

Construction Compliance Report:

28 May 2020 – 27 November 2020

M4-M5 Link Mainline Tunnels



WestConnex M4-M5 Link Tunnels



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- Appendix A Conditions of Approval - Compliance Table
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Abbreviations/Glossary

Abbreviation	Expanded text
AA	Acoustic Advisor
ACHMP	Aboriginal Cultural Heritage Management Sub-Plan
AQMP	Air Quality Management Sub-Plan
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
FFMP	Flora and Fauna Management Sub-Plan
GMP	Groundwater Management Sub-Plan
GWMP	Groundwater Monitoring Program
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

Abbreviation	Expanded text
	human beings or to threatened species, endangered ecological communities or ecosystems that is not trivial.
ISO	International Organisation for Standards
Minister, the	Minister of the NSW Department of Planning and Environment (or delegate)
NAHMP	Non-Aboriginal Heritage Management Sub-Plan
Non-conformance	Failure to conform to the requirements of Project system documentation including this CEMP or supporting documentation.
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
PIRMP	Pollution Incident Response Management Plan
POEO Act	<i>Protection of the Environment Operations Act 1997 (NSW)</i>
PPV	Peak Particle Velocity
PREW	Parramatta Road East and West civil sites
Project, the	M4-M5 Link Mainline Tunnels
Roads and Maritime	Roads and Maritime Services
RRO	Resource Recovery Order
SPIR	Submissions and Preferred Infrastructure Report
SSI	State Significant Infrastructure
SSTV	Site Specific Trigger Value
SSWMP	Soil and Surface Water Management Sub-Plan
SWQMP	Surface Water Quality Monitoring Program
TCR	Traffic Control Room
TfNSW	Transport for New South Wales
TTAMP	Traffic, Transport and Access Management Sub-Plan
VMP	Vehicle Movement Plan
WCX	WestConnex Transurban
WMP	Waste Management Sub-Plan

Abbreviation	Expanded text
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 by between 21 August 2019 to 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.

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 East at Haberfield and the New M5 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 East project, comprising:
 - A tunnel-to-tunnel connection to the M4 East 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 East 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 New M5 project, comprising:
 - A tunnel-to-tunnel connection to the New M5 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 New M5 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 is currently being constructed as part of M4 East 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 2020 to 27 November 2020.

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 4.6
	(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
	(d) a register of any consistency assessments undertaken and their status;	Section 2.4.1

CoA no.	Requirement	Reference
	(e) results of any independent environmental audits and details of any actions taken in response to the recommendations of an audit;	Section 4.5
	(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 4.2, 4.3, 4.4

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 East at Haberfield and the New M5 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 open to traffic in 2023. At the completion of Stage 1, the mainline tunnels would operate 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.

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.

A summary of the key activities and major milestones at each of Project construction sites is provided below.

2.2.1 Tunnelling at Haberfield, Pyrmont Bridge Road (PBR) and Campbell Road

At the end of the reporting period, over half of tunnel heading excavation across the Project had been completed. In-tunnel civil works also progressed behind tunnel excavation including trenching, drainage, waterproofing, services and paving (as shown in Figure 2-1).

Fit-out of internal structures also commenced with fit-out of tunnel cross passages and substations underway.

Following the completion of in-tunnel civil fit-out, sections of the tunnel were handed over to M&E teams to begin their works.

At the end of the reporting period, over 5 million tonnes of excavated tunnel spoil had been removed from the Project and beneficially reused on other infrastructure projects including the Western Sydney Airport.



Figure 2-1 - Continuously Reinforced Concrete Pavement (CRCP) paving works at PBR in July 2020

2.2.2 Haberfield Surface Works

Surface works at the Haberfield sites during the reporting period included:

- Ramp lowering and asphaltting of the Wattle St ramps. A Badger Breaker Machine was utilised instead of rock hammers, which reduced noise and vibration impacts on nearby residents as well as shortened the duration of the works by a week
- Commencement of utility and Intelligent Transport Systems (ITS) works at Wattle St
- Establishment of a M&E Transfer Facility at PREW to transport workers into the tunnel
- Completion of Surface Grouting at Hawthorne Canal. Following investigation, this area was identified as a likely area of high ground groundwater inflow into the tunnel. As a result, surface grouting was required prior to tunnelling reaching this area.
- Following the completion of Surface Grouting, the Project reinstated the Inner West Council's basketball and netball courts at Hawthorne Canal (as shown in Figure 2-2)



Figure 2-2 - Reinstated courts at Hawthorne Canal

2.2.3 Controlled Blasting at Pymont Bridge Road

In July 2020, due to a section of very hard sandstone, the Project engaged an industry expert with over 35 years' experience to oversee a trial blast in Annandale.

Since the trial, the Project team has worked with the NSW Environment Protection Authority (EPA) and DPIE to prepare a Controlled Blast Management Plan should controlled blasting be used in the future.

While a decision has not yet been made as to whether controlled blasting is required, the Project is committed to engaging with residents and the community early to discuss the potential use of this excavation methodology.

2.2.4 Campbell Road Surface Works

Surface works at Campbell Road during the reporting period included:

- Completion of piling works for the pavement slab connecting into previous New M5 Project
- Completion of construction of substation building SS06. Fit out works commenced
- Installation of a Tower Crane to facilitate the landing of all the cut and cover Super-T precast concrete pieces (as shown in Figure 2-3)
- Completion of the supply shaft excavation
- Full handover of 2020 land from previous New M5 Project in accordance with the EIS approved boundary
- Mobilisation of M&E works.



Figure 2-3 - Super T installation at Campbell Road

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 to commence Q4 2022
- Project to open Q1 2023.

2.4 Planning Approvals

2.4.1 Consistency Assessments

A total of three consistency assessments were determined by TfNSW under the CSSI project planning approval during the reporting period.

A register of consistency assessment during the reporting period is provided in

Table 2-1.

Table 2-1 Consistency Assessment Register

Title	Status	Date Determined
Campbell Road Civil and Tunnel Site Additional Land – Albert Street Area 2 (CA24)	Determined Consistent	10 June 2020
SPI Basin Augmentation and Campbell Road drainage channel changes, St Peters (CA26)	Determined Consistent	15 June 2020
Campbell Road Civil and Tunnel Site Additional Land – Cut and Cover (CA 28)	Determined Consistent	30 October 2020

2.5 Construction Environmental Management Plan Reviews / Amendments

Table 2-2 details the CEMP reviews and amendments during the reporting period.

Table 2-2 CEMP reviews and amendments

Relevant Plan	Review / Amendment	Revision No.	Approval Date
CEMP Main Body	<p>Minor updates submitted to the ER for approval, including:</p> <ul style="list-style-type: none"> References to a standalone Blast Management Strategy, Blast Monitoring Program and other relevant blasting requirements Removal of three-day notification period to DPIE following breaches of CoA Amendments to the Campbell Road site layout to include land handed over from the previous New M5 Project 	20	16/07/2020
	<p>Minor updates submitted to the ER for approval, including:</p> <ul style="list-style-type: none"> Name change to reflect the change to ASBJV Amendments to the Campbell Road site layout to include an additional laydown area following the determination of Consistency Assessment 28 Addition of a minor ancillary facility at the Motorway Control Centre on Burrowes Road, St Peters 	21	20/11/2020

Relevant Plan	Review / Amendment	Revision No.	Approval Date
Traffic, Transport & Access Management Sub-Plan (TTAMP)	Update to include a heavy vehicle loop-around route for PBR to be used if access to the site is prevented due to unexpected congestion or given the direction of the originating vehicle. Submitted to DPIE for approval.	36	23/07/2020
	Minor updates submitted to the ER for approval, including: <ul style="list-style-type: none"> • Amendments to access and egress arrangements following site layout changes at the Campbell Road site • Update to better reflect the operation of the Traffic Control Room (TCR) and monitoring process 	37	3/09/2020
Noise & Vibration Management Sub-Plan (NVMP)	Minor administrative update referencing the development of a standalone Blast Strategy and Monitoring Program which will govern how blasting is managed on the Project. Submitted to the ER for approval.	20	17/06/2020
NVMP	Minor update to address how the interface with the Sydney Water City and Pressure Tunnel heritage assets will be managed and monitored. The Sub-Plan now references the Project's Interface Protocol which has been developed in close consultation with Sydney Water. Submitted to the ER for approval.	21	1/09/2020
Flora & Fauna Management Sub-Plan (FFMP)	Minor administrative update to reference the Pre-Clearing Permit which was developed to ensure compliance with Project requirements prior to undertaking clearing. Submitted to the ER for approval	7	29/07/2020
Groundwater Management Sub-Plan (GMP)	Minor update to the Groundwater Monitoring Program to allow monitoring bores that become unavailable to be replaced by new or existing bores, including the replacement of LSB-SP-BH10 with LSB-SP-BH11. Submitted to the ER for approval.	12	3/08/2020

Relevant Plan	Review / Amendment	Revision No.	Approval Date
Non-Aboriginal Heritage Management Sub-Plan (NAHMP)	Minor update to address how the interface with the Sydney Water City and Pressure Tunnel heritage assets will be managed and monitored. The Sub-Plan now references the Project's Interface Protocol which has been developed in close consultation with Sydney Water. Submitted to the ER for approval.	10	1/09/2020
Waste Management Sub-Plan (WMP)	<p>Minor administrative updates submitted to the ER for approval, including:</p> <ul style="list-style-type: none"> • Update to Project Company's name to WestConnex Transurban • Update of Roads and Maritime to TfNSW • Reference to waste/material sampling in accordance with the relevant Resource Recovery Order (RRO) and by a National Association of Testing Authorities (NATA) accredited, or equivalent laboratory. 	8	29/06/2020

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 (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 during the reporting period. Findings of this audit are detailed later in this report in Section 4.5.2

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 24 incidents were reported across the Project during the reporting period. The two most frequent incident issues were Traffic (14) and Spills (eight). Refer to Figure 4-1 for a breakdown of the incidents by issue.

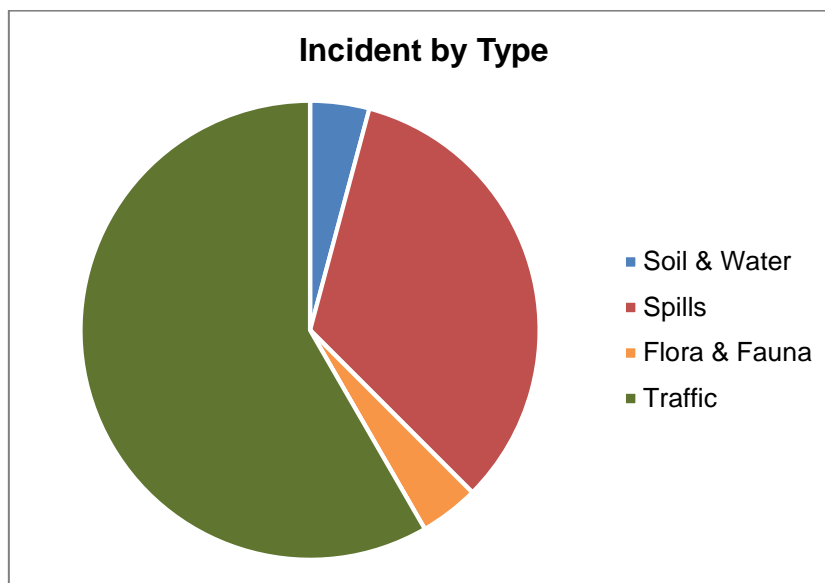


Figure 4-1 Environmental Incidents by Type

4.1.1 Traffic

Traffic and spoil haulage-related incidents comprised 58% of incidents (refer to Figure 4-1) with 13 of the 14 incidents involving spoil haulage vehicles using the 'Route A' loop outside of the approved hours to access the Northcote St site. The other incident involved a haulage truck missing its Project identification sticker. Traffic-related environmental incidents remain a key focus for the Project given approximately 500,000 tonnes of spoil is hauled every month. These incidents were reported to DPIE as breaches against CoA A44 and E49B, and recorded as non-conformances against the TTAMP, which are discussed in Section 4.3.

4.1.2 Spills

During the reporting period, spills comprised 33% of all incidents by type (refer to Figure 4-1) and involved minor 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 remained generally consistent with the previous reporting period, despite an increase in the number of fuel and chemicals being used on site in line with peak construction activities. Routine toolboxes and training have been delivered Project-wide on topics including appropriate material storage and bunding, spill prevention, spill response and management.

During the reporting period, a test of the Project's Pollution Incident Response Management Plan (PIRMP) was also undertaken to ensure its effectiveness. Details of this annual test is provided in Section 4.2.

4.1.3 Other incidents

One soil and water incident occurred at the Campbell Road site during the reporting period, with a monthly WTP sample returning an ammonia result in excess of EPL criteria. This incident was recorded as a non-compliance against CoA E186 and the Project EPL. This incident was also reported to the EPA and included in the Annual Return (reporting period October 2019 to October 2020). The response to this incident is detailed in Section 4.3.

One flora and fauna incident occurred during the surface grouting works at Hawthorne Canal with a telescopic handler striking a tree branch during the loading out of materials. Following this incident, the tree was inspected by an Arborist and the branch was pruned back to the collar. Following this, the Arborist assessed there was further impact to the tree.

4.2 Test of the Pollution Incident Response Management Plan

A test of the PIRMP was undertaken at PBR as required under the Protection of the Environment Operations (POEO) Act 1997. The aim of the test was to assess the effectiveness of implementing the PIRMP in response to a 'mock' pollution incident involving a chemical spill. The outcomes of the test resulted in a minor administrative update to the PIRMP to ensure contact details reflect current Project personnel.

Outcomes of the PIRMP test included:

- Continue to provide ongoing environmental awareness training on the PIRMP
- Additional training for key site personnel to ensure awareness around selecting suitable spill materials and Personal Protective Equipment (PPE) depending on the type of spill - hydrocarbon or chemical
- Development of a site poster clearly showing the location of the PIRMP at each Project site.

4.3 Non-Conformances

Of the 24 incidents detailed in Section 4.1, 15 were also recorded as non-conformances (NCRs) against the requirements of the CEMP and sub-plans, and EPL. Refer to Table 4-2 for a breakdown of non-conformances by the most relevant Project document.

Table 4-2 Non-Conformances against the Project Documents

Project Document	No. of NCRs	Description	Corrective Action
TTAMP	13	<p>Spoil haulage vehicles were 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>In all instances, 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. Where considered appropriate, drivers have also been permanently removed from the Project.</p> <p>Haulage start times were also altered to 8:00 AM to minimise the risk of breaches.</p> <p>Some haulage subcontractors had their bookings suspended for multiple days as part of the compliance escalation process.</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>
	1	<p>On the 11 September 2020, a spoil haulage truck at the Campbell Road site was observed by the DPIE Compliance Branch without the required Project identification sticker.</p> <p>This has been recorded as a non-compliance against CoA A44 in Appendix A.</p>	<p>Following confirmation that the sticker was missing, a new sticker was issued to the haulage subcontractor to apply to the truck. Evidence of the applied sticker was provided to ASBJV.</p> <p>A review was also undertaken by Spoil Foreman on the subcontractor's haulage fleet for the Project to confirm there were not any other missing Project Identification Stickers. All trucks were found to be clearly marked in accordance with CoA A44.</p>

Project Document	No. of NCRs	Description	Corrective Action
EPL	1	<p>Monthly WTP samples were taken at the Campbell Road site on 30 July 2020. Results were then received the following day and returned elevated ammonia results in excess of the EPL criteria specified in EPL condition L2.4.</p> <p>Following this result, additional samples were taken immediately to confirm the accuracy of the ammonia exceedance, and the EPA were contacted. Results from the second sample were received on 3 August 2020 and confirmed an ammonia level in excess of the EPL criteria and were discussed with EPA.</p> <p>This has been recorded as a non-compliance against CoA E186 in Appendix A.</p>	<p>Following this exceedance, WTP dosing was reviewed by the Project Plant Team and WTP Supplier, with Sodium Bi-Meta Sulphate and chlorine dosages altered to improve the treatment of ammonia.</p> <p>After these works, additional samples were taken on 4 August 2020 and these returned results compliant with EPL limits. The EPA was advised of the successful WTP works and the exceedance was recorded in the Project's annual return.</p>

4.4 Environmental Representative Inspections

The Project Environmental Representative (ER) conducted 12 environmental inspections and raised 33 issues and 51 positive findings during the reporting period. No incidents 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 fortnightly ER inspections.

In line with advice from NSW Health, the number visitors to Project sites and travel between sites was minimised during the Covid-19 pandemic. As a result, ER inspections were undertaken with a reduced number of people involved and visiting only one or two sites each inspection.

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 Table 4-4).

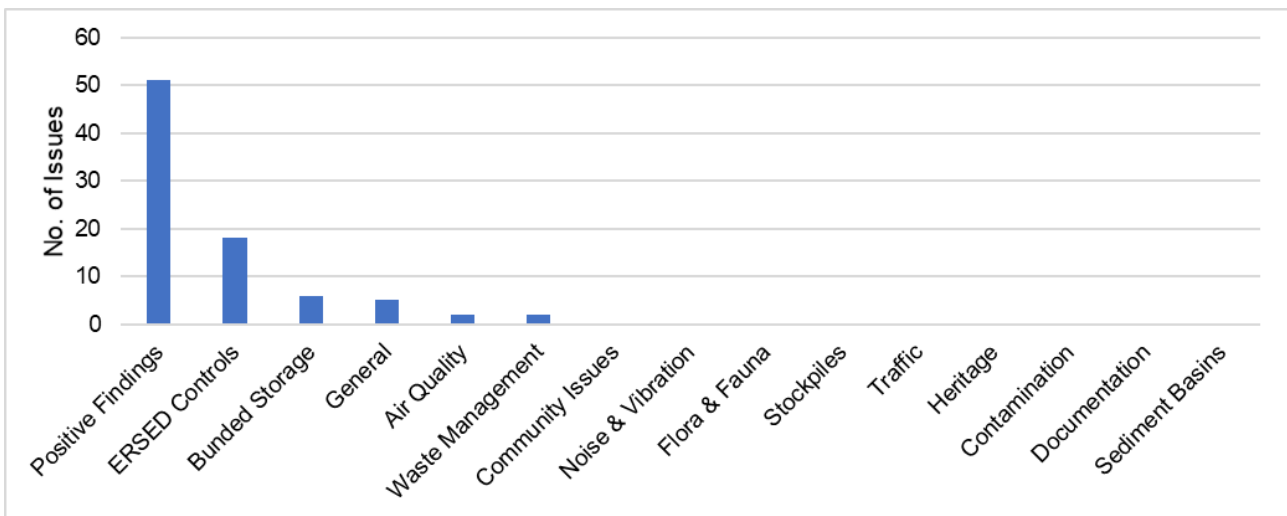


Figure 4-2 ER Inspection Issues by Type

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.

Table 4-4 ER Inspection Status during the Reporting Period

ER Inspection Results												
Roads and Maritime	X	X	X	X	X	X	X	X	X	X	X	X
Traffic Light Indicator												
ER Inspection Date	27/28-May-20	10-Jun-20	24-Jun-20	9-Jul-20	5-Aug-20	26/27-Aug-20	9-Sep-20	1-Oct-20	15-Oct-20	29-Oct-20	12-Nov-20	26-Nov-20

4.5 Environmental Audits

4.5.1 Independent Environmental Audit

As detailed in the previous six-monthly CCR, an independent environmental audit was undertaken on 4 and 5 May 2020. Given traffic-related incidents and non-conformances have been the most common for the Project, the audit reviewed the requirements of the TTAMP and related CoAs, as well as CEMP requirements not triggered in the previous 2019 audit. Due to Covid-19 pandemic, the audit was a desktop review only and no site visit was undertaken.

Findings and open actions from the independent are detailed in an Action Status Table in Appendix B.

4.5.2 ISO 14001:2015 EMS Audit

Following the transition from Lendlease Engineering to Acciona, an audit on the implementation of the Project’s EMS against the ISO14001 was undertaken during the reporting period.

No NCRs were raised, and the Project was commended on the implementation of the EMS with records easily available during the audit. One Opportunity for Improvement (OFI) was identified regarding utilising the Project’s training system Pegasus to capture ongoing environmental awareness training and toolboxes. The capability and feasibility of using Pegasus to record this training will be investigate for the Project.

This OFI has been included in the Action Summary Table in Appendix C.

4.6 Complaints

The Project received a total of 277 complaints during the reporting period. Of these, 10 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 increased in line with the extent of the Project works.

Of the 267 Project-attributed complaints received, the three most frequent complaint issues were noise (52%), objection to controlled blasting (13%), and spoil truck haulage (6%). Noise has remained the most frequent complaint issue since the previous CCR and is expected given tunnel excavation is well underway across the Project.

Blasting-related complaints are a new complaint issue not seen in previous reporting periods and were prompted by Project’s investigation into whether Controlled Blasting is a viable construction method for the Project.

Responses to these complaint issues are discussed in Section 4.6.1.

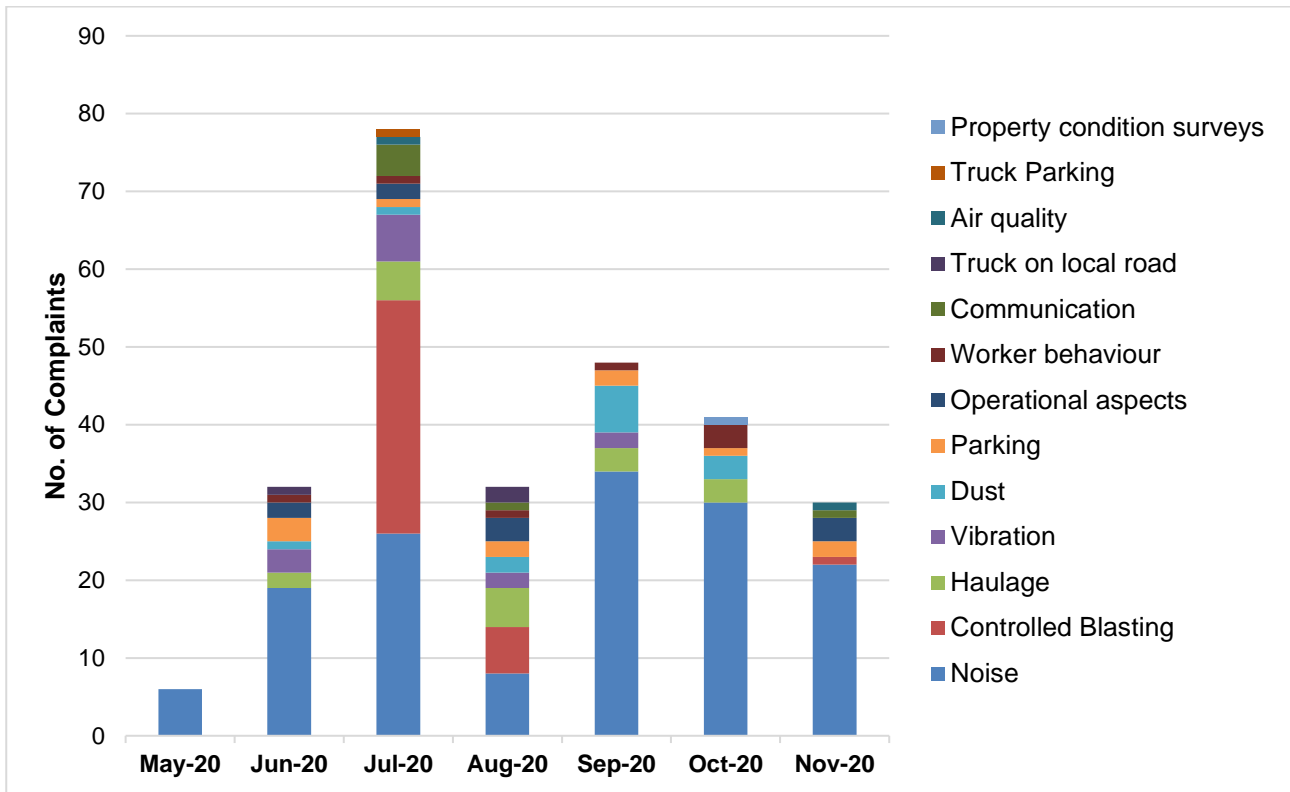


Figure 4-3 Project Attributed Complaints Received by Month and Issue

4.6.1 Complaint Management

4.6.1.1 Noise

Noise related complaints were predominately received about ground-borne noise impacts from tunnelling works (124), and above-ground civil and utility works at the Wattle St Ramps site (12). Other works resulting in noise complaints included:

- Truck compression braking on public roads
- Idling Project trucks
- Light vehicles accessing the PREW Carpark via Alt Street
- Noise from the Street Sweeper cleaning the roads around site
- Workers being too loud when arriving and leaving site.

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 respite measures where applicable, including noise cancelling headphones and alternative accommodation
- 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 updates on work progress
- Toolboxing workers on noise mitigation measures and project expectations.

4.6.1.2 Opposition to Controlled Blasting

Complaints opposing the concept of Controlled Blasting despite it being a part of the EIS were received in July and August 2020 when the Project undertook a Trial Blast in late July 2020 to determine its viability as a construction method.

Actions taken to address issued raised included:

- Door knocking nearby properties and offering meetings to concerned residents to provide further information
- Providing information that explains Controlled Blasting is a safe and common tunnel excavation methodology that was considered and approved in the EIS and has been successfully used on other numerous major projects in Sydney and Australia
- Monitoring and publishing vibration levels from the Trial Blast on the Project website
- Referring complaints to the Community Complaints Mediator as requested
- Organising several community information sessions that will be attended by a Controlled Blasting and vibration expert with over 35 years of experience
- Creating a dedicated Controlled Blasting information page on the Project website including:
 - An animation which provides a high-level visual outline of what is involved in a controlled blast
 - An informative video with a Controlled Blasting and Vibration expert with over 35 years of experience.

4.6.1.3 Spoil Truck Haulage

Complaints were received about the Project's use of public roads for the purpose of spoil haulage.

Actions taken to address issued raised included:

- Using the Project's GPS-tracking system to confirm vehicles are complying with approved haulage and access routes
- Where a driver was found to be operating in accordance with Project approvals, clarification on approved haulage routes and permitted hours of operation was provided to the complainant
- Carrying out impromptu audits of haulage routes including on-the-ground vehicle following to monitor route compliance and behaviour on the road, as well remotely via the GPS-tracking system.
- Providing regular updates of Vehicle Movement Plans to contractors and suppliers to ensure they understand approved haulage and access routes.
- Issued warnings, contractual letters and other disciplinary actions including suspending haulage operators and removing drivers from the Project following non-compliances against the Project traffic requirements and rules.

4.6.1.4 Other Complaints

Actions taken to address other various complaints (refer to Figure 4-3) include:

- Carrying out vibration monitoring to verify predicted and actual impacts; issuing monitoring reports to stakeholders as well as providing additional regular weekly updates on work and excavation progress

- Implementing additional dust mitigation measures such as covering up louvres on the spoil sheds, keeping shed doors closed, increased frequency of water cart use, stopping work during windy conditions and agreeing to sweep a street not directly impacted by the Project
- Periodically and proactively inspecting locations of previous parking complaints
- Reminding and reprimanding workers and contractors that do not comply with parking requirements
- Reviewing recorded speed and locations of heavy vehicles to check compliance and issuing warnings, contractual letters or taking disciplinary action against subcontractors and drivers from the Project that do not comply with requirements and rules by driving erratically or unsafely
- Toolboxing 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.
- Using the Project's GPS-tracking system to confirm if and where spoil trucks were stopping
- Reviewing spoil haulage logistics to reduce prevalence of trucks having to stop at Parramatta Road including staggering truck start times, increasing in person and remote surveillance, purchasing a larger loader to improve loading efficiency, implementing a go round loop
- Offering meetings and where accepted, meeting with residents to further explain work activities, timelines, approvals and mitigation measures
- Correcting spelling errors on map labels and reissuing notifications
- Advising nearby Projects of complaints related to their work
- Confirming timing of Post-Construction Property Condition Surveys.

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)
- Controlled Blasting Trial - CoA C9(d)
- 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 recorded.

At Dobroyd Canal (Northcote St) the pH criterion was exceeded on a number of occasions. However, on each occasion, the exceedance was greater at the control site than impact site indicating improved water quality downstream. The turbidity (NTU) SSTV was also exceeded, however in all but one case, the NTU was higher at the control site indicating non-Project impacts. Following the downstream NTU exceedance, site Water Treatment Plant (WTP) records for outgoing water quality were reviewed and were confirmed to be within EPL limits. Therefore, no evidence was found to attribute the changes in water quality to the Project and was a result of catchment-wide wet weather.

At Johnstons Creek (PBR), three NTU SSTV exceedances were recorded. However, on all occasions NTU was higher at the upstream control site indicating non-Project impacts attributable to wet weather conditions.

At Sheas Creek/Alexandra Canal (Campbell Road), pH and NTU SSTV were both exceeded on one occasion. Reviews of WTP records confirmed outgoing water quality was within EPL limits and therefore not attributable to the Project.

5.2 Groundwater

In accordance with the Groundwater Monitoring Program (GWMP), continuous groundwater level and quality (conductivity) monitoring was undertaken on 27 bores. One borehole was not accessible during the entire reporting period with public vehicle(s) preventing access to MT_BH11. For those boreholes which were accessible, loggers were downloaded, and manual level measurements collected every two months.

5.2.1 Groundwater Level

During the reporting period, groundwater levels in bores around Haberfield and the mainline tunnels changed over time, however remained above the predicted drawdown levels, with the exception of LSB-HB-MT1018. 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.

The standing water level (SWL) in three bores around St Peters have dropped just below the predicted drawdown levels. These SWL declines are currently being reviewed by the Project to determine an appropriate management response.

Groundwater drawdown predictions will also be reviewed and updated in 2021 following the collection of 24 months of construction monitoring data as required by CoA E194. Following this 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 response was triggered for the six bores located in the Hawkesbury Sandstone lithology. LSB-GW-HB-BH08d was observed to be just above the SSTV at the end of the monitoring period. EC levels in this well will continue to be monitored to ensure identify any potential future upwards trends.

Consistent with the last reporting period, the alluvial bore LSB-HV-PT-OW5a remained above the SSTV for the reporting period. The SSTV was developed based on baseline data from the EIS bore HB_BH08s and is currently being reviewed to ensure it is representative for assessing potential groundwater quality impacts at this bore.

In the Ashfield Shale lithology, LSB-SP-BH03 remained below the SSTV during the entire reporting period. During the reporting period, the EC logger in LSB-SP-BH11 failed and only groundwater level data was captured. A new EC logger was installed in November 2020 and EC data will be reported for this bore in subsequent reports.

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

To align with the NSW Government's COVID19 policy and directions to assist in stopping the spread of the virus, at-property monitoring was temporarily stopped in March 2020 to ensure the safety of the Project team and the community. Following the easing of restrictions, at-property monitoring recommenced at the start of the reporting period, with other measures implemented including the regular use of hand sanitiser and masks where appropriate.

Table 5-1 provides a summary of the Project-wise noise and vibration monitoring results during the reporting period.

Table 5-1 Noise and Vibration Monitoring Events Summary

Monitoring Type	Prediction Exceedances	Comments
Airborne noise monitoring	0	Based on 26 monitoring events. All recorded exceedances were related to background noise sources (ie. road traffic and other non-Project related construction works in the local vicinity) increasing the LAeq (15mins) during the monitoring period
Ground-borne noise monitoring	0	Based on 39 monitoring events. All ground-borne noise monitoring results where construction was the dominant noise source were compliant with the applicable criteria. Alternative Accommodation (AA) was offered at Mayes St, Annandale prior to levels exceeding AA trigger level based on long-term monitoring data to verify noise predictions.
Vibration monitoring for potential cosmetic damage	0	Based on 26 monitoring events. All results were compliant with the relevant criteria for cosmetic damage. One monitoring event undertaken at St Peters Church recorded an elevated PPV value of 36 mm/s. After review, these peaks were attributed to community activities occurring within the church and not attributed to Project activities.
Vibration monitoring for human comfort	0	Based on 8 monitoring events. All Project activity-related 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.

5.4 Controlled Blasting Trial

A Controlled Blast Trial consisting of three individual blasts was undertaken on the 27 July 2020 to determine the site-specific constraints which will govern the controlled blast design for the Project.

During the Trial Blast, vibration monitoring measuring Peak Particle Velocity (PPV) was undertaken at 16 locations towards the north, south, east and west of the blast zone at varied distances determined by a Controlled Blasting and Vibration expert.

A maximum of 9.3 mm/s was recorded after the third controlled blast. Therefore, all vibration levels measured during the three blasts were compliant with the EPL limit of 10 mm/s.

The vibration monitoring results at each location during each blast were published on the Project website in accordance with the EPL.

5.5 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, 17 monthly dust results greater than 4 g/m² were recorded across the Project. As a result, the annual dust averages exceed the performance criteria at all sites except for PREW (refer to Table 5-2).

Table 5-2 Annualised Average Dust Values (g/m²) (November 2019 - October 2020)

Construction Site	PREW	Campbell Road	PBR	Northcote	Wattle St
Annualised Avg	2.52	11.88	5.22	6.47	9.16

As reported in the previous CCR, the key driver for these high annualised average dust results was the poor air quality of the Greater Sydney region caused by low rainfall, drought conditions and the 'Black Summer' bushfires in later 2019 and early 2020. Following this period, monthly dust levels are trending downwards towards the performance criteria, with the exception of the Campbell Road site which was previously impacted by high dust levels from the New M5 project. Since the completion of the New M5 project, monthly results have declined significantly and are getting closer to the performance criteria.

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 Removed From Online Version)**

Appendix B Action Status Table

Source	Finding Type	Finding Description	Relevant CoA	Action Proposed	Proposed Completion Date	Status	Action Completed
Independent Audit 2020	NCR	Evidence was not available to demonstrate that DPIE was notified of breaches to the CoA within 3 working days as per the requirements in the CEMP section 3.10. During the audit, 15 incidents involving a breach of a CoA had not been reported to DPIE.	N/A	ASBJV along with WCX and TfNSW to agree on the Project's process for notifying DPIE of incidents involving CoA breaches. Once agreed, the process is to be implemented and the CEMP updated if required.	30/06/2020	Completed 26/06/2020	A revised CEMP was prepared with the reference to the 3-day period for notification removed as this is not a Project requirement. The revised CEMP was approved by the ER. To date, this process has been implemented with DPIE notified of CoA breaches following their occurrence and/or in monthly meetings.
Independent Audit 2020	OBS	Whilst a Spoil Truck Driver Information Booklet, and VMP are provided internally, and a Code of Conduct was available from contracted haulage suppliers, evidence of presentation and acknowledgment of the Drivers Code of Conduct as referenced in the TTAMP was not available.	N/A	Each spoil truck company has a standard Code of Conduct internally. A new driver code of conduct will be prepared incorporating the detail in TTAMP section 4.6 and included in the Project induction.	7/07/2020	Completed 7/07/2020	A driver code of conduct was prepared which incorporates the details from TTAMP section 4.6 and included in the Project Induction, which is delivered to all personnel working on the Project.
Independent Audit 2020	OFI	TTAMP section 5.10 states that the Traffic Control Room (TCR) will operate 24 hours a day, 7 days a week while affecting the road network and traffic systems. The wording in the document appears to imply that personnel would be within the TCR during these hours, however "operating" 24x7 includes various strategies including remote monitoring using a phone app, and personnel being "on-call" as well as physically manning the TCR.	N/A	Wording of the TTAMP to be revised to reflect the actual processes in place for operating the TCR and monitoring traffic.	3/08/2020	Completed 3/09/2020	Section 5.10 of the TTAMP was updated to reflect the actual TCR operating processes. The revised TTAMP was approved by the ER.
ER Spoil Management Audit	OFI	Drive-by routes are in place for Campbell Road Civil and Tunnel Site, however, no formal drive-by routes have been documented in the TTAMP for PBR or Northcote.	N/A	Develop a truck by-pass routes for both PBR.	30/07/2020	Completed 23/07/2020	In consultation with Inner West Council, City of Sydney Council and TfNSW, a loop-around route was developed for spoil trucks unable to access the PBR site due to congestion or given the direction of the originating vehicle. The TTAMP was updated to include the PBR loop and was approved by DPIE.
Acciona ISO 14007 EMS Audit	OFI	The Project's training system Pegasus currently captures high-level training, however not routine environmental awareness training including toolboxes on Environmental Work Methods Statements (EWMS), permits, etc.	N/A	Consideration could be given to broaden the scope of Pegasus to capture all training delivered for the Project.	30/04/2021	Remains Open	The process for utilising the Pegasus system to capture environmental awareness training is currently being developed by the ASBJV Training and Environment teams.

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