

Construction Compliance Report:

28 November 2021 – 27 May 2022

M4-M5 Link Mainline Tunnels



WestConnex M4-M5 Link Tunnels



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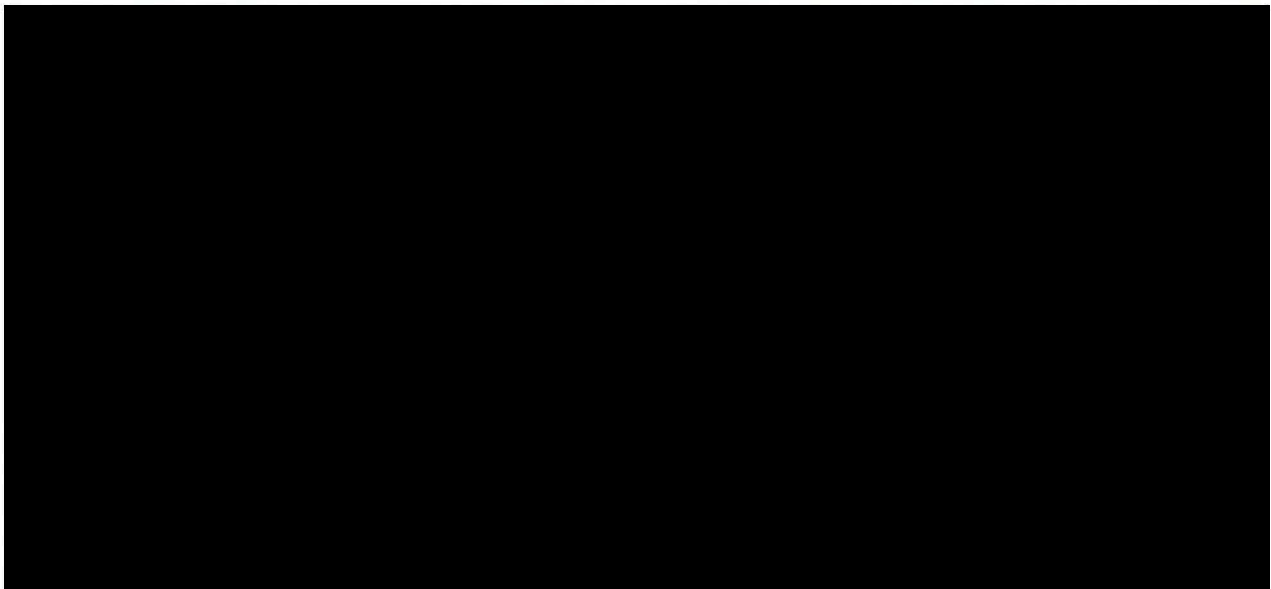
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Abbreviations/Glossary

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.

A modification Report for MOD 7 relating to Stage 1 of the approved project was prepared and placed on public exhibition between 18 May 2022 and 31 May 2022. The modification 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 November 2021 – 27 May 2022.

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 tunnel civil, civil surface and mechanical and electrical (M&E) works were all well underway across the Project. Despite the construction pause experienced due to Covid -19 as detailed in the previous report, the Project is still on target for opening completion 31 March 2023, albeit all three parties are working collaboratively towards an earlier tunnel opening. dtae

Some significant activities and milestones were achieved throughout the reporting period with a summary of activities at each Project construction site provided below:

- Tunnel excavation reached 100% completion across all three sites.
- The 'operational' water treatment plant (WTP) was successfully constructed at SPI, as shown in Figure 2-1, and commenced early stages of commissioning.
- All durability secondary lining was completed at SPI.
- The Resource Recovery Order and Exemption for WestConnex which approves the use of imported tunnel material for backfilling activities was approved.
- Construction of the hydraulic plug walls at the bottom of the temporary access tunnels were completed at PBR and SPI with backfilling commencing at PBR at the end of the reporting period.
- HV cable hauling was completed for all substations in January 2022.



Figure 2-1 Operational Water Treatment Plant, St Peters April 2022

2.2.1 Tunnel Civil and Mechanical and Electrical works at Northcote St, Pyrmont Bridge Road (PBR) and Campbell Road Sites

At the end of the reporting period, tunnel excavation was 100% complete and backfilling of the temporary tunnels and adits had commenced at some sites.

The remaining excavation in the M1B0 stub located at PBR site was successfully completed during the reporting period inclusive of the LEP precast unit installation. Blockwork wall works are now ongoing.

Tunnel civil works continued to progress closely behind the now completed tunnel excavation works. As such, at the end of the reporting period approximately 99% of all tunnel civil works had been completed.

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 98% of tunnel areas have been handed over to M&E with approximately 70% of assets handed over to the testing and commissioning (T&C) team.

Another major project milestone was the approval of the Resource Recovery Order and Exemption for WestConnex in December 2021 which approved the use of imported tunnel material used to backfill the Projects temporary tunnel and tunnel adits. Imported tunnel material commenced in April 2022 at PBR.



Figure 2-2 – M&E works underway at Haberfield, May 2022.

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 including throw screen and cladding installation as shown in Figure 2-3.
- All but one surface sign which remains open under an RFI were installed on the Wattle Street ramps.
- Tolling gantries were installed underground at Haberfield.

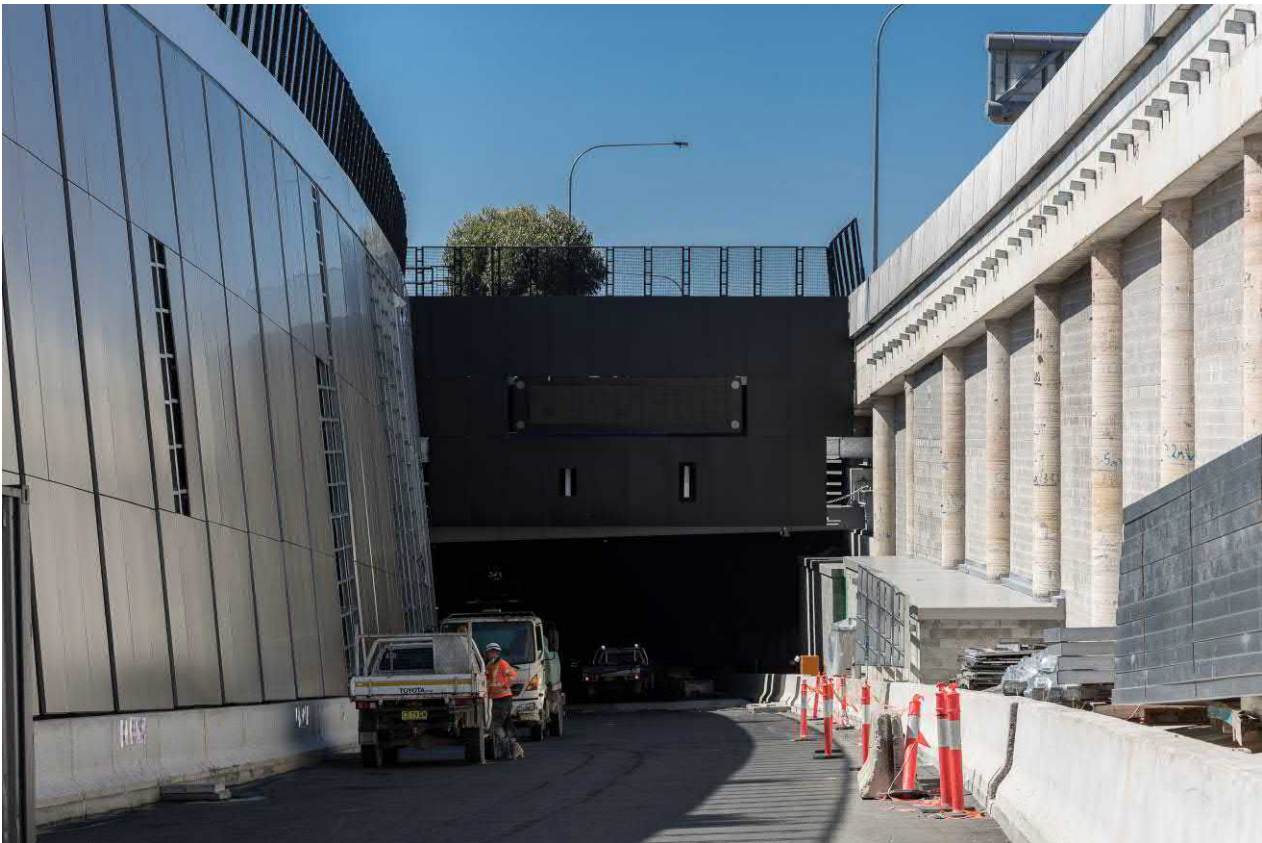


Figure 2-3 Wattle Street Cut and Cover works near to completion, March 2022

2.2.3 Campbell Road Site Surface Works

Surface works at Campbell Road during the reporting period included:

- Completion of the ventilation outlet cladding.
- Ongoing installation of the ventilation building lighting arms.
- 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 2-4) is near completion (to follow on after lighting arm installation).
- The supply shaft building and workshop building were successfully completed and handed over to M&E for fit out.
- All sevens axial fans were installed in the ventilation building and were successfully tested, running at full speed (shown in Figure 2-5).
- The first round of dry commissioning for the operational water treatment plant (WTP) was successfully undertaken at the end of the reporting period.



Figure 2-4 Ventilation and Substation Cladding, St Peters April 2022



Figure 2-5 Ventilation building axial fans, St Peters April 2022

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.

2.4.2 Project Modifications

During the reporting period a Modification report (MOD 07) for the M4-M5 Link Northcote Street Closure was prepared.

The modification proposes to keep Northcote Street in its current alignment. This will see the continued closure of the Parramatta Road/ Northcote Street intersection to vehicle traffic and reinstatement of the road alignment as a pedestrianised zone. This is being proposed as an interim development, noting that future development, under TfNSW management, will be proposed for this area.

The Modification report was publicly exhibited across a 14day period, with the exhibition period ending outside of this reporting period, from 18th May 2022 to 31st May 2022.

2.5 Construction Environmental Management Plan Reviews/Amendments

Throughout the reporting period the CEMP and all sub plans were reviewed. One amendment was made to the CEMP main body.

Refer to Table 2-1 below.

Table 2-1 CEMP Update and Review

Relevant Plan	Revision	Updates	Approval Date
Construction Environmental Management Plan Main body	Revision 24	Appendix A8 – SPI site layout	29 March 2022
Traffic and Transport Access Management Plan	Revision 39	Minor update following Hawthorne Canal works completion and to include parking at the Burrows Road Ancillary Facility	2 February 2022
Noise and Vibration Management Sub Plan	Revision 21	Review conducted; no changes/ updates necessary	1 September 2020
Flora and Fauna Management Sub Plan	Revision 7	Review conducted; no changes/ updates necessary	29 July 2020
Pollution Incident Response Management Sub Plan	Revision 04	Annual review conducted October 2021. Next review to be included in CCR 8	12 October 2021
Air Quality Management Sub Plan	Revision 5	Review conducted; no changes/ updates necessary	1 March 2019
Soil and Surface Water Management Sub Plan	Revision 09	Review conducted; no changes/ updates necessary	28 April 2020
Groundwater Management Sub Plan	Revision 13	Review conducted; no changes/ updates necessary	10 June 2021
Non- Aboriginal Heritage Management Sub Plan	Revision 10	Review conducted; no changes/ updates necessary	1 September 2020
Aboriginal Cultural Heritage Management Sub Plan	Revision 5	Review conducted; no changes/ updates necessary	4 March 2019
Waste Management Sub Plan	Revision 8	Review conducted; no changes/ updates necessary	29 June 2020

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 which was adapted to address Project and joint venture requirements.

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 seven incidents were reported across the Project during the reporting period. The most frequent incident issue was Spills (five) with Soil and Water (two) totalling seven overall. Refer to Figure 4-1 for a breakdown of the incidents by issue.

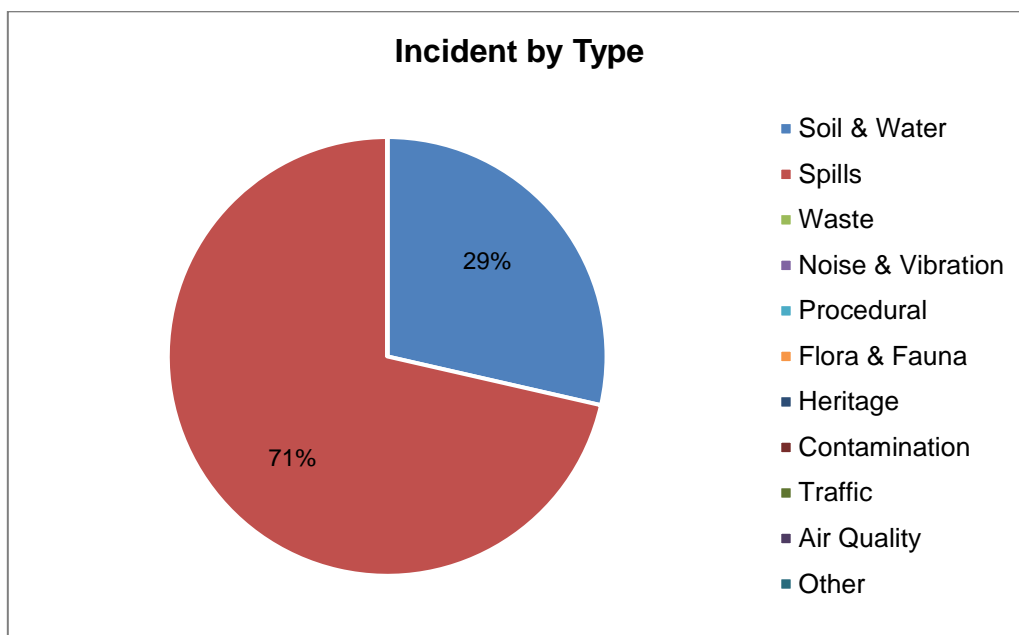


Figure 4-1 Environmental Incidents by Type

4.1.1 Spills

During the reporting period, spills comprised 71% 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 reporting culture of spills on site as well as large scale demobilising that commenced during the reporting period. This has resulted in plant and equipment being moved around the site for off-site removal. 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 Soil and Water

Soil and Water-related incidents comprised 29% of incidents (refer to Figure 4-1).

The first soil and water incident occurred on 23 February 2022 after the large continuous rainfall event, in excess of 200mm within a 48hour period, that Sydney received throughout the month. As a result of this rainfall event, which is in excess of the site design rainfall capacity, the SPI sediment augmentation basin over topped via the designated overflow spillway and the sites implemented ERSED controls and passively discharged off site.

No environmental harm occurred as a result of this discharge as the site ERSED controls upheld. Discharge did cease despite continued rainfall.

This event was captured as a 'Reportable Event' and the Client were notified.

The second soil and water incident relates to the SPI WTP discharge whereby monthly discharge results received 1 March 2022 confirmed an exceedance of the Total Suspended Solids (TSS) against the Projects permitted EPL discharge limits. Results of 67mg/L were recorded against the 50mg/L limit. The EPA were notified in writing of this breach however the Project consider no environmental harm was caused given the minor breach and the receiving waters at the time of the incident post 300mm+ of rainfall.

4.2 Non-Conformances

Of the seven incidents detailed in Section 4.1, only one of these was a non-conformance (NCR). The NCR was against the requirements of the EPL as summarised in Table 4-2.

Table 4-2 Non-Conformances against the Project Documents

Project Document	No. of NCRs	Description	Corrective Action
EPL	1	On 1 March, SPI monthly WTP discharge results identified a Total Suspended Solids (TSS) exceedance against the EPLs discharge criteria under Condition L2.4	<p>The EPA were notified of the exceedance by 9:00am Wednesday 2 March.</p> <p>No actions were required as a result of this exceedance. On site testing of water discharge confirmed that the TSS (via NTU correlation in accordance with EPL condition L2.5) was back below the acceptable discharge criteria.</p>

4.3 Environmental Representative Inspections

The Project Environmental Representative (ER) conducted seven environmental inspections and raised nine issues and fifteen 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.

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. Refer to Figure 4-3.

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

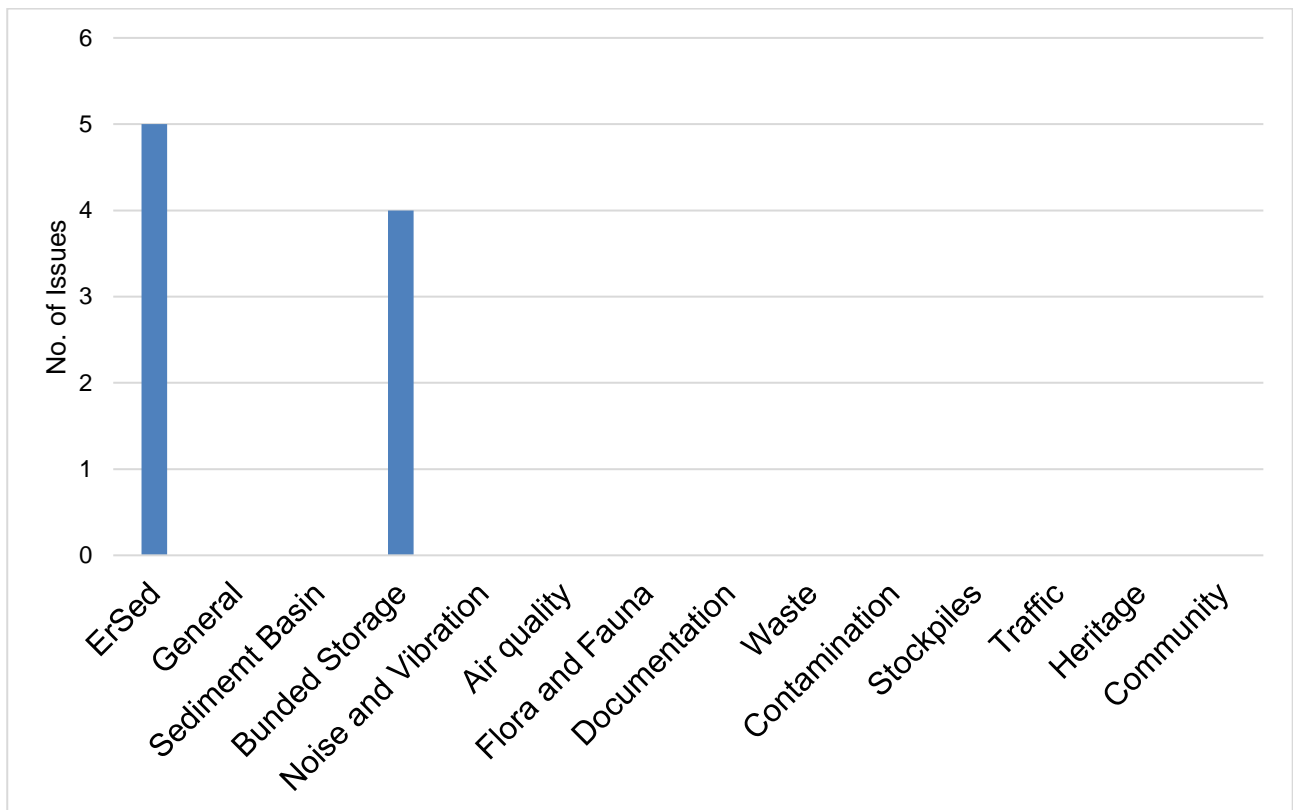


Figure 4-2 ER Inspection Issues by Type

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.

ER Inspection Results							
RMS Traffic Light Indicator	X	X	X	X	X	X	X
Inspection Date	15-Dec-21	20-Jan-22	17-Feb-22	17-Mar-22	31-Mar-22	14-Apr-22	21-May-22

Figure 4-3 ER Inspection Results

4.4 Environmental Audits

4.4.1 Independent Environmental Audit

The fourth independent environmental audit for the Project was undertaken on the 23, 24 and 25 May 2022. The audit examined the Project compliance against the CEMP and Noise and Vibration Management Sub-Plan (NVMP) and the Soil and Surface Water Management Sub-Plan (SSWMP). The noise and vibration component was assessed in collaboration with an independent acoustic expert as requested by DPE.

Site inspections of the Campbell Road, Pyrmont Bridge Road, Northcote / Wattle Street / Parramatta Road East and West (PREW) sites were conducted.

The audit resulted in two opportunities for improvement (OFI) and three observations (Obs). No non-compliances were raised.

The results of the audit are summarised in the Action Summary Table in Appendix B.

Findings include any items raised during an audit that are categorised in accordance with the NSW Department of Planning Audit Guidelines. Refer to Table 4-4 for definitions of finding categories.

Table 4-4 Audit finding categories

Finding Category	Definition
Non-compliance	The intent or one or more specific requirements of the CoA or requirements have not been met. Non-compliances will require verification of adequate corrective action by the independent auditor within 6 weeks of the audit.
Observation / Non-conformance	Failure to implement and/or maintain conformance to the requirements of the Management Plans or other project management system documents relevant to the scope of the audit. Non-conformances will require verification of adequate corrective action by the independent auditor within 6 weeks of the audit.
Opportunity for Improvement	A suggestion or opportunity to implement a good or better practice identified during the audit that could assist in the improvement of environmental performance on the project.

4.4.2 ISO 14001:2015 EMS Audit

There has been no annual audit on the Project's EMS against the ISO14001 during this reporting period. The external audit as detailed in Section 4.4.1 does however assess the Projects compliance of the EMS against the ISO 140001 as this is the basis of the CEMP sub plans management measures. The project's EMS is ISO 140001 certified until 30 November 2023.

4.5 Complaints

The Project received a total of 10 complaints during the reporting period. Of these, one was identified as not related to the Project but was still investigated and logged.

Refer to Figure 4-4 for a breakdown of the complaints by month and issue. As stated in the previous CCR report, it was expected that the number of complaints received would decrease throughout this reporting period. This is likely attributed to the completion of tunnelling work and the transition to civil fit out and tunnel commissioning works. This decreasing trend is expected to continue.

9 out of the 10 Project-attributed complaints received were attributed to noise with the remaining complaint issue being dust. Despite the number of complaints reducing overall within the reporting period, noise still remains the most frequent complaint issue.

Responses to these complaint issues are discussed in Section 4.5.1.

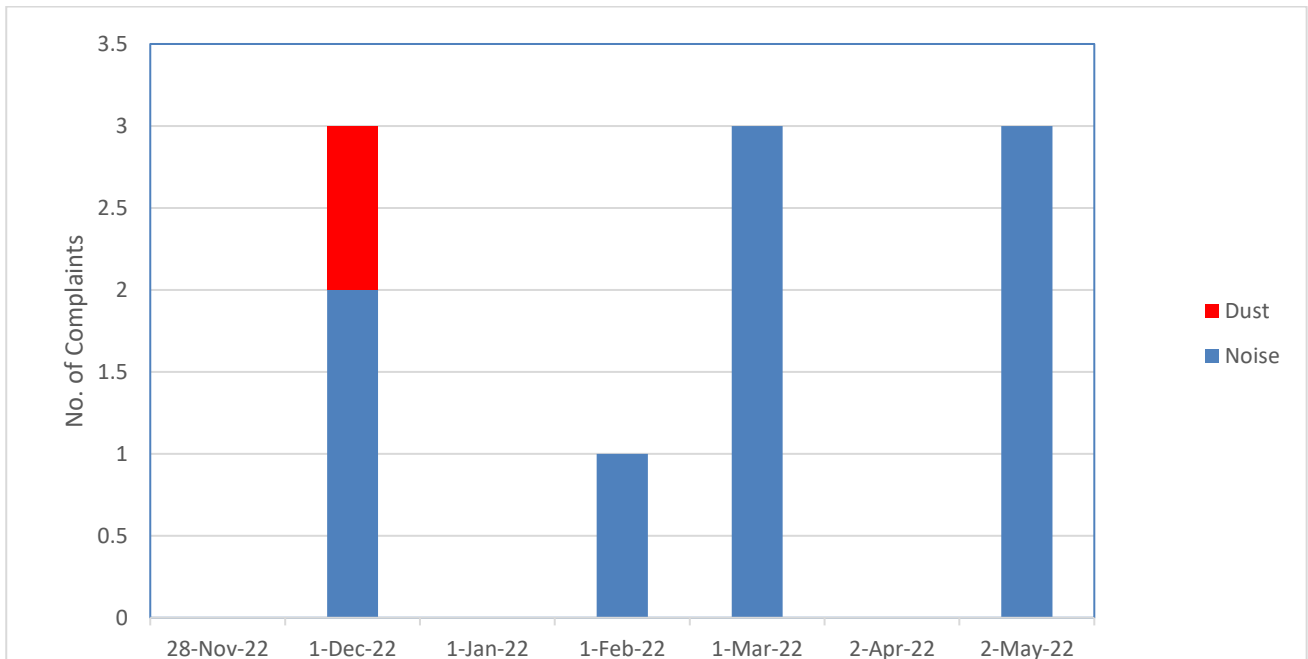


Figure 4-4 Project Attributed Complaints Received by Month and Issue

4.5.1 Complaint Management

Noise-related complaints were predominately received about ground borne noise impacts from tunnelling at Leichhardt (2), Annandale (1), St Peters (1), Haberfield (1), Erskenville (1), Camperdown (1) and Five Dock (1). One (1) non-tunnelling related noise complaint received was from a long-term complainant located in Leichardt who enquired about the Projects obligations to noise monitoring.

The remaining one complaint received at Annandale (1) was in response to dust generated at the PBR site.

Actions taken to address the issues raised included:

- 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
- 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
- Advising nearby projects of complaints related to their work
- Offering meetings and where accepted meeting with residents to further explain work activities, timelines, approvals, and mitigation measures

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), two downstream exceedances of the pH criterion were recorded during the reporting period. In February 2022, pH was recorded above the SSTV, however, poorer water quality was noted at the upstream location suggesting the exceedance was not related to the project. In April 2022 after a wet weather event, poor water quality was noted at the upstream location though the downstream location presented slightly poorer. Records show raw water intake to the WTP was compliant with the criteria although no discharge occurred at this time. Rainfall contributed to high flows likely affecting pH levels and increased salinity indicated tidal conditions influenced the downstream results. Generally, improvements in water quality downstream were observed with SSTV exceedances consistently recorded at the upstream control site

At Johnstons Creek (PBR), one downstream exceedance of the pH criterion was recorded during the reporting period. This occurred after a wet weather event in April 2022, and although similar pH was recorded upstream, it was just within the trigger value. The WTP at PBR had been demobilised by this stage so water quality impacts were not possible. A review of the baseline data noted a pre-construction minimum pH value of 5.78 was recorded suggesting low pH within Johnstons Creek occurs by non-project related means.

At Sheas Creek/Alexandra Canal (Campbell Road), one downstream exceedance of the NTU SSTV was recorded during the reporting period. However, poorer water quality was noted upstream suggesting the exceedance was not project related. Improvements in water quality were also observed at the downstream impact site on two other occasions.

5.2 Groundwater

In accordance with the Groundwater Monitoring Program (GWMP), continuous groundwater level and quality (conductivity) monitoring was undertaken on 21 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. Access to LSB-MT-BH1010b was not available from March 2022 and will not be monitored in future months.

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 is reported in this CMR.

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 seven monitoring bores were recorded below their predicted drawdown levels. Two of these bores are located in St Peters, four are located in Haberfield and one is located in Leichardt.

Investigation into the varying groundwater levels, when compared against the anticipated drawdown prediction ground water model for the Project is being undertaken as part of the 24-month groundwater model review required by CoA E194. 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 November and February. However, following falling below the SSTV from February until last monitored in May. EC levels will continue to be monitored in this bore.

During the reporting period (28 November 2021 to 27 May 2022), LSB-HC-PT-OW5a continued to remain under the SSTV and became fresher having previously been above the SSTV up to October 2021. 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, construction-phase WTPs were operational at all three Project tunnelling sites.

Demobilisation of the WTPs at two sites did commence throughout this period with the PBR WTP going offline in March 2022 and the Northcote Street plant going offline in April 2022.

All tunnel water between Haberfield and St Peters is treated via the SPI construction WTP.

The WTPs 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. Monthly WTP samples were taken at St Peters, Campbell Road site on 24/02/2022. Results were received on 1/03/2022 and returned elevated TSS results in excess of the EPL criteria. Following this result, on site testing of the discharge water confirmed that the TSS (via NTU correlation) was back within the accepted EPL criteria. The EPA were notified and the exceedance will be recorded in the relevant annual return.

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	2053.51	0
Northcote Street site	5	115,661.67	0
Campbell Road site	4	118,666.96	1

5.2.4 Tunnel Inflows

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

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

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)
December 2021	5.04	9.26
February 2022	6.27	7.60

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

- Real-time unattended noise and vibration monitoring
- Attended vibration monitoring

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

Table 5-3 Noise and Vibration Monitoring Events Summary

Monitoring Type	Prediction Exceedances	Comments
Airborne noise monitoring	0	Based on 10 monitoring events. All airborne noise monitoring results were compliant with the applicable criteria and no additional mitigation measures were required to be implemented
Vibration monitoring for potential cosmetic damage	0	Based on 1 monitoring event. All results were compliant with the relevant criteria for cosmetic damage

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, 2 monthly dust results greater than 4 g/m² were recorded across the Project as shown in Figure 5-1.

The monitoring result recorded for Wattle St in November is not considered representative of construction impacts. The result obtained at this location appears to be greatly affected by external factors and the passing traffic because dust generating construction activities at this location have been minimal during the reporting period.

Whilst there were 2 monthly exceedances recorded during the reporting period, dust levels were generally below the trigger value throughout the 6-month period and are considered to be in accordance with the annual performance criteria. Refer Table 5-4.

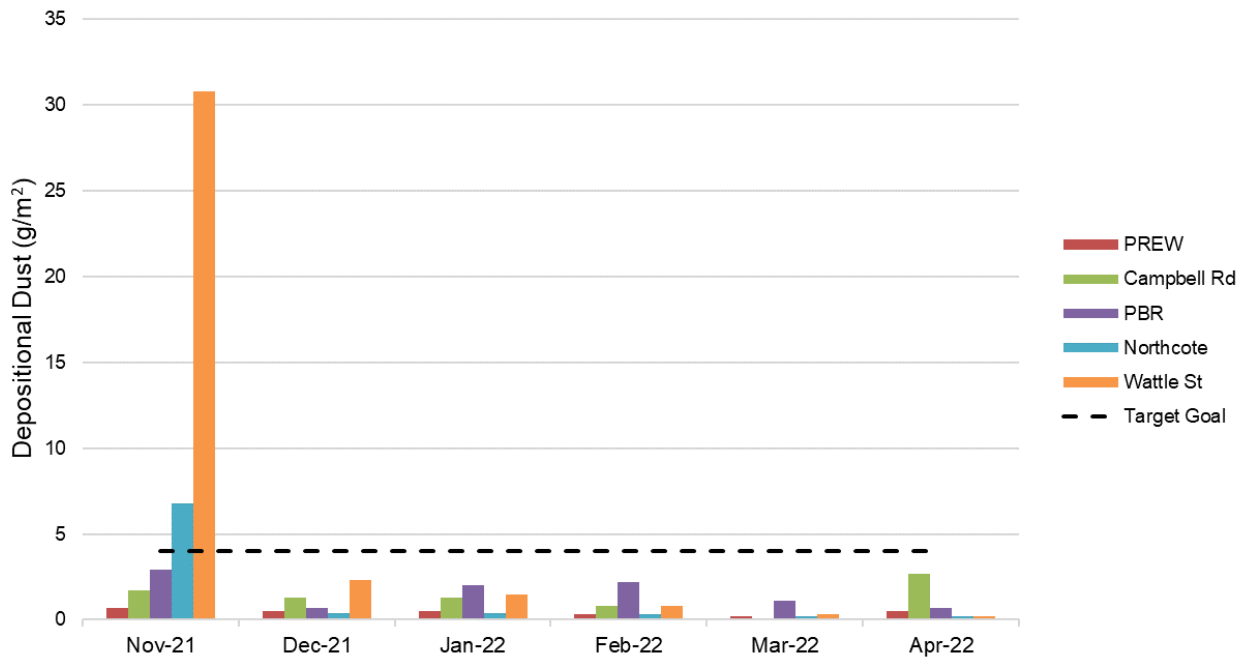


Figure 5-1 Monthly Depositional Dust Results by Site

Construction Site	PREW	Campbell Rd	PBR	Northcote	Wattle St
Six Months Average	0.37	1.56	1.60	1.38	5.98
Annualised Average	0.52	2.26	2.28	1.98	16.16

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

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.

Whilst the end of 2021 saw drier conditions, with numerous poor air quality alerts released from The NSW Office of Environment and Heritage (OEH) which is typically attributed to less frequent rainfall and hazard reduction burns carried out within the Greater Sydney region, the number of alerts saw reduction during the first few months of 2022. This period was then followed by significant intense rainfall events. This can be clearly seen in the dust trends across all three sites as presented in Figure 5-1.

At the end of the reporting period, dust levels at all sites were below the target goal of 4 g/m²/month for 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 2022	OFI	Whilst a PIRMP is in place, it was last updated on 07 October 2021 and has not yet been updated to include the new locations of hazardous substances or updated list of chemicals since the commencement of demobilisation. ASBJV.	N/A	The PIRMP should be updated to reflect the changes due to demobilisation	N/A	Open	
	OFI	A telehandler was observed moving some metal work during the site inspection at Pymont bridge Road, resulting in some metal-on-metal impact noises. Observation from outside the acoustic shed confirmed this was unlikely to be excessively noisy to the community.	N/A	Continue to ensure workers are aware of noise requirements at this late stage of the project	N/A	Open	
	OBS	There was a hiatus in real time noise monitoring data following periodic calibration in early 2022, for two reasons: 1.The supplier required the equipment to be shipped to Sweden for calibration, so the equipment was offline for several weeks. 2.The noise monitor at St Peters Interchange was found to be faulty and repairs could not be arranged quickly.	C11	Inform DPE of the hiatus – this could be through the monthly AA reports.	N/A	Open	
	OBS	It was observed that some minor quantities of incompatible hazardous substances were stored in one of the bunded storage containers (Northcote). Class 2 flammable gas spray cans were stored with oils and other class 3 flammable liquids. and class 3 substances	N/A	Separate Class 2 (flammable gas) and Class 3 (flammable liquids) into separate storage containers.	N/A	Open	
	OBS	At the time of the audit, most chemicals had been moved out of the tunnel as part of demobilisation and moved off site, however a mould oil IBC was observed stored on an undersized bunded pallet (filled with water following rainfall). Refer to photos	N/A	Relocate the IBC to a bunded area immediately and move the IBC off site as soon as possible	N/A	Open	

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