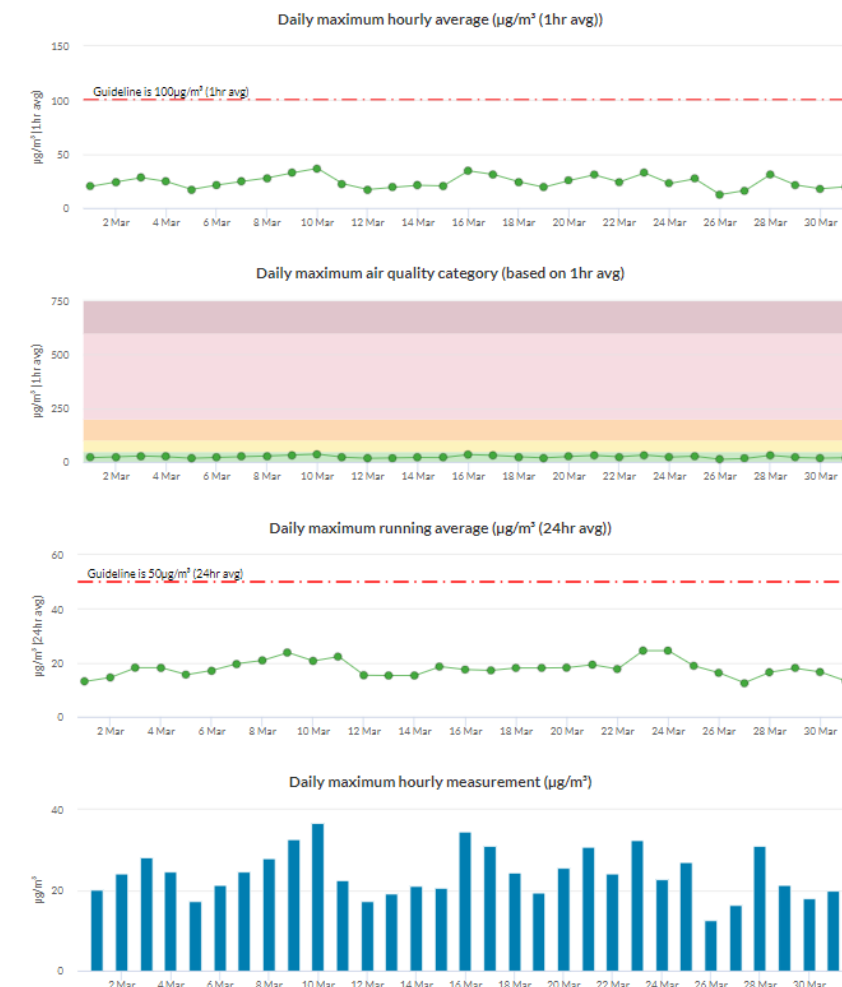


Figure 2: South Brisbane – DES Station - PM10 graph for March 2023 (reproduction from the DES website).

Particle PM₁₀ at Woolloongabba, 1–31 March 2023 [about Particle PM₁₀](#)

[Woolloongabba station overview](#)

The guideline for Particle PM₁₀ is 100µg/m³ (1hr avg) and 50µg/m³ (24hr avg).

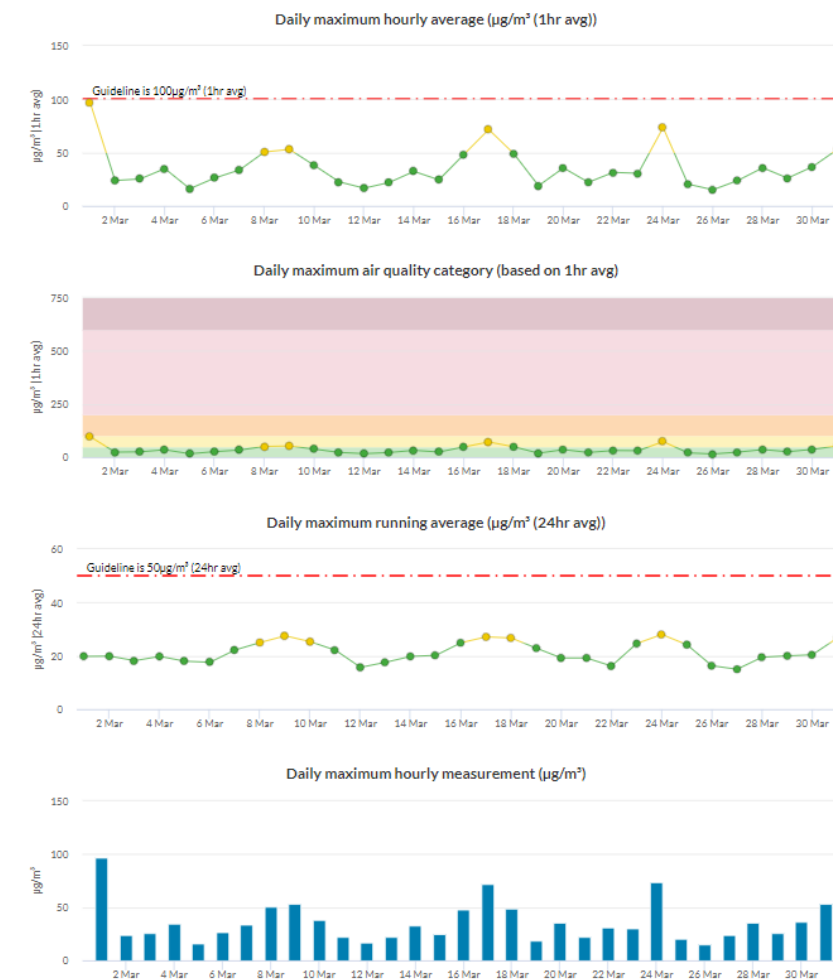


Figure 3: Woolloongabba – DES Station - PM10 graph for March 2023 (reproduction from the DES website).

3.4 Water Quality – Discharge

CBGU undertook four (4) water quality monitoring events before the release (groundwater and surface water) from the site.

3.4.1 Groundwater Discharge

Water quality monitoring data is provided in the table below.

Table 6: Groundwater Discharge – Water Quality Monitoring Data

Location	Date	Testing of Water Quality Objectives ^[1]											Adhered to Project Requirements (Yes / No)
		pH	Suspended solids (mg/L)	Turbidity (NTU)	Ammonia N (µg/L) ^[3]	Oxidised N (µg/L) ^[3]	Organic N (µg/L) ^[3]	Total nitrogen (µg/L) ^[4]	Total phosphorus (µg/L)	Filterable Reactive phosphorus (µg/L) ^[3]	Chlorophyll a (µg/L)	Dissolved oxygen (%) ^[2]	
Albert Street	13/03/2023	7.50	<5	0.40	20	620	600	1200	140	<10	<1	87.14	Yes
Roma Street	13/03/2023	7.35	<5	2.03	150	580	600	1400	510	<10	<1	93.98	Yes
Boggo Road	16/03/2023	7.61	<5	3.20	20	1550	400	2000	<10	<10	<1	102.01	Yes
Woolloongabba	17/03/2023	7.71	<5	1.66	10	300	300	600	20	<10	<1	111.97	Yes

- [1] The Project's discharge procedure is designed to minimise environmental impact and aim to achieve the water quality objectives. Water quality objectives are defined as goals within the Brisbane River estuary environmental values and water quality objectives document.
- [2] All results adhere to Project requirements in that site practices are designed to aim to achieve the water quality objectives. The dissolved oxygen samples were acquired before discharge from the site. Pumping of the water will have inadvertently aerated the water, thus influencing the dissolved oxygen level.
- [3] All results adhere to Project requirements in that site practices aim to achieve the water quality objectives. These samples identified results generally consistent with pre-construction conditions, and no external influences were introduced by construction activity.
- [4] Total nitrogen levels adhered to project requirements in that site practices are designed to aim to achieve the water quality objectives. The results are mostly below that of the receiving environment. They are also considered abnormal compared to results from previous months, and are influenced by external factors (e.g., high rainfall events, overloaded sewage systems, fertilising natural areas, etc.) rather than related to construction activities.
- Note: Testing of EPP (Water) Quality Objectives are analysed at a NATA accredited laboratory each month (results provided above). Field testing (turbidity, pH) is done regularly during ongoing discharge.

3.4.2 Poned/Surface Water Discharge

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

Table 7: Surface Water Discharge - Water Quality Monitoring Data

No.	Location	Date	Testing of Water Quality Objectives ^[1]		Adhered to Project Requirements (Yes / No)
			pH	Turbidity (NTU)	
1.	Northern Portal	28/02/2023 ^[2]	8.15	7.50	Yes
2.	Northern Portal	1/03/2023	8.11	8.37	Yes
3.	Northern Portal	2/03/2023	8.04	11.83	Yes
4.	Northern Portal	3/03/2023	7.76	11.68	Yes
5.	Northern Portal	4/03/2023	7.71	32.10	Yes
6.	Northern Portal	6/03/2023	8.03	6.12	Yes
7.	Northern Portal	7/03/2023	8.02	4.60	Yes
8.	Northern Portal	8/03/2023	8.12	7.79	Yes
9.	Southern Portal	9/03/2023	7.75	40.90	Yes
10.	Northern Portal	9/03/2023	8.05	9.20	Yes
11.	Northern Portal	10/03/2023	7.92	4.69	Yes
12.	Northern Portal	11/03/2023	7.99	20.10	Yes
13.	Southern Portal	13/03/2023	7.59	39.80	Yes
14.	Northern Portal	13/03/2023	7.98	14.30	Yes
15.	Southern Portal	14/03/2023	7.86	33.10	Yes

16.	Northern Portal	14/03/2023	8.03	10.20	Yes
17.	Northern Portal	15/03/2023	8.19	16.83	Yes
18.	Northern Portal	16/03/2023	8.14	17.02	Yes
19.	Northern Portal	17/03/2023	7.98	8.15	Yes
20.	Northern Portal	18/03/2023	7.93	9.21	Yes
21.	Northern Portal	20/03/2023	8.09	3.72	Yes
22.	Northern Portal	21/03/2023	7.98	4.37	Yes
23.	Northern Portal	22/03/2023	8.04	10.64	Yes
24.	Northern Portal	23/03/2023	8.01	6.39	Yes
25.	Northern Portal	24/03/2023	8.06	9.42	Yes
26.	Northern Portal	25/03/2023	7.68	20.60	Yes
27.	Northern Portal	27/03/2023	7.89	10.30	Yes
28.	Northern Portal	28/03/2023	8.15	3.94	Yes
29.	Northern Portal	29/03/2023	7.84	7.09	Yes

- [1] The Project's discharge procedure is designed to minimise environmental impact and aim to achieve the water quality objectives. All discharges were compliant with *Guidelines for Best Practice Erosion and Sediment Control (IECA, 2008)* and the *Department of Transport and Main Roads' Technical Standard MRTS 52 – Erosion and Sediment Control*.
- [2] The February 2023 Monthly Report did not include the water discharge data on the 28th February 2023. Hence, its inclusion in this month's report.

3.5 Water Quality – Surface Water

During March 2023, CBGU JV undertook one (1) round of surface water sampling at five (5) site locations (upstream and downstream). A rain event that occurred on 14th March triggered post-rainfall sampling at all precincts.

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

Table 8: Offsite Upstream & Downstream Water Quality Data

Location	Upstream / Downstream	Date	Purpose of Monitoring	Turbidity (NTU)	EC (µS/cm)	Dissolved oxygen (%)	pH
Northern Portal	Upstream	13/03/2023	Monthly/Post rain	8.81	511	57.12	7.06
Northern Portal	Downstream	13/03/2023	Monthly/Post rain	38.7	345	56.29	7.24
Roma Street	Upstream	13/03/2023	Monthly/Post rain	11.41	38000	78.96	7.2
Roma Street	Downstream	13/03/2023	Monthly/Post rain	12.96	38100	84.4	7.22
Albert Street	Upstream	13/03/2023	Monthly/Post rain	4	34600	77.46	7.71
Albert Street	Downstream	13/03/2023	Monthly/Post rain	4.85	35200	77.46	7.78
Woolloongabba	Upstream	13/03/2023	Monthly/Post rain	4.93	42800	86.46	7.82
Woolloongabba	Downstream	13/03/2023	Monthly/Post rain	5.24	42800	85.06	7.86
Boggo Road ^[1]	Downstream	13/03/2023	Monthly/Post rain	23.8	1340	63.52	7.02

- [1] Monitoring at the Boggo Rd site occurs at a pipe outlet at the beginning of the surface catchment. There is no upstream/downstream monitoring point as such. The pipe outlet receives water released from the site, as well as a broader stormwater catchment.

4 Non-Compliances

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

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

Table 9: Non-Compliance Events this Month

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

5 Complaints

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

During March 2023, four (4) complaints relating to the Project were received, as detailed in Table 10 below.

Table 10: Summary of Complaints

No.	Date	Location	Description of Issue	Responses	Status of Event
1.	6/03/2023	Roma Street (Roma Street Precinct)	Noise	A stakeholder contacted the Project regarding noise generated from the Roma Street Worksite during extended work hours. CBGU provided the stakeholder with an overview of the works occurring and their duration. CBGU also outlined the mitigation measures used to alleviate potential impacts and ensure compliance. CBGU reviewed the circumstances and monitoring confirmed works adhered to the Project's noise requirements, and the works undertaken were consistent with the community notification.	Closed
2.	14/03/2023	Gibbon Street (Woolloongabba Precinct)	Traffic	A stakeholder contacted the Project regarding the Gibbon Street closure. CBGU investigated and provided the stakeholder with an overview of the works occurring and their duration. CBGU also informed the stakeholder that changes have been approved by the local authority prior to implementation.	Closed
3.	15/03/2023	Mary Street (Albert Street Precinct)	Traffic	A stakeholder contacted the Project regarding street parking. CBGU investigated and informed the workforce, via toolbox talk, about vehicle parking expectations.	Closed
4.	29/03/2023	Boggo Road (Boggo Road Precinct)	Traffic	A stakeholder contacted the Project regarding street parking. CBGU investigated and informed the workforce, via toolbox talk, about vehicle parking expectations.	Closed