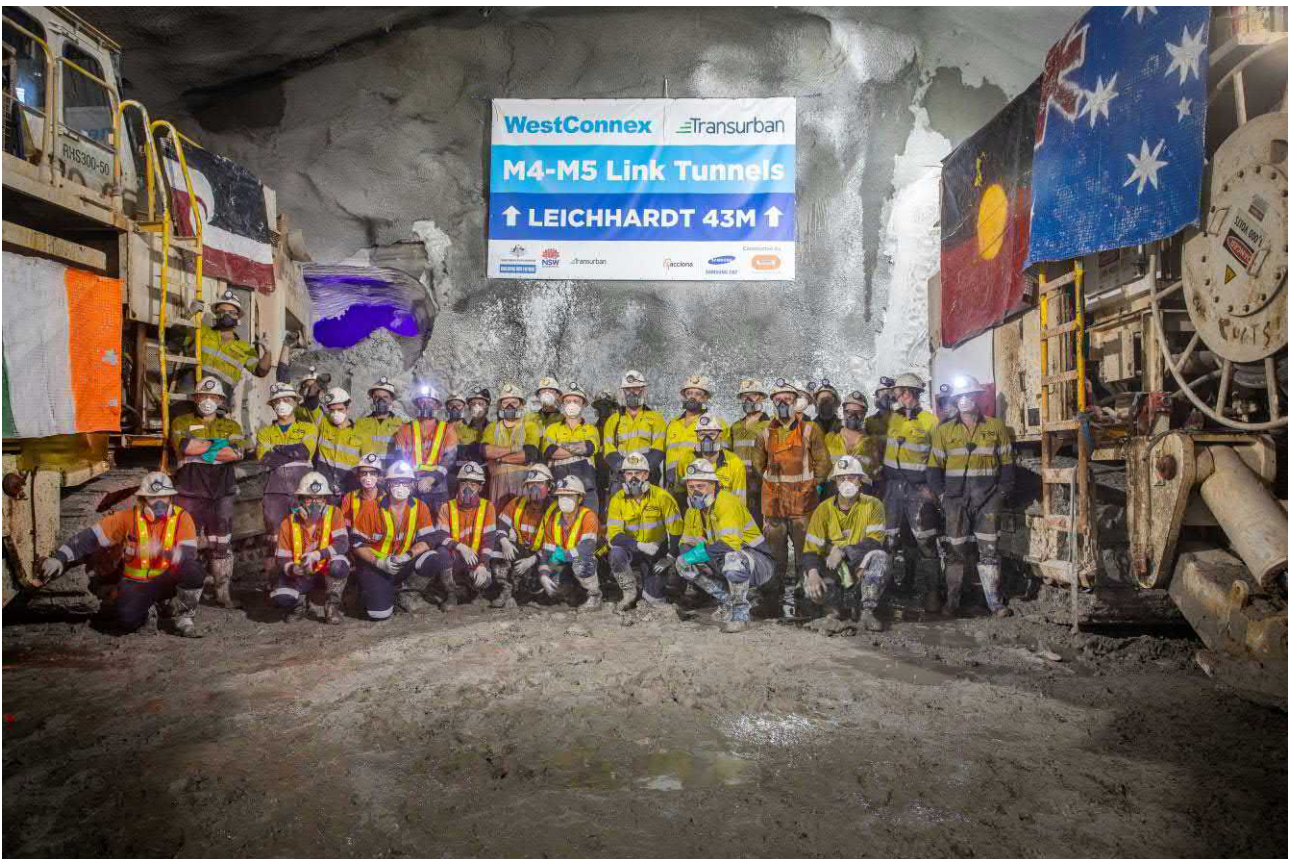


Construction Compliance Report:

28 May 2021 – 27 November 2021

M4-M5 Link Mainline Tunnels



WestConnex M4-M5 Link Tunnels



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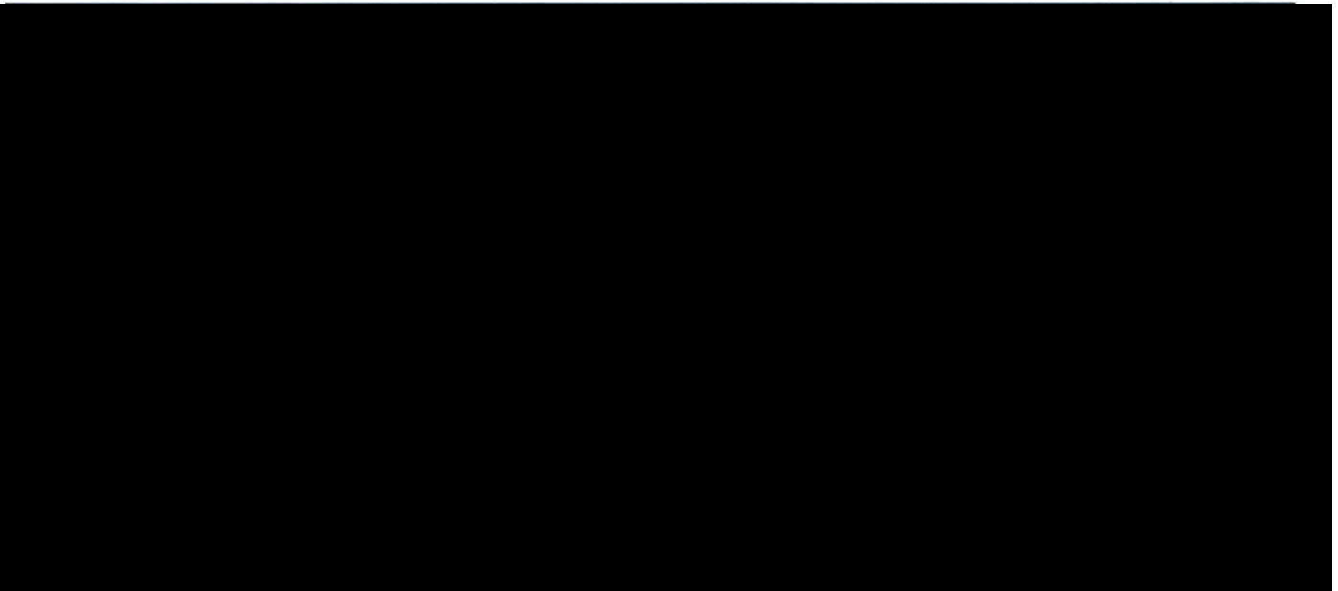
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Internal review



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Appendices

Appendix A	Conditions of Approval - Compliance Table
Appendix B	Action Status Table

Abbreviations/Glossary

Abbreviation	Expanded text
AA	Acoustic Advisor
ASBJV	Acciona Samsung Bouygues Joint Venture
CCR	Construction Compliance Report
CEMP	Construction Environmental Management Plan
CNVMP	Construction Noise and Vibration Monitoring Program
CRCP	Continuously Reinforced Concrete Pavement
CSSI	Critical State Significant Infrastructure
CoA	Conditions of Approval
CTEAP	Compliance Tracking and Environmental Audit Program
DDMP	Depositional Dust Monitoring Program
DPIE	Department of Planning, Industry and Environment
EC	Electrical Conductivity
EIS	Environmental Impact Statement
EMS	Environmental Management System
EPA	NSW Environment Protection Authority
EPL	Environment Protection Licence
Environmental Representative (ER)	A suitably qualified and experienced person independent of project design and construction personnel employed for the duration of construction. The principal point of advice in relation to all questions and complaints concerning environmental performance.
Environmental impact	Defined by AS/NZS ISO 14001:2015 as any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organisation's environmental aspects.
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i> (NSW)
EWMS	Environmental Work Methods Statements
GWMP	Groundwater Monitoring Program
HSS	Hawkesbury Sandstone
HV	Heavy Vehicle
Incident	An occurrence or set of circumstances that causes, or threatens to cause, material harm to the environment, community or any member of the community, being actual or potential harm to the health or safety of human beings or to threatened species, endangered ecological communities or ecosystems that is not trivial.
ISO	International Organisation for Standards
M&E	Mechanical and electrical

Abbreviation	Expanded text
Minister, the	Minister of the NSW Department of Planning, Industry and Environment (or delegate)
NCR	Non-Conformance
NSW	New South Wales
NZS	New Zealand Standard
NTU	Nephelometric Turbidity Units
NVMP	Noise and Vibration Management Sub-Plan
OBS	Observation
OFI	Opportunity for Improvement
PBR	Pymont Bridge Road civil and tunnel site
POEO Act	<i>Protection of the Environment Operations Act 1997 (NSW)</i>
PREW	Parramatta Road East and West civil sites
Project, the	M4-M5 Link Mainline Tunnels
Roads and Maritime	Roads and Maritime Services (now Transport for New South Wales)
SPIR	Submissions and Preferred Infrastructure Report
SSI	State Significant Infrastructure
SSTV	Site Specific Trigger Value
SWL	Standing Water Level
SWQMP	Surface Water Quality Monitoring Program
T&C	Testing and commissioning
TCR	Traffic Control Room
TfNSW	Transport for New South Wales
TTAMP	Traffic, Transport and Access Management Sub-Plan
WCX	WestConnex Transurban
WMCC	WestConnex Motorway Control Centre
WTP	Water Treatment Plant

1 Introduction

1.1 Background

WestConnex is one of the NSW Government's key infrastructure projects which aims to ease congestion, create jobs and connect communities. The 33-kilometre WestConnex motorway will link Sydney's west and south-west with the Sydney Central Business District, Sydney Airport and Port Botany. WestConnex is one component of an integrated solution to meet Sydney's growing transport and infrastructure needs and is consistent with NSW Government transport and planning policies and strategies.

The project was declared by Ministerial Order to be State Significant Infrastructure (SSI) and Critical State Significant Infrastructure (CSSI), under Section 5.12 (4) and Section 5.13 (previously referred to as 115U(4) and 115V prior to amendment of the *Environmental Planning and Assessment Act 1979* (EP&A Act)) as well as under clause 16 of the State Environmental Planning Policy (State and Regional Development) 2011. The project remains subject to assessment under the EP&A Act and requires the approval of the NSW Minister for Planning. The proposal is critical State significant infrastructure by virtue of Schedule 5, clause 4 of State Environmental Planning Policy (State and Regional Development) 2011.

An Environmental Impact Statement (EIS) (AECOM 2017) was prepared and placed on public exhibition from 18 August 2017 to 16 October 2017. Submissions were received from government agencies, organisations and the public in response to the project. A Submissions and Preferred Infrastructure Report (SPIR) was prepared by Roads and Maritime Services (now Transport for NSW (TfNSW)) in response to submissions received during the exhibition period. The Project was approved by the Minister for Planning on 17 April 2018.

Subsequently, a Project Modification Report for MOD 1 (AECOM, September 2018) was prepared and placed on public exhibition for 14 days from 12 September 2018. The Project Modification was approved by the Minister for Planning on 25 February 2019 and the Minister's Conditions of Approval (CoAs) were also modified.

A Modification Report for MOD 2 was prepared and placed on public exhibition between 21 August 2019 and 25 September 2019. A Response to Submissions Report was prepared to respond to submissions received during the public exhibition period. This report and a Design Amendment Report were lodged with the Department of Planning, Industry and Environment (DPIE) in April 2020. The Modification was determined by the NSW Minister for Planning on 30 September 2020, along with modification to CoAs.

A Modification Report for MOD 3 was prepared and placed on public exhibition by between 20 November and 18 December 2019. A Response to Submissions Report was prepared to respond to submissions received during the public exhibition period. This report was lodged with DPIE in March 2020. The Modification was determined by the NSW Minister for Planning and Public Space on 28 July 2020, along with modification to CoAs.

A Modification Report for MOD 4 was prepared and lodged with DPIE in June 2020. The Modification was determined by DPIE on 28 July 2020, along with modification to CoAs.

A modification Report for MOD 5 was prepared and lodged with DPIE in October 2020. The Modification was determined by DPIE on 17 November 2020, along with modification to CoAs.

A modification Report for MOD 6 relating to Stage 2 of the approved project is still pending determination.

1.2 Project Description

The WestConnex M4-M5 Link project is being constructed in two stages:

- Stage 1 (the Project and subject of this document): M4-M5 Link Mainline tunnels
- Stage 2: Rozelle interchange.

WestConnex Transurban has engaged Acciona Samsung Bouygues Joint Venture (ASBJV), formerly Lendlease Samsung Bouygues Joint Venture to design and construct Stage 1 of the project. The key features of the Mainline tunnel project include:

- Twin mainline motorway tunnels between the M4 at Haberfield and the M8 at St Peters. Each tunnel would be around 7.5 kilometres long and would generally accommodate up to four lanes of traffic in each direction
- Connections of the mainline tunnels to the M4 project, comprising:
 - A tunnel-to-tunnel connection to the M4 mainline stub tunnels east of Parramatta Road near Alt Street at Haberfield
 - Entry and exit ramp connections between the mainline tunnels and the Wattle Street interchange at Haberfield (which is currently being constructed as part of the M4 project)
 - Minor physical integration works with the surface road network at the Wattle Street interchange including road pavement and line marking
- Connections of the mainline tunnels to the M8 project, comprising:
 - A tunnel-to-tunnel connection to the M8 mainline stub tunnels north of the Princes Highway near the intersection of Mary Street and Bakers Lane at St Peters
 - Entry and exit ramp connections between the mainline tunnels and the St Peters interchange at St Peters (which is currently being constructed as part of the M8 project)
 - Minor physical integration works with the surface road network at the St Peters interchange including road pavement and line marking
- Construction of tunnel stubs to provide for future underground connection of the mainline tunnels to the Rozelle interchange and Iron Cove Link
- A motorway operations complex at St Peters (Campbell Road) (MOC5). The types of facilities that would be contained within the motorway operations complexes would include substations, water treatment plants, ventilation facilities and outlets (the Campbell Road ventilation facility), offices, on-site storage and parking for employees
- Tunnel ventilation systems, including ventilation supply and exhaust facilities, ventilation fans, ventilation outlets and ventilation tunnels
- Fit out (mechanical and electrical) of part of the Parramatta Road ventilation facility at Haberfield (which was constructed as part of M4 project) for use by the M4-M5 Link project
- Drainage infrastructure to collect surface and groundwater for treatment at dedicated facilities
- Water treatment would occur at the operational water treatment facility at the Campbell Road motorway operations complex
- Ancillary infrastructure and operational facilities for electronic tolling and traffic control and signage (including electronic signage)
- Emergency access and evacuation facilities, including pedestrian and vehicular cross and long passages and fire and life safety systems

- Utility works, including protection and/or adjustment of existing utilities, removal of redundant utilities and installation of new utilities
- Temporary construction ancillary facilities to facilitate construction of the project at the following locations:
 - Northcote Street civil and tunnel site (C3a), Haberfield
 - Haberfield civil site (C2b), Haberfield
 - Parramatta Road East civil site (C3b), Haberfield
 - Parramatta Road West civil site (C1b), Ashfield
 - Wattle Street civil and tunnel site (C1a), Haberfield
 - Pyrmont Bridge Road tunnel site (C9), Camperdown/Annandale
 - Campbell Road civil and tunnel site (C10), St Peters

An overview of the project footprint and ancillary facilities is presented in the Construction Environmental Management Plan (CEMP). Further detail of the project description is presented in Section 1.3 of the CEMP.

1.3 Purpose of this report

This Construction Compliance Report (CCR) has been prepared to address CoA A33 of the planning approval.

This CCR documents compliance for the reporting period for all works undertaken on the WestConnex M4-M5 Link Mainline Tunnels from 28 May 2021 – 27 November 2021.

As part of the Compliance Tracking and Environmental Audit Program (CTEAP), this CCR has been prepared in accordance with CoA A33 (refer to Table 1-1) to report on the compliance status of the Project every six months during the construction phase.

Table 1-1 CoA requirements for this CCR

CoA no.	Requirement	Reference
A33	Construction Compliance Reports must be prepared and submitted to the Secretary for information every six (6) months from the date of the commencement of construction for the duration of construction. The Construction Compliance Reports must include:	This Document
	(a) a results summary and analysis of environmental monitoring;	Section 5
	(b) the number of any complaints received, including a summary of main areas of complaint, action taken, response given and proposed strategies for reducing the recurrence of such complaints;	Section 4.5
	(c) details of any review of, and minor amendments made to, the CEMP as a result of construction carried out during the reporting period;	Section 2.5

CoA no.	Requirement	Reference
	(d) a register of any consistency assessments undertaken and their status;	Section 2.4.1
	(e) results of any independent environmental audits and details of any actions taken in response to the recommendations of an audit;	Section 4.4
	(f) a summary of all incidents notified in accordance with Conditions A40 and A42 of this approval; and	Section 4.1
	(g) any other matter relating to compliance with the terms of this approval or as requested by the Secretary.	Sections 3, 4.2, 4.3

In accordance CoA A33(g), the Secretary requested additional information be included in all future CCRs. These additional requirements are specified in Table 1-2.

Table 1-2 Additional CCR information

Requirement	Reference
A Compliance Table consistent with the Compliance Table Template provided at Appendix C of the Compliance Reporting - Post Approval Requirements (Department, 2020).	Appendix A
An Action Summary Table that summarises all actions arising from previous Independent Audits and Construction Compliance Reports that have not been closed out in previous Construction Compliance Reports. See section 3.1.2 and Appendix B of the Compliance Reporting - Post Approval Requirements (Department, 2020).	Appendix B

2 Project Delivery

2.1 Staging

As stated in the EIS Chapter 6 (Construction Work) and previously in Section 1.2 the M4-M5 Link Project will be constructed and opened to traffic in two stages.

Stage 1 can be summarised to include:

- Construction of mainline tunnels between the M4 at Haberfield and the M8 at St Peters, stub tunnels to the Rozelle interchange (at the Inner West subsurface interchange) and ancillary infrastructure at Campbell Road motorway operations complex (MOC5)
- These works commenced in 2018 with the mainline tunnels to be open to traffic in 2023. At the completion of Stage 1, the mainline tunnels would operate generally with two traffic lanes in each direction. This would increase to generally four lanes at the completion of Stage 2, when the full project is operational

Stage 2 can be summarised to include:

- Construction of the Rozelle interchange including:
 - Connections to the stub tunnels at the Inner West subsurface interchange (built during Stage 1)
 - Ancillary infrastructure at the Rozelle West motorway operations complex (MOC2), Rozelle East motorway operations complex (MOC3) and Iron Cove Link motorway operations complex (MOC4)
 - Connections to the surface road network at Lilyfield and Rozelle
 - Construction of tunnels, ramps and associated infrastructure as part of the Rozelle interchange to provide connections to the proposed future Western Harbour Tunnel and Beaches Link project
- Stage 2 works commenced in mid-2019 with these components of the project open to traffic in 2023.

The total construction period for the Project is programmed to occur across five years, which includes commissioning that would occur concurrently with the final stages of construction.

A more detailed description of how the Project would be constructed is provided in Chapter 6 (Construction Work) of the EIS and Section 1.3 of the CEMP.

ASBJV, TfNSW and WestConnex Transurban together are responsible for compliance with the requirements of the CoA and SPIR. However, ASBJV is responsible for maintaining the CTEAP for the Project and for the preparation of six-monthly Construction Compliance Reports throughout construction as required by CoA A33.

2.2 Project Update

During the reporting period, tunnelling, civil, and mechanical and electrical (M&E) works were all well underway across the Project. The Project also underwent a 'construction' pause for two weeks between 19 July 2021 – 30 July 2021, under government order during the Covid -19 pandemic.

Nevertheless, during the reporting period some significant key activities and milestones were reached with a summary of activities at each Project construction site provided below:

- Pyrmont Bridge Road – Haberfield tunnel breakthrough
- The first of 195 jet fans was installed at Haberfield in July

- Substation 06 was energised in September and Substation 04 and 05 in October 2021
- M110 Pyrmont bridge road bridging slab, where the ramps being constructed as part of the Rozelle interchange will pass over, was completed in October 2021 and completed in 72 days (as shown in Figure 2-1). This slab is to provide support to the stub tunnel that comes over the mainline.

2.2.1 Tunnelling at Northcote St, Pyrmont Bridge Road (PBR) and Campbell Road Sites

At the end of the reporting period, tunnel heading excavation is 99.4% complete with 100% of the main drives completed. Remaining excavation is within the M1B0 stub located within the Haberfield portion of the Project. Target completion is by 23 December 2021. Over 8.6 million tonnes of excavated tunnel spoil had been removed from the Project and beneficially reused on other infrastructure projects including the Western Sydney Airport. A major Project milestone was reached in August 2021 with the mainline heading excavation breakthrough between the PBR and Northcote St/ Haberfield sites (refer to CCR cover photo).

Tunnel civil works progressed behind tunnel excavation including trenching, drainage, waterproofing, services and paving. Around 86% of the tunnel has been paved with the final Continuously Reinforced Concrete Pavement (CRCP) layer. At the end of the reporting period, tunnel civil works were successfully completed in M190 at the Campbell Road site.

Following the completion of in-tunnel civil fit-out, sections of the tunnel were handed over for mechanical & electrical (M&E) works (as shown in Figure 2-2). Around 79% of tunnel areas have been handed over to M&E with approximately 29% handed over to the testing and commissioning (T&C) team which involves energising and testing the M&E systems.

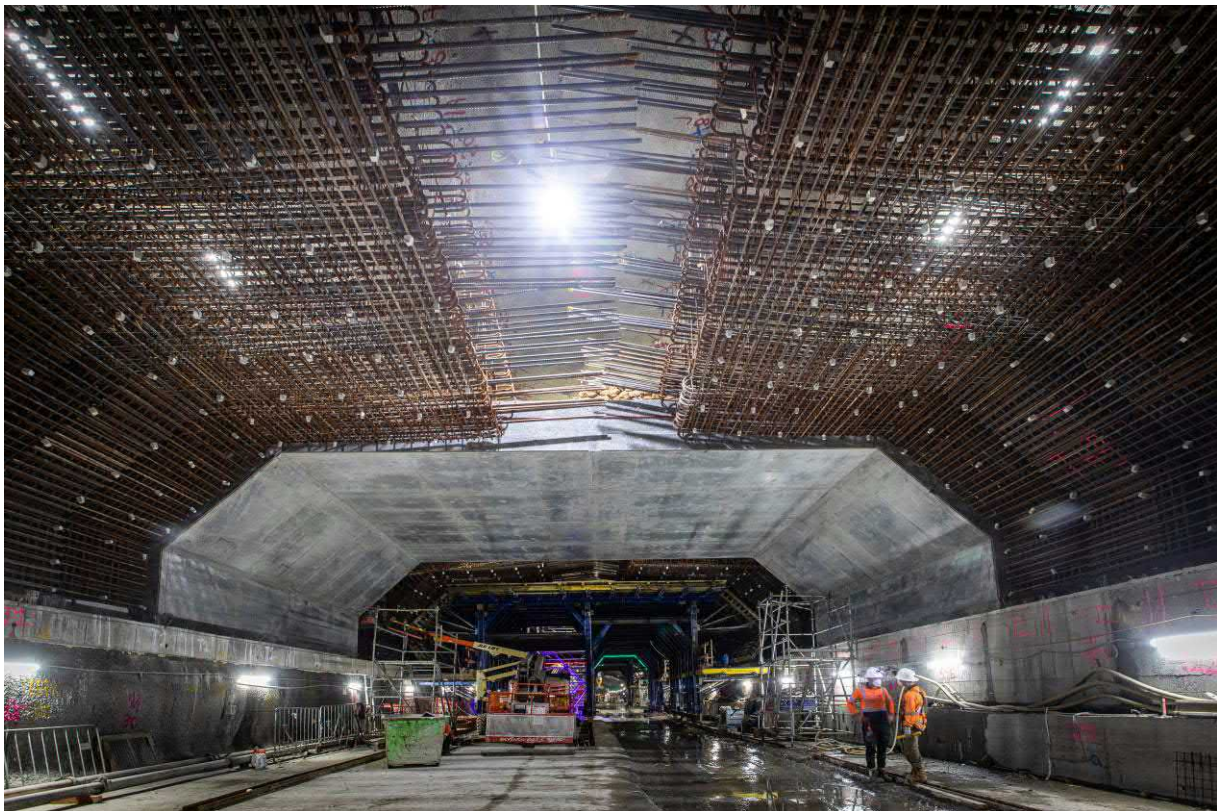


Figure 2-1 – Bridging Slab formwork and partially poured sections, Pyrmont Bridge Road, Sept 2021.



Figure 2-2 – Ongoing M&E works at SPI in October 2021

2.2.2 Wattle St Site Cut and Cover and Surface Works

Cut and Cover and surface works at the Wattle St site during the reporting period included:

- Surface civil works on the Wattle Street ramps were completed with throw screens installed. Following these works, framework and cladding installation has commenced.
- In tunnel civil fitout in Wattle St cut and cover is nearing completion and will be open to traffic in December)
- Restoration of pavement area and revegetation on Wattle St completed following piling works
- The Air Quality Monitoring Station (AQMS) was successfully installed at Wattle St and handed over to M&E team in October to be commissioned. This monitoring station became live on 8th November 2021.

2.2.3 Campbell Road Site Surface Works

Surface works at Campbell Road during the reporting period included:

- Energisation of the substation building (SS06)
- Completion of the ventilation building civils works, with all vent stacks constructed
- M&E were handed over the ventilation building to commence the installation and commission of the operational tunnel vent fans

- Installation of the ventilation and substation building cladding that was designed by a local indigenous female artist to represent and acknowledge the value and contribution of the Timbery family and the nation's history – past and contemporary (shown in Figure 2-3)
- The civil works for the operational water treatment plant (WTP) were completed at the end of October, with the construction of the operational WTP handed over to M&E to commence
- The first Project toll gantry was installed in M180 SPI tunnel entrance in June 2021, with the second gantry installed in M190 SPI tunnel entrance on 9th November.



Figure 2-3 – Ventilation building artist cladding at the Campbell Road site in October 2021

2.3 Timing

Construction on the Project began in late November 2018 and is proposed to continue until Q1 of 2023. Key aspects of the construction program include:

- Site establishment and construction commenced late 2018
- Tunnel construction commenced late Q1 2019
- Mechanical and electrical fit out work commenced Q3 2020
- Testing and commissioning commenced Q2 2021
- Project to open Q1 2023.

2.4 Planning Approvals

2.4.1 Consistency Assessments

No consistency assessments were determined by TfNSW under the CSSI project planning approval during the reporting period.

2.5 Construction Environmental Management Plan Reviews/Amendments

There were no CEMP reviews or amendments during the reporting period.

3 Compliance Management

ASBJV, TfNSW and WestConnex Transurban are together responsible for compliance with the Project’s requirements detailed in the CoA and SPIR. Refer to the CTEAP for further information on how ASBJV manages and tracks compliance with the planning approval throughout construction.

A variety of activities are undertaken to ensure that compliance is managed effectively on the Project. These compliance management activities are summarised in Table 3-1.

Table 3-1 Compliance Management Activities

Activity	Responsibility	Frequency
Ongoing site surveillance	ASBJV	Daily
Site Inspections	ASBJV Environmental Representative (ER)	Weekly Fortnightly
Environmental compliance status update with relevant delivery owners	ASBJV	As required
Environmental risk assessment review	ASBJV	Annual
Environmental and sustainability auditing	ASBJV Independent Auditor ER	Annual Annual As requested by Secretary
Environmental management reviews	ASBJV	Six-Monthly CEMP Reviews

Following Project planning approval, compliance with the requirements contained in the CoA are regularly monitored by the ASBJV.

Regular meetings are held with the relevant Project CoA delivery owners to review applicable requirements and assess the environmental compliance status. These meetings allow ASBJV to ensure ongoing compliance. Where requirements are deemed to be compliant, evidence is collected and verified by ASBJV.

A summary of the Project’s compliance against each CoA during the reporting period is provided in Appendix A.

3.1 Construction Environmental Management System

The environmental management system (EMS) is the primary system to manage and control the environmental aspects of the Project during early works, site establishment and construction. It also provides the overall framework for the system and procedures to ensure environmental impacts are minimised and legislative requirements are fulfilled.

The strategies defined in the CEMP have been developed with consideration of the Project approval requirements, safeguards and mitigation measures presented in the environmental assessment and approval documents. The CEMP establishes the system for implementation, monitoring and continuous improvement to minimise impacts from the Project on the environment.

The ASBJV EMS is based on the Lendlease Engineering ISO 14001 Certified EMS (period of registration 06/03/2019 to 6/03/2022), which was adapted to address Project and joint venture requirements.

Following the transition from Lendlease Engineering to Acciona, an ISO 14001 audit on the implementation of the Project's EMS was undertaken in October 2020. The findings of this audit were detailed in the previous CCR report (M4M5-LSBJ-PRW-EN-GE01-RPT-0067-02).

The CTEAP is part of a suite of environmental management documents prepared for the Project. The CTEAP is administered by the Environment and Sustainability Manager or delegate for the duration of the Project.

4 Compliance Performance

4.1 Incidents

In accordance with CoA A40 to A43, incidents which cause or threaten to cause material harm to the environment, community or health and safety will be notified to the EPA and Secretary. Actual and potential material harm incidents during the reporting period are detailed in Table 4-1.

All incidents reported to the Secretary and EPA to date have been as a courtesy rather than a statutory trigger.

Table 4-1 Material Harm Incidents during the reporting period

Incident Type	Description	Site	Immediate Actions / Control Measures	Corrective Actions
Nil	Nil	Nil	Nil	Nil

A total of nine incidents were reported across the Project during the reporting period. The most frequent incident issue was Spills (six) with Procedural (two) and Traffic (one) totalling nine overall. Refer to Figure 4-1 for a breakdown of the incidents by issue.

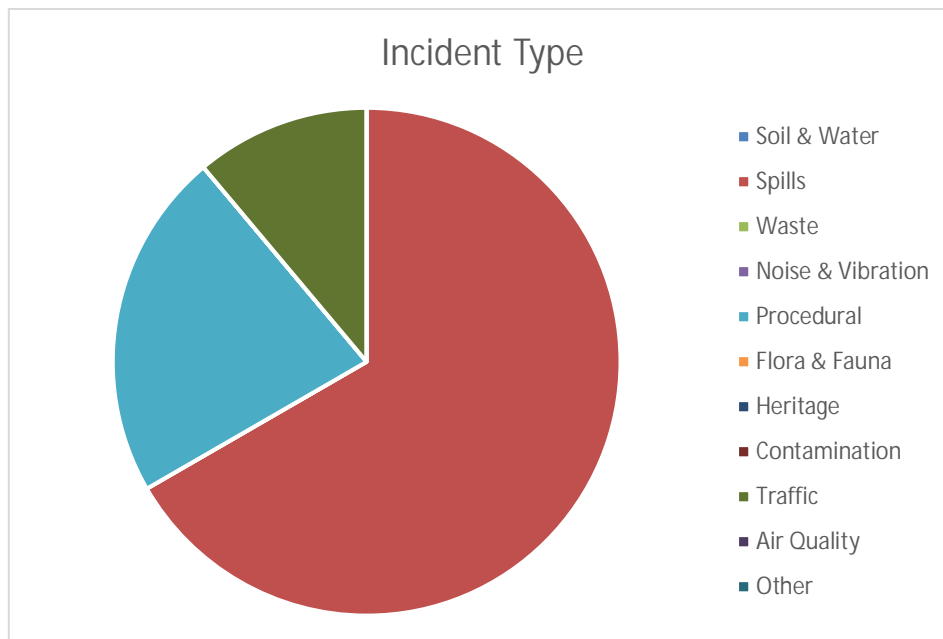


Figure 4-1 Environmental Incidents by Type

4.1.1 Spills

During the reporting period, spills comprised 67% of all incidents by type (refer to Figure 4-1) and involved minor to small spills which were immediately contained on site, cleaned up and disposed of appropriately. No actual environmental impact occurred as result of the spills.

The number of spills occurring across the Project has slightly increased in comparison to the previous reporting period. This could be attributed to the increased plant and vehicles required for fit out and finishing works. Routine toolboxes and training have been delivered Project-wide on topics including appropriate material storage and bunding, spill prevention, spill response, management and reporting.

4.1.2 Traffic

Traffic and spoil haulage-related incidents comprised 11% of incidents (refer to Figure 4-1). The incident involved a spoil haulage vehicle belonging to haulage company 'State Road Construction', using the 'Route A' loop outside of the approved hours to access the Northcote St site. The 'Route A' loop is an additional spoil haulage route for Northcote Street civil and tunnel site permitted for use only during approved hours as described in Section 4.7 of the Traffic and Transport and Access Management (TTAMP) Sub Plan.

The incident was reported to DPIE as a breach against CoA E49A and E49B(a), and recorded as non-conformances against the TTAMP, which are discussed in Section 4.2.

The number of CoA E49B breaches have decreased significantly since the previous reporting period. This is likely to be attributed to the reduction of spoil trucks hauling from site as tunnel excavation works reached 99.4% completion.

4.1.3 Other incidents

The other two incidents involved the failure to formally notify the EPA of community complaints in accordance with Condition R4.1 of EPL 211449 which states the complaints received in the previous 24hour period must be reported prior to 2pm that day.

The first incident on 30 September 2021 was due to unforeseen IT issues and the second on 5 November 2021 was due to an onsite emergency evacuation drill.

The EPA were notified of the late submissions of the complaints. No further actions were required.

4.2 Non-Conformances

Of the nine incidents detailed in Section 4.1, only three of these were non-conformances (NCRs). These NCRs were against the requirements of the EPL and TTAMP and are summarised in Table 4-2.

Table 4-2 Non-Conformances against the Project Documents

Project Document	No. of NCRs	Description	Corrective Action
TTAMP	1	<p>On 10/8/2021, a spoil haulage vehicle was recorded using Route A to access the Northcote St site outside of the approved hours of use.</p> <p>This has been recorded as a non-compliance against CoA E49B in Appendix A.</p>	<p>ASBJV contacted the driver and haulage subcontractor to notify them of the breach. Drivers were temporarily stood down and First and Final warnings were issued where required.</p> <p>The Project's GPS-tracking system Virtual Superintendent automatically alerts the Project Traffic Team when a spoil truck uses Route A outside of approved hours. This facilitates a prompt response from ASBJV.</p>
EPL	2	<p>Failure to formally notify EPA of community complaints in accordance with Condition R4.1 of EPL 21149.</p> <p>Two complaints (EC537 and EC538) were received between Wednesday 29/09/21 12pm and Thursday 30/09/21 12pm. Notification to the EPA of received complaints are required to be provided by 2:00pm Thursday 30/9/21.</p> <p>Due to unforeseen IT issues complaints were not successfully submitted to the EPA prior to 2pm.</p>	<p>The EPA were notified and received the complaints by 2:50pm Thursday 30/9/21.</p> <p>No actions were required as a result of the complaints.</p>
		<p>Complaint EC551 was received between Thursday 04/11/21 12pm and Friday 05/11/21 12pm. Notification to the EPA of received complaints are required to be provided by 2:00pm Friday 05/11/21.</p> <p>Due to an emergency site evacuation the complaint was not successfully submitted to the EPA prior to 2pm.</p>	<p>The EPA were notified and received the complaints by 3:02pm Friday 05/11/21.</p> <p>No actions were required as a result of the complaints.</p>

4.3 Environmental Representative Inspections

The Project Environmental Representative (ER) conducted two environmental inspections and raised three issues and eight positive findings during the reporting period.

No issues were considered high-risk and were all subsequently closed out to the satisfaction of the ER. Figure 4-2 provides a breakdown of issue type raised during the ER inspections.

It should be noted that between July 2021 and Oct 2021, due to COVID-19, only essential workers and construction staff were permitted to enter site. As such, during this time frame, ASBJV held desktop reviews with the ER and presented the site condition with any issues requiring action and close out.

ER inspections are assigned a Road and Maritime ‘traffic light’ status as an indicator of the overall environmental performance and effectiveness of site management measures. Table 4-3 provides definitions of the different TfNSW inspection statuses. During the reporting period, the Project received 100% ‘Green’ inspection results.

The Environment Protection Authority (EPA) conducted no Project site inspections during the reporting period.

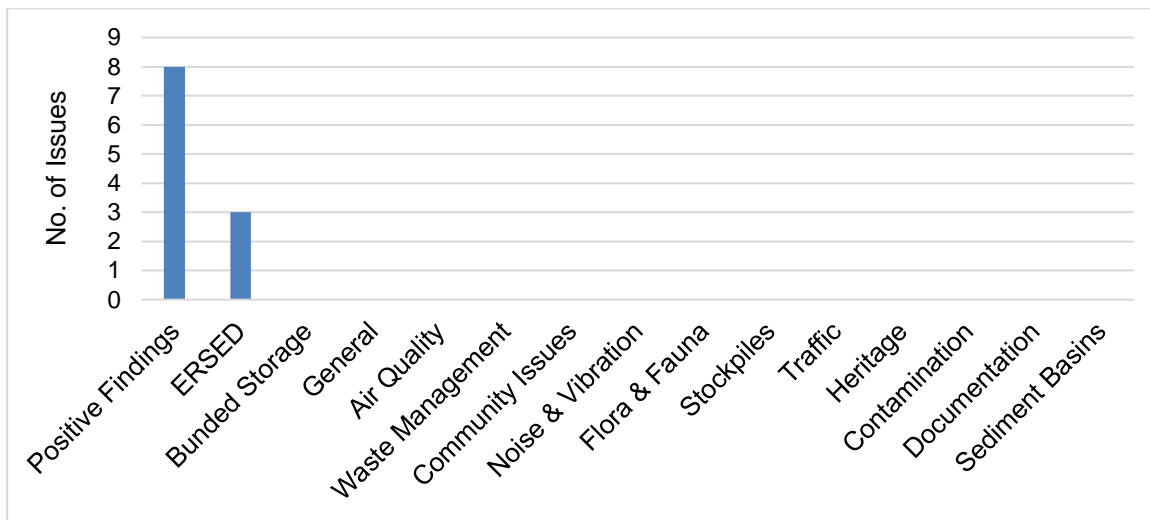


Figure 4-2 ER Inspection Issues by Type

Table 4-3 TfNSW Environment Inspection Status

Status	Definition
Red	<ul style="list-style-type: none"> • Actions required to address urgent risk issues. • Satisfactory actions not taken for high risk issues identified on the previous inspection. • A Category 1 incident has been identified during the inspection.
Amber	<ul style="list-style-type: none"> • Actions required to address high and/or medium risk issues. • Satisfactory actions not taken for previous medium or low risk issues on the previous inspection.
Green	<ul style="list-style-type: none"> • Actions required to address low risk issues that will not directly cause environmental harm. • Site demonstrates good environmental management with no action required to avoid environmental harm.

4.4 Environmental Audits

4.4.1 Independent Environmental Audit

There were no audits undertaken within the reporting period.

As detailed in the previous CCR, the annual independent environmental audit on the Projects compliance against the CEMP and Noise and Vibration Management Sub-Plan (NVMP) was undertaken in May 2021. This audit resulted in two opportunities for improvement (OFI).

These OFIs were closed out during the reporting period and have been included in the Action Summary Table in Appendix B.

4.4.2 ISO 14001:2015 EMS Audit

The annual audit, albeit scheduled for November 2021 on the implementation of the Project's EMS against the ISO14001, was undertaken in May 2021. This was included in the previous CCR report with all actions and closed out items.

4.5 Complaints

The Project received a total of 77 complaints during the reporting period. Of these, three were identified as not related to the Project but were still investigated and logged.

Refer to Figure 4-3 for a breakdown of the complaints by month and issue. The number of complaints received has decreased since the previous CCR reporting period.

Of the 77 Project-attributed complaints received, the three most frequent complaint issues were noise (78%), parking (7%), and operational aspects (5%). Noise has remained the most frequent complaint issue since the previous CCR, which is expected given tunnel excavation and other vibration-generating works were the major activities throughout the reporting period. As the Project transitions from tunnel excavation to civil fit-out and M&E works, it is expected noise complaints will decrease. It is likely we will see a change in the complaints trend within the next reporting period in 2022.

Responses to these complaint issues are discussed in Section 4.5.1.

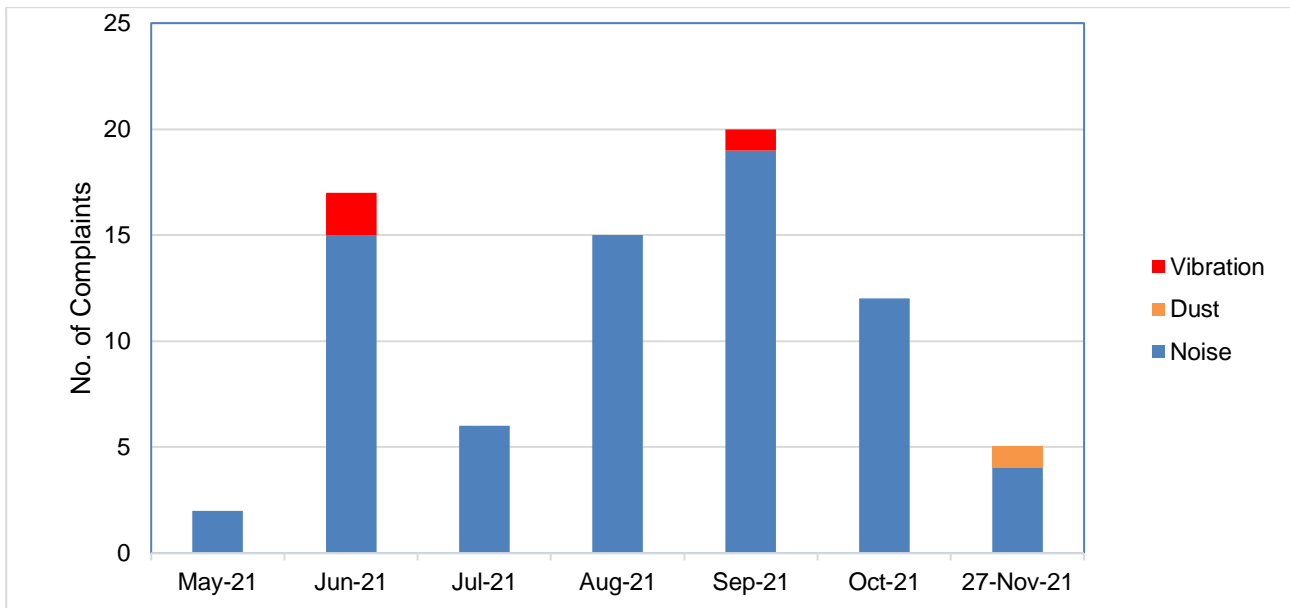


Figure 4-3 Project Attributed Complaints Received by Month and Issue

4.5.1 Complaint Management

4.5.1.1 Noise

Noise-related complaints were predominately received about ground borne noise impacts from tunnelling at Leichhardt (23), Annandale (17), St Peters (5), Haberfield (2), Newtown (4) and Camperdown (1). Airborne noise complaints were also received in response to civil works at Haberfield and geo tech works at Newtown. Noise complaints were also received regarding noise from the PBR site works and street sweeper in Camperdown/Annandale.

Actions taken to address the issues raised included:

- Offering and carrying out noise monitoring to validate predicted and actual noise impacts. Monitoring results are issued to residents in a Monitoring Report
- Offering to share noise monitoring data if monitoring had been conducted at a neighbouring property
- Offering respite measures where applicable such as alternative accommodation, noise cancelling headphones and/or ear plugs
- Offering compassionate respite measures such as alternative accommodation in special circumstances
- Implementing noise mitigation measures at the source for surface works including noise blankets and carrying out high impact work earlier in the shift
- Provide specific notification to impacted residents including details about duration and approval of work activities
- Providing additional regular weekly updates on work progress
- Toolboxing workers on noise mitigation measures and project expectations.

4.5.1.2 Vibration

A total of three vibration related complaints were received during the reporting period. All complaints were investigated.

The first complaint received at Annandale was investigated to find that no excavation or vibration activities were occurring near the stakeholder at the time of the complaint and that this area was now handed over to M&E. A response was provided to the stakeholder providing this update. No response was received.

The second and third complaint received was at St Peters for vibration generated from work in the tunnel. The first stakeholder was offered and accepted the installation of a vibration monitor. The second stakeholder was notified that vibration monitoring was being conducted in the neighbouring property and that the data would be shared.

Vibration monitoring was undertaken with all results being compliant with the allowed Vibration Dose Values (VDV) for human comfort.

4.5.1.3 Other Complaints

Actions taken to address other various complaints including haulage, worker behaviour, dust communications and unrelated complaints (refer to Figure 4-3) include:

- Using the project's GPS system to check if vehicles are complying with vehicle movement plans and haulage
- Not all complaint investigations found drivers doing the wrong thing - in such cases, clarification was provided on which spoil haulage routes are approved or specific approved hours for specific routes
- Carrying out audits of haulage routes by driving the routes as well as remotely via the GPS system
- Providing regular updates of Vehicle Movement Plans to contractors to ensure they understand approved haulage and access routes
- Reviewing spoil haulage logistics to reduce occurrence of trucks having to stop at Parramatta Road by staggering truck start times, increasing surveillance
- Issuing warnings and taking disciplinary actions including suspending haulage operators or removal of drivers from the project that do not comply with requirements and rules
- Tool boxing workers and contractors on acceptable behaviours when working close to properties and businesses as well as the need to comply with project requirements and overarching road rules
- Implementing additional dust mitigation measures such as increased frequency of water cart use and asking operators to turn off vehicles/plant when not in use
- Offering meetings and where accepted meeting with residents to further explain work activities, timelines, approvals, and mitigation measures
- Advising nearby projects of complaints related to their work

5 Environmental Monitoring

In accordance with CoA C9, environmental construction monitoring programs have been prepared and implemented on the Project to monitor the following impacts:

- Surface water quality – CoA C9(a)
- Groundwater – CoA C9(b)
- Noise and Vibration – CoA C9(c)
- Dust Deposition – CoA C9(e)

5.1 Surface Water Quality

In accordance with the Surface Water Quality Monitoring Program (SWQMP), surface water monitoring was undertaken monthly and quarterly following a wet weather event during the reporting period.

Potential changes in water quality were assessed and a management response initiated following any exceedance of a site-specific trigger values (SSTV).

Overall, downstream monitoring results recorded were compliant with the SSTV limits except on a few occasions. Improvement in water quality downstream of Project discharge outlets was also recorded.

At Dobroyd Canal (Northcote St), no downstream exceedances of the pH criterion were recorded during the reporting period. Generally, improvements in water quality downstream were observed with SSTV exceedances consistently recorded at the upstream control site.

The NTU SSTV was exceeded downstream on one occasion after a wet weather event in August 2021. On this occasion, NTU was higher at the upstream control site indicating non-Project impacts and improved water quality downstream. Following this exceedance, site WTP records were reviewed and confirmed all outgoing water discharged from the Northcote WTP was within EPL limits. Therefore, no evidence was found to attribute the changes in water quality to the Project and instead a result of catchment-wide wet weather.

At Johnstons Creek (PBR), no downstream exceedances of the pH criterion were recorded during the reporting period.

The NTU SSTV was exceeded downstream once after the same wet weather event in August 2021 detailed above. On this occasion, NTU was higher at the upstream control site indicating non-Project impacts and improved water quality downstream. A review of PBR WTP records also confirmed all outgoing water discharges were compliant with EPL limits for NTU. Therefore, the changes in water quality observed were attributed to catchment-wide wet weather.

At Sheas Creek/Alexandra Canal (Campbell Road), no downstream exceedances of the pH and NTU SSTV were recorded during the reporting period. Improvements in water quality were also observed at the downstream impact site on three occasions.

5.2 Groundwater

In accordance with the Groundwater Monitoring Program (GWMP), continuous groundwater level and quality (conductivity) monitoring was undertaken on 23 bores. Loggers were downloaded and manual level measurements collected every two months.

Three bores (LSB-MT-BH1010b, MT_BH14, and LSB-MT-BH1016) remained dry during the reporting period. Therefore, no monitoring data is available for these bores.

As detailed in the previous CMR, LSB-MT-BH1003 was asphalted over by the local council in March 2021 and has not been able to be recovered. A replacement bore (LSB-SPI-OM-BH04) was drilled approximately 50 meters northeast of LSB-MT-BH1003 and screened in the same lithology and at a similar depth. Following well development, a datalogger was installed in November 2021. Bore details and monitoring data from LSB-SPI-OM-BH04 will be reported in future CMRs.

Similarly, throughout the reporting period, issues were identified with the following loggers:

- LSB-HC-PT-OW5a
- LSB-GW-HB-BH12
- LSB-SP-BH03
- LSB-GW-HB-BH19

LSB-HC-PT-OW5a became stuck at approximately 10 meters below the top of casing (mBTOC) in October. The groundwater level logger measurements were adjusted to take into account the change in pressure as a result of the logger being stuck. At the end of the reporting period, the logger was dislodged and returned to its original position.

The datalogger in LSB-GW-HB-BH12 malfunctioned and no data was able to be downloaded. The logger was replaced in October 2021.

LSB-SP-BH03 was unable to be redeployed in May 2021 after the sampling pump became stuck resulting in minimal reporting during the reporting period from this bore. The pump was successfully removed in October 2021.

Lastly, the datalogger in LSB-GW-MT-BH19 temporarily malfunctioned and no data was recorded between 17 May and 6 June 2021. No other issues occurred with this logger for the remainder of the reporting period.

Due to the NSW Government's compulsory construction shutdown in response to the COVID-19 pandemic, the July 2021 monitoring event was postponed to August once works resumed.

5.2.1 Groundwater Level

The predicted drawdown levels for each monitoring borehole are estimated based on EIS baseline monitoring results and pre-tunnelling water levels measured following the commencement of construction in late 2018. Predicted drawdown levels are also influenced by the monitoring bores proximity to the tunnel and depth of the tunnel invert.

Consistent with the previous reporting period, groundwater levels in six monitoring bores were recorded below their predicted drawdown levels. Two of these bores are located in St Peters and four located in Haberfield and Leichardt. One bore (LSB-MT-BH1018) no longer recorded water levels below the predicted drawdown levels.

It should also be noted that in two bores, groundwater levels had dropped below the data loggers. The loggers in both bores will be extended in subsequent monitoring rounds where access is available.

Investigation into the varying groundwater levels, when compared against the anticipated drawdown prediction ground water model for the Project, is being investigated as part of the 24-month groundwater model review required by CoA E194. This is expected to be finalised at the end of the year. Following the completion of this review, monitoring data will be evaluated against the revised predictions and a management response initiated where required.

5.2.2 Groundwater Quality

Potential changes in groundwater quality were assessed using electrical conductivity (EC) dataloggers, with a management response initiated if the following occurred:

- EC data continuously exceeds the SSTV over the period of three months and depicts a rising trend
- EC data exceeds the SSTV at any time by more than 100%.

During the reporting period, no management responses were triggered for the six bores located in the Hawkesbury Sandstone (HSS) lithology. As reported in the previous CMR, LSB-MT-BH1015 has continued to oscillate above the SSTV however does not depict a rising trend. EC in this bore will continue to be monitored to identify any potential future increasing trends and compared to the Project's groundwater model predictions to determine whether a management response is required.

EC levels in LSB-GW-HB-BH12 were also observed above the SSTV between October and November. However, the trend cannot be assessed for this bore due to the datalogger malfunctioning which resulted in no data prior to October. EC levels will continue to be monitored in this bore.

A sudden decline in EC below the SSTV was also observed in LSB-HC-PT-OW5a on 8 October 2021. This jump has been attributed to the logger becoming stuck which was successfully dislodged at the end of the reporting period and returned to its original position within the well. Therefore, EC levels are expected to return to above the SSTV.

The two bores located in Ashfield Shale (LSB-SP-BH03 and LSB-SP-BH11) remained below the SSTV. This is consistent with the Project's groundwater model predictions which suggest saline water will not migrate from Alexandra Canal in St Peters towards the tunnel.

5.2.3 Water Treatment Plant (WTP) Discharges

During the reporting period, permanent construction-phase WTP were operational at the three Project tunnelling sites. The WTP are designed to treat a combination of surface water, groundwater and water from site operations to a suitable quality for discharge in accordance the Project's Environment Protection Licence (EPL) (Licence No. 21149). Monthly WTP samples are taken to confirm compliance against the EPL criteria.

A summary of the volumes discharged from each site and water quality results during the reporting period are summarised in Table 5-1

Table 5-1 Site WTP Discharges

Water Treatment Plant	EPL Discharge Point Ref.	Total Volume Discharged (m3)	No of Exceedances of EPL Criteria
Pymont Bridge Road site	3	14,777.98	0
Northcote Street site	5	111,382.69	0
Campbell Road site	4	50,544.02	0

5.2.4 Tunnel Inflows

Tunnel inflows are estimated by the ASBJV Geotechnical Team using the following water balance equation:

$$\textit{Tunnel inflow} = \textit{WTP Discharge} - \textit{Project water inputs} + \textit{Spoil Water Content}$$

During the reporting period, tunnel inflows at the three Project sites were estimated every two months and are summarised in Table 5-2. Due to the difficulty of accurately quantifying groundwater inflows, uncertainty analysis has been undertaken and been accounted for in the inflow estimations.

Table 5-2 Total Tunnel Groundwater Inflow

Time Period	Campbell Road & Pymont Bridge Road (L/s)	Haberfield (L/s)
July 2021	5.0811	8.1407
September 2021	4.9038	7.9306
November 2021	5.8525	6.4944

5.3 Noise and Vibration

In accordance with the Construction Noise and Vibration Monitoring Program (CNVMP), the following noise and vibration monitoring were undertaken during the reporting period:

- Attended airborne noise monitoring
- Unattended ground-borne noise monitoring
- Real-time unattended noise and vibration monitoring
- Attended and unattended vibration monitoring

Table 5-3 provides a summary of the Project-wide noise and vibration monitoring results during the reporting period.

During the reporting period, at receiver (in-property) monitoring in response to complaints and to verify predicted noise and vibration levels was temporarily stopped in June 2021 in response to the COVID-19 pandemic. This was to protect the safety of both the community and ASBJV staff from potential exposure to the Coronavirus. This temporary approach was communicated to the EPA.

Table 5-3 Noise and Vibration Monitoring Events Summary

Monitoring Type	Prediction Exceedances	Comments
Airborne noise monitoring	0	Based on 27 monitoring events. All airborne noise monitoring results were compliant with the applicable criteria and no additional mitigation measures were required to be implemented
Ground-borne noise monitoring	0	Based on 4 monitoring events. One property was found to exceed the 45dB(A) criteria for night-time and was immediately offered alternative accommodation. All ground-borne noise monitoring results where construction was the dominant noise source were compliant with the applicable criteria.
Vibration monitoring for potential cosmetic damage	0	Based on 3 monitoring events. All results were compliant with the relevant criteria for cosmetic damage
Vibration monitoring for human comfort	0	Based on 1 monitoring events. All results were compliant with the criteria for human comfort and no additional management measures were required to be implemented.

Real-time unattended airborne noise and vibration monitoring was undertaken at each of the three tunnelling sites (Campbell Road, PBR and Northcote Street). The locations of the monitors were determined in consultation with the Project's Acoustic Advisor (AA) and access to the monitoring results are available to ER and AA.

This data has provided little value to the community or Project team and has not been needed to respond to complaints or in relation to compliance investigations since Project commencement.

5.4 Dust Deposition

In accordance with the Dust Deposition Monitoring Program (DDMP), depositional dust monitoring was undertaken monthly at the following ancillary facilities:

- Northcote Street civil and tunnel site
- Parramatta Road East and West civil sites (PREW)
- Wattle Street civil and tunnel site
- Pyrmont Bridge Road tunnel site (PBR)
- Campbell Road civil and tunnel site

Depositional dust exceedances are assessed against the annual maximum level of 4 g/m²/month. During the reporting period, 8 monthly dust results greater than 4 g/m² were recorded across the Project as shown in Figure 5-1.

Monitoring results for Wattle St site are not considered representative of construction impacts. The results obtained at this location appear to be greatly affected by the passing traffic because dust generating construction activities at this location have been minimal during the reporting period.

Despite the 8 monthly exceedances, dust levels were generally below the trigger value throughout the 6-month period. Refer Table 5-4.

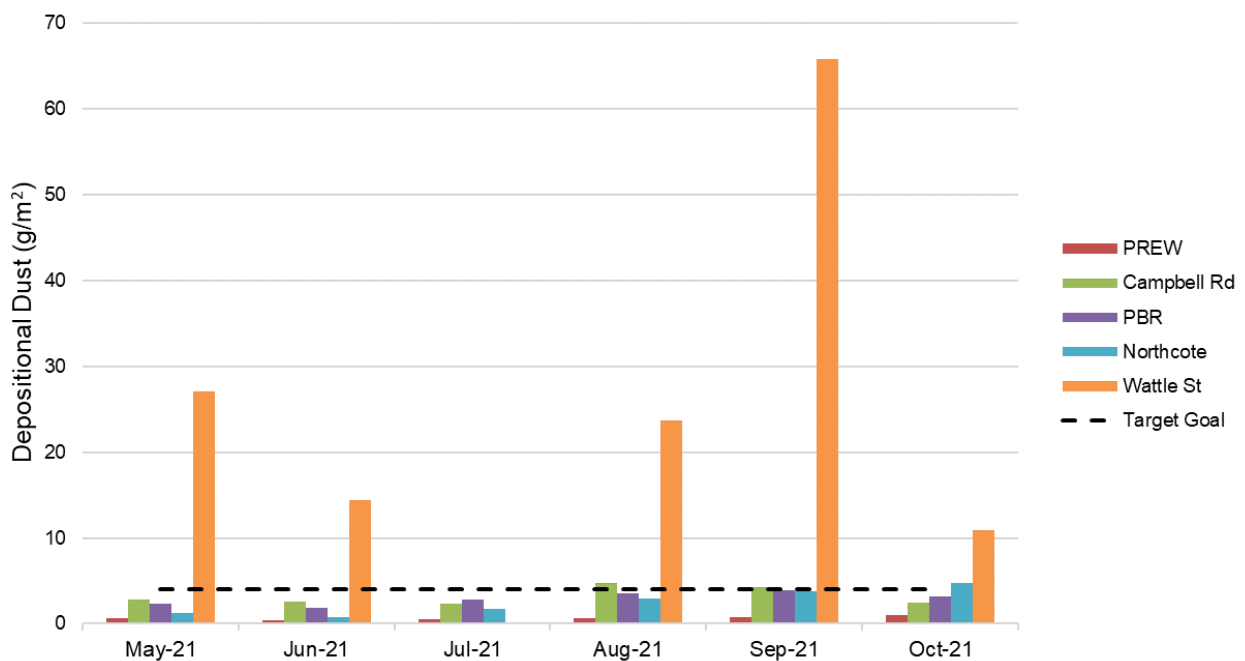


Figure 5-1 Monthly Depositional Dust Results by Site

Table 5-4 Six Months and Annualised Average Dust Values (g/m2)

Construction Site	PREW	Campbell Rd	PBR	Northcote	Wattle St
Six Months Average	0.67	3.22	2.95	2.56	28.28
Annualised Average	1.38	6.11	4.79	5.06	10.38

As reported in previous CCRs, dust monitoring results are highly correlated with air quality trends in the Greater Sydney Region and influenced by seasonal patterns, rainfall, and other factors such as hazard reduction burns.

The NSW Office of Environment and Heritage (OEH) released an increase in poor air quality alerts from August onwards during a relatively drier period that followed a wetter period in the first half of 2021.

Monthly dust levels at each site increased and decreased together throughout the reporting period demonstrating the strong influence of non-Project background sources on depositional dust monitoring results.

At the end of the reporting period, dust levels at all sites are trending downwards towards the performance criteria, with the exception of the Wattle St site. On-site dust management is regularly monitored by ASBJV Environmental Coordinators, as well as the Project ER during fortnightly formal inspections.

Dust management measures implemented on site during the reporting period included:

- Spoil handling predominantly within an acoustic shed
- Where spoil is handled outside an acoustic shed, for example at the Campbell Road site, additional controls were investigated and implemented including the use of water misters and increasing the frequency of water carts in that area
- Covered loads for all vehicles transporting spoil and other materials
- On-site dust suppression including water carts, hoses, drizzle bars and street sweepers
- Maintenance of hardstand areas to prevent material building up and potentially becoming airborne
- Dust minimisation toolbox talks delivered to site personnel
- Use of wheel washes, wheel baths, drizzle bars and street sweepers to minimise sediment tracking and build up on public roads

Appendix A Conditions of Approval - Compliance Table

Table redacted for online version

Appendix B Action Status Table

Source	Finding Type	Finding Description	Relevant CoA	Action Proposed	Proposed Completion Date	Status	Action Completed
Independent Audit 2021	OFI	Whilst non-tonal movement alarms were fitted to all vehicles and plant inspected during the audit, and there was a high level of awareness of this requirement, the Project Plant Inspection Report Form did not specifically identify non-tonal alarms as a requirement.	N/A	Consideration could be given to revise the wording in the Plant Inspection Form from "Reverse / travel alarm operational" to "Reverse / travel alarm non tonal and operational" or similar.	N/A	Closed	ASBJV Plant Inspection form was updated to include the requirement specifying non tonal alarms
	OFI	Whilst the audit found no indication that the respite requirements were not being complied with, there was minimal documented evidence to demonstrate that respite periods for high noise impact surface works were being complied with.	E72	Consideration should be given to implement a process to record respite periods for high noise impact works on the surface.	N/A	Closed	ASBJV Environment team held refresher training across the project, in the form of a toolbox talk, reminding Supervisors to recorded respite periods when high noise intensive works are occurring. Training was held 8 June 2021.

Notes: Audit Finding Types: NCR = Non-Conformance, OBS = Observation, OFI = Opportunity for Improvement