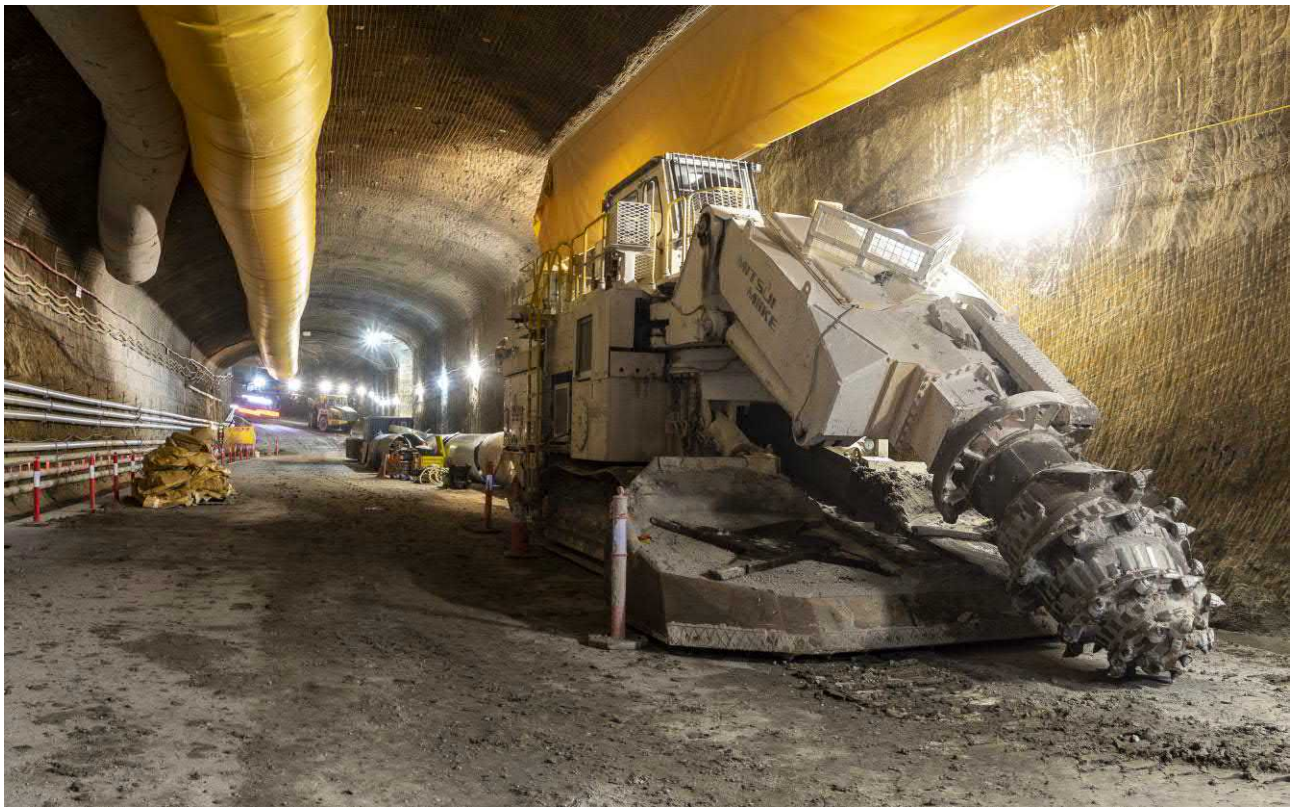
Construction Compliance Report:

28 May 2019 – 27 November 2019

M4-M5 Link Mainline Tunnels



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Internal review

	Name	Position	Date	Signed/Authorised
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Review		Environment & Sustainability Manager	12/2/20	
Authorised		Project Director	13 FEB '20	

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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
CCR	Construction Compliance Report
CEMP	Construction Environmental Management Plan
CNVMP	Construction Noise and Vibration Monitoring Program
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
EIS	Environmental Impact Statement
EMS	Environmental Management System
EPA	NSW Environment Protection Authority
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	*Environmental Planning and Assessment Act 1979* (NSW)
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 human beings or to threatened species, endangered ecological communities or ecosystems that is not trivial.
ISO	International Organisation for Standards
LSBJV	Lendlease Samsung Bouygues Joint Venture
Minister, the	Minister of the NSW Department of Planning and Environment (or delegate)

Abbreviation	Expanded text
NAHMP	Non-Aboriginal Heritage Management Sub-Plan
NCA	Noise Catchment Area
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
NVMP	Noise and Vibration Management Sub-Plan
OOHW	Out of hours works
PBR	Pyrmont Bridge Road civil and tunnel site
POEO Act	*Protection of the Environment Operations Act 1997* (NSW)
PREW	Parramatta Road East and West civil sites
Project, the	M4-M5 Link Mainline Tunnels
Roads and Maritime	Roads and Maritime Services
SPIR	Submissions and Preferred Infrastructure Report
SSTV	Site Specific Trigger Value
SSWMP	Soil and Surface Water Management Sub-Plan
SWQMP	Surface Water Quality Monitoring Program
TDS	Total Dissolved Solids
TTAMP	Traffic, Transport and Access Management Sub-Plan
VMP	Vehicle Movement Plan
WMP	Waste Management Sub-Plan

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 repose to the project. A Submissions and Preferred Infrastructure Report (SPIR) was prepared by Roads and Maritime 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 (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 were also modified

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 Lendlease Samsung Bouygues Joint Venture (LSBJV) 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
- Fitout (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 (subject to future Modification)
- 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 Minister's Condition of Approval (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 2019 to 28 November 2018.

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 2.4
	(d) a register of any consistency assessments undertaken and their status;	Section 2.3.1
	(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 and 4.3

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.

LSBJV, Roads and Maritime and WestConnex Transurban together are responsible for compliance with the requirements of the CoA. However, LSBJV 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 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 to commence Q2 2021
- Testing and commissioning to commence Q4 2022.
- Project to open Q1 2023

2.3 Planning Approvals

2.3.1 Consistency Assessments

A total of eight consistency assessments were determined by Roads and Maritime under the CSSI project planning approval during the reporting period. One additional consistency assessment is awaiting determination.

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
Pyrmont Bridge Road and Campbell Road Heavy Vehicle Numbers (CA03)	Determined Consistent	15/07/2019
Site boundary changes at the Campbell Road civil and tunnel site (CA05)	Determined Consistent	5/06/2019
Groundwater pump test (CA11)	Determined Consistent	23/09/2019
Tunnelling Methodology Refinement (CA13)	Determined Consistent	9/08/2019
Pyrmont Bridge Road Tunnel Site – Spoil Haulage Vehicle Temporary Access and Egress Locations and Route (CA14)	Determined Consistent	2/10/2019
Campbell Road Civil and Tunnel Site Additional Land and Increased Vehicle Volumes (CA15)	Awaiting Determination	
Wattle Street Civil and Tunnel Site Additional Land (CA17)	Determined Consistent	17/06/2019
Wattle Street to Northcote Street Spoil Transfer (CA18)	Determined Consistent	17/07/2019
Pyrmont Bridge Road site offices (CA21)	Determined Consistent	21/11/2019

2.4 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	Minor administrative updates submitted to the ER for approval, including: • Update to Project Company's name to Westconnex Transurban • Update of Department of Planning (DPE) to Department of Planning, Industry and Environment (DPIE) • Removal of White Bay as an ancillary facility • Clarification of timeframes required for incident notification • Update of site layouts to reflect construction progress	14	29/10/2019
Traffic, Transport & Access Sub-Plan (TTAMP)	Minor updates related to temporary access and egress locations, and spoil haulage routes at the Pyrmont Bridge Road site (PBR) following the determination of Consistency Assessment 14. Submitted to ER for approval.	19	22/06/2019
	Minor updates related to site establishment timeframes and use of Alt Street for Mechanical and Electrical heavy vehicle (HV) movements at the Parramatta Road East and West civil sites (PREW). Submitted to ER for approval.	20	17/07/2019
	Minor changes submitted to the ER for approval, including: • Update to Project Company's name to Westconnex Transurban • Update of Department of Planning (DPE) to Department of Planning, Industry and Environment (DPIE). • Changes to HV numbers following determination of Consistency Assessments • Removal of White Bay as an ancillary facility • Addition of Project parking facilities • Northcote St Haulage overview • Update of PREW site location to reflect access and egress locations	26	5/10/2019

Relevant Plan	Review / Amendment	Revision No.	Approval Date
Noise & Vibration Sub-Plan (NVMP)	Minor updates for ER approval in consultation with the AA, including: • Update to Project Company's name to Westconnex Transurban • Update of Department of Planning (DPE) to Department of Planning, Industry and Environment (DPIE) • Removal of White Bay noise catchment areas (NCA) • Update of the vibration screening drawings (Appendix E) following vibration monitoring to verify the vibration levels associated with rock hammering within the tunnel	19	4/11/2019
Soil & Surface Water Sub-Plan (SSWMP)	Minor updates submitted to the ER for approval, including: • Update of Project Company's name to Westconnex Transurban • Update of Department of Planning (DPE) to Department of Planning, Industry and Environment (DPIE). • Correction of incorrect document cross-references • Update to the monitoring locations at Haberfield after identifying the upstream sampling point was in fact downstream of the discharge outlet	08	21/10/2019
Groundwater Sub-Plan (GMP)	Minor update to include details of the Groundwater Pump Test site at Hawthorne Canal following the determination of Consistency Assessment 11. Submitted to ER for approval.	09	31/07/2019
	Minor update to finalise the construction groundwater monitoring network following the completion of the Project's geotechnical investigation works. Submitted to ER for approval.	11	29/10/2019

Relevant Plan	Review / Amendment	Revision No.	Approval Date
Non-Aboriginal Heritage Sub-Plan (NAHMP)	Minor administrative updates submitted to the ER for approval, including: • Update of Project Company's name to Westconnex Transurban • Update of Department of Planning (DPE) to Department of Planning, Industry and Environment (DPIE). • Correction of spelling and grammar mistakes, and incorrect document cross-references • Removal of White Bay as an ancillary facility	09	29/10/2019

3 Compliance Management

LSBJV, Roads and Maritime and WestConnex Transurban are together responsible for compliance with the Project's requirements detailed in the CoA. Refer to the CTEAP for further information on how LSBJV 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	LSBJV	Daily
Site Inspections	LSBJV Environmental Representative (ER)	Weekly Fortnightly
Environmental compliance status update with relevant delivery owners	LSBJV	As required
Environmental risk assessment review	LSBJV	Annual
Environmental and sustainability auditing	LSBJV Independent Auditor ER	Annual Annual As requested by Secretary
Environmental management reviews	LSBJV	Six-Monthly CEMP Reviews

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

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

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 LSBJV EMS is based on the Lendlease Engineering ISO14001 Certified EMS, which was adapted to address Project and joint venture requirements.

The CEMP is the primary system to manage and control the environmental aspects of the Project during construction. It also provides the overall framework for the system and procedures to ensure environmental impacts are minimised and legislative and other 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 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 Environment Protection Agency (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 20 incidents were reported across the Project during the reporting period. The number of incidents has decreased from the previous six monthly CCR. The two most frequent incident issues were Spills (eight) and Traffic (nine). Refer to Figure 4-1 for a breakdown of the incidents by issue.

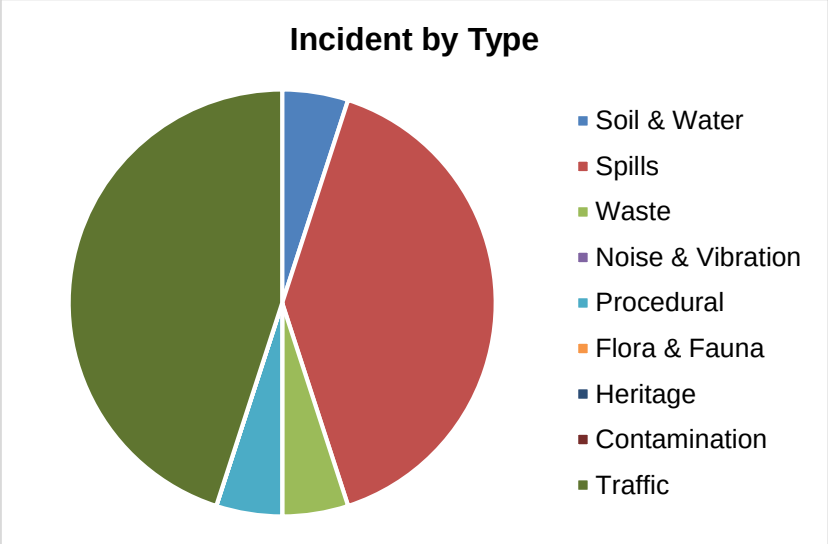


Figure 4-1 Environmental Incidents by Type

4.1.1 Spills

During the reporting period, spills comprised 40% of all incidents (refer to Figure 4-1) and involved minor spills which were immediately contained, cleaned up and disposed of appropriately. No actual environmental impact occurred as result of the spills.

Spill occurrence has increased from the previous six monthly CCR in line with an increase in volume of site activities. An in-depth review of the Project's spill prevention and response measures was conducted alongside an increased focus on training.

Toolboxes were delivered across the sites on topics including spill response, location and type of spill materials on-site, working with chemicals, and the Project refuelling, maintenance and cleaning procedure.

A test of the Project's Pollution Incident and Response Management Plan (PIRMP) was also undertaken 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 the update to the PIRMP and identified opportunities to better manage spills on site.

Outcomes of the PIRMP test included:

- A review of spill kits and materials at each site to ensure suitable materials were available for the containment and clean-up of both chemical and hydrocarbon spills
- Additional live spill response training to identify which materials can and cannot be used for different types of spills
- Review of site drainage to identify potential paths for spills to travel offsite
- Clarification on the chain of communication when reporting spills and pollution incidents

4.1.2 Traffic

Traffic incidents comprised 45% of incidents (refer to Figure 4-1) and predominately involved heavy vehicles using non-approved local roads to access site. The number of traffic-related incidents has remained constant since the previous six monthly CCR and remains a major challenge on the Project. These incidents were recorded as non-conformances against the TTAMP and are discussed in Section 4.2.

4.2 Non-Conformances

A total of 12 non-conformances (NCRs) were identified during the reporting period. These non-conformances were against the requirements of the CEMP and sub-plans, and the Environment Protection Licence (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
Waste Management Plan (WMP)	1	Spoil was transported to the Western Sydney Airport project for beneficial reuse prior to WestConnex Transurban releasing the section 143 hold point. Ongoing discussions with the project were underway and it was confirmed the project held appropriate planning approvals to receive spoil. A signed s.143 was produced following commercial settlement, however it was not provided to LSBJV for the hold point release submission. This was a procedural breach only with no environmental impact as the Western Sydney Airport held the appropriate approvals to receive Project spoil.

Project Document	No. of NCRs	Description
TTAMP	9	Five incidents and non-conformances involving heavy vehicles (HVs) using local roads instead of the approved routes to access the Haberfield sites. In all instances, suppliers had been issued with Project vehicle movement plans (VMPs) which clearly state the approved routes vehicles must use when accessing site.
		Three incidents involved spoil haulage trucks servicing the Campbell Road site (two) and PBR site (one). In all instances, haulage contractors had been issued with Project VMPs. At Campbell Road, it was identified trucks had been parking on Burrowes Road South as a result of congestion and delays on site.
		Version 19 of the TTAMP referenced an incorrect date for the completion of site establishment at PREW and restriction of HV movements on local roads. Completion of site establishment at PREW was delayed as a result of site constraints. However, an oversight meant the TTAMP was not updated to reflect this change. As a result, HVs involved in site establishment works continued to use the previously-approved local roads after date detailed in the TTAMP. The date in the TTAMP was updated and approved by the ER. This was a procedural breach only with no environmental impact.
EPL	2	Failure to respond to stakeholder complaints within the required two-hour timeframe due to a technical fault which impaired the ringing function of the on-call Community phone. Once discovered, the faulty phone was swapped out and stakeholders were responded to and an apology issued for the delayed response. This incident was reported to the EPA and included as a non-conformance against condition M5.5 in the Project's Annual Return.
		A decimal point error resulted in the adoption of an incorrect discharge limit for zinc, meaning water was discharged with zinc levels in excess of EPL criteria. Once discovered, rectification works were immediately carried out on the water treatment plant (WTP). Following the completion of these works, additional samples were taken with all results compliant with EPL criteria. This incident was not classified as material harm and notification was provided to the relevant stakeholders and agencies (including the EPA) and in accordance with the Project's incident procedure. This incident will be included as a non-conformance against condition L2.1 in the Project's next Annual Return.

4.2.1 TTAMP

Non-conformances against the TTAMP were the most frequently recorded with Project HVs and spoil vehicles failing to conform with the approved site access and egress routes.

As detailed in the previous CCR, traffic-related non-conformances continue to be a major challenge on the Project. However, in all instances subcontractor and suppliers were issued with VMPs and the need to adhere to approved routes emphasised. The cause of these non-conformances has been attributed to subcontractor and supplier drivers failing to comply with the VMPs. Formal letters by LSBJV were also issued to subcontractors and suppliers warning any future breaches would result in penalties being transferred to subcontractor or supplier directly, as well as termination of the contract would occur.

During the reporting period, another issue emerged with spoil trucks parking on Burrows Road South as a result of congestion and delays at the Campbell Road site preventing access. Immediate corrective actions by the Project included moving the trucks on and contacting haulage contractors to reiterate compliance with the VMPs. Truck numbers were also reduced to minimise the risk of congestion and back-up on site.

A Spoil Contractor Score Card has also been developed by LSBJV to monitor and assess contractor's compliance to Project requirements. Criteria includes chain of responsibility (CoR), radio abuse, adhering to booking times, illegal parking, correct tip drop off and adhering to VMPs. Continual poor scores and performance will be result in suspension of bookings and removal from the Project.

To prevent reoccurrence of these incidents and non-conformances, LSBJV also implemented the following measures:

- Updated the Campbell Road VMP to emphasise that Burrows Road South is a no-go zone for Project vehicles. Refer to Appendix A for the update VMP.
- Issued the updated VMP to spoil haulage contractors
- Ongoing monitoring of truck locations using the Virtual Superintendent system to ensure vehicles are complying with the VMP. If monitoring indicates a non-conformance, appropriate action will be undertaken against the driver and the haulage company

4.3 Environmental Representative Inspections

The Project Environmental Representative (ER) conducted 12 environmental inspections and raised 33 issues and 51 positive findings during the reporting period. Figure 4-2 provides a breakdown of issue type raised during the fortnightly 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 Roads and Maritime inspection statuses. During the reporting period, the Project received 100% 'Green' inspection results (refer to Table 4-4).

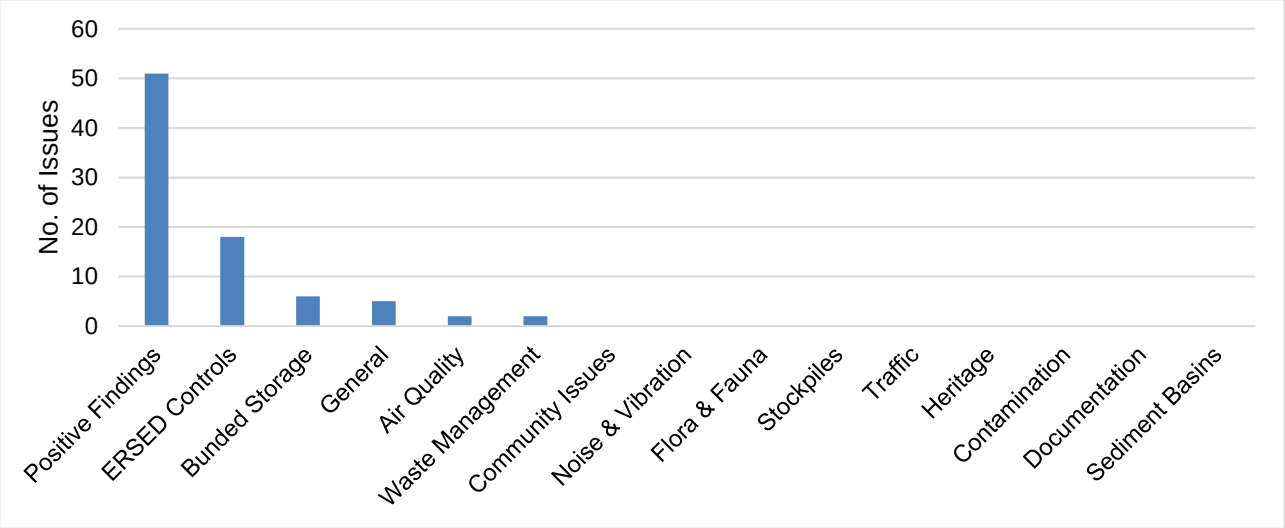


Figure 4-2 ER Inspection Issues by Type

Table 4-3 Roads and Maritime Environment Inspection Status

Status	Definition
Red	• 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	• 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	• 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 Traffic Light Indicator	X	X	X	X	X	X	X	X	X	X	X	X
ER Inspection Date	30-May-19	13-Jun-19	27-Jun-19	11-Jul-19	25-Jul-19	8-Aug-19	22-Aug-19	5-Sep-19	17-Sep-19	23-Oct-19	31-Oct-19	14-Nov-19

4.4 Environmental Audits

As detailed in the previous six monthly CCR, an independent environmental audit was undertaken on the 29 and 31 May 2019. Two findings from this audit were closed out during the reporting period and are summarised in Table 4-5.

Table 4-5 Independent environmental audit preliminary findings

Compliance Document Ref.	Finding	Category	Action Completed	Close Out Date
NAHMP Section 7.3.3 CoA E163, E164	Whilst items from the former Bank of NSW Building at 164 Parramatta Road Annandale have been salvaged in accordance with CoA E163 and E164 and are stored securely, the items have not been recorded in a register or similar document. As an improvement opportunity, LSBJV should consider developing a register which identifies each item salvaged against the exact location held/numbering/labelling to ensure traceability.	Observation	A register of items recommended for salvage was prepared.	13/08/2019
Site Inspection	At the time of the audit, the rumble grid was damaged and undergoing repairs. This should be reinstated as soon as possible.	Observation	No action was required as the stockpile was subsequently removed from this location and therefor the rumble grid was no longer required.	9/07/2019

4.5 Complaints

The Project received a total of 133 complaints during the reporting period. Of these, 20 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 113 Project-attributed complaints received, the three most frequent complaint issues were noise (44%), vibration (11%) and trucks on local roads (11%). Responses to these complaint issues are discussed in Section 4.5.1.

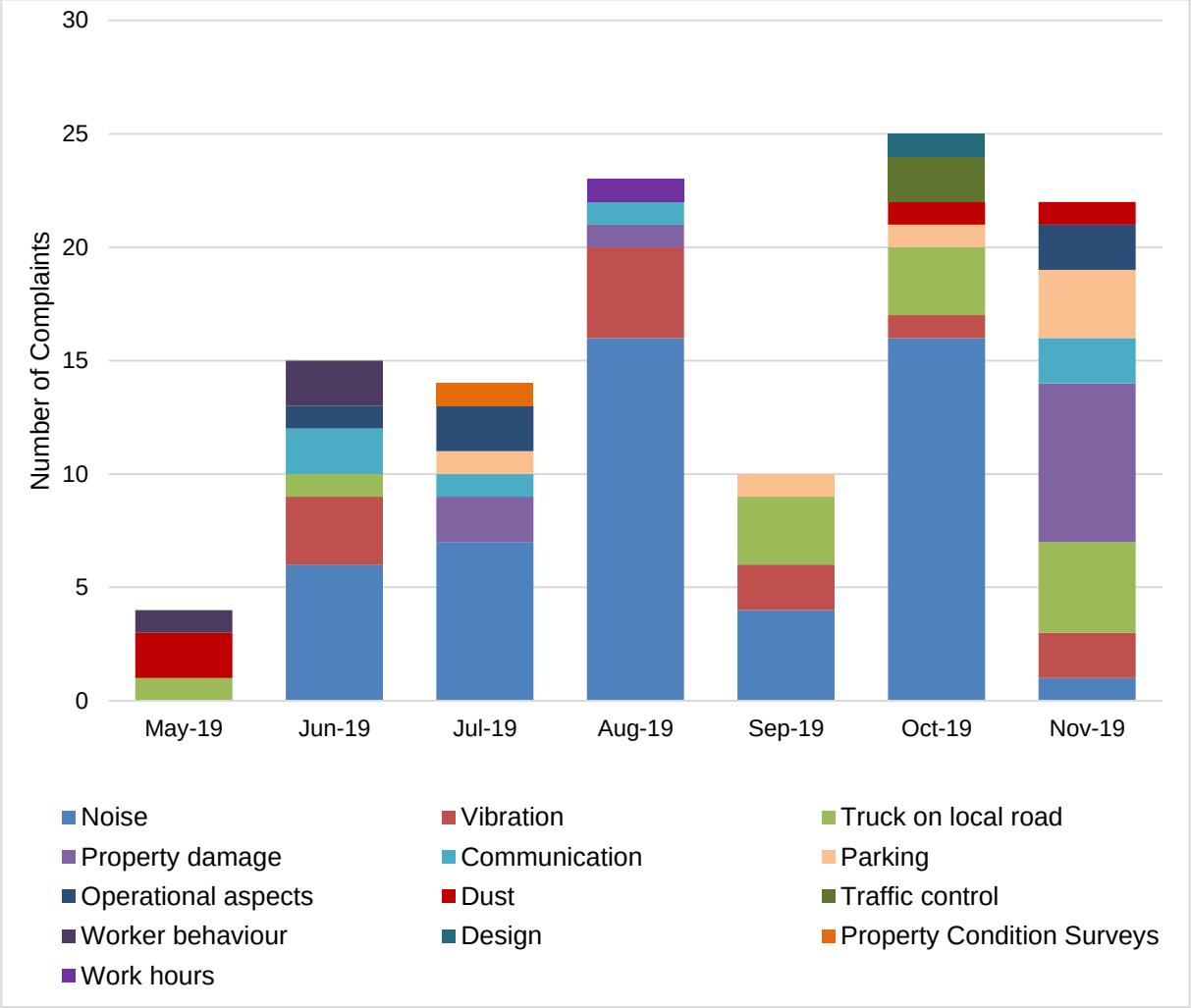


Figure 4-3 Project-attributed Complaints Received by Month and Issue

4.5.1 Complaint Management

4.5.1.1 Noise

Noise related complaints were predominately received about ground-borne noise impacts from tunnelling works (41). Other works resulting in complaints included:

- Running of generators (3)
- Idling Project vehicles and plant including a vacuum suction truck (3)
- Installation of a road plate at the Pyrmont Bridge Road site (1)
- Hoarding installation (1)
- High voltage installation works at the Haberfield sites (1)

Actions taken to address the issues raised included:

- Offered and carried out noise monitoring to validate potential noise impacts
- Offered respite measures such as noise cancelling headphones and alternative accommodation where required

- Implemented respite periods for high impact work and on-site mitigation measures such as noise blankets and hoarding
- Provided clarification to residents around the duration and approval of construction activities
- Agreed to provide additional updates on progress of works
- Toolboxed site personnel on their Project roles and responsibilities in noise mitigation and management

4.5.1.2 Vibration

All 12 complaints received about vibration were related to tunnelling works within the shallowest sections along the alignment adjacent to the Project's ancillary facilities. For example, at Dobroyd Parade in Haberfield, Parramatta Road in Camperdown/Annandale, and Crown Street and Princess Highway in St Peters.

Actions taken to address issued raised included:

- Offered and carried out vibration monitoring to validate potential vibration impacts
- Provided clarification to residents around the duration and approval of construction activities
- Agreed to provide additional updates on progress of works

4.5.1.3 Heavy Vehicles on Local Roads

Complaints about HVs using local roads were received across the Project alignment in Haberfield, St Peters, Forest Lodge and Petersham.

Actions taken to address issued raised included:

- Issued warning and contractual letters to subcontractor and supplier company involved in the incident
- Undertook disciplinary actions including the removal of responsible drivers from the Project
- Clarified approved spoil haul routes
- Reviewed and updated Project's Vehicle Movement Plans (VMP) and reissued to subcontractors and suppliers
- Installation of temporary signage in consultation with Local Council at intersections in Haberfield to ward off HVs from turning onto local roads

4.5.1.4 Other Complaints

Actions taken to address other issues raised including property damage, parking, communication, dust, operational aspects, worker behaviour, traffic control, design, property condition surveys and work hours include:

- Deployment of additional dust mitigation measures including increased frequency of water cart, additional stockpile covering and temporarily stopping work during windy conditions
- Reminded and reprimanded Project personnel not complying with parking requirements
- Investigated alleged damage claims including inspections by independent structural engineers and implemented recommendations from such inspections
- Offered meetings to residents and where accepted, provided further clarification around work activities, timeframes, Project approvals and mitigation measures
- Advised nearby projects and utility providers of complaints related to their work and not the M4-M5 Link Tunnels Project

- Changed communication processes in response to the feedback received in a 4-month community engagement and communication survey. For example, a quarterly Project-wide newsletter with high level progress information, monthly detailed project notifications as well as a monthly progress email and then weekly doorknocks ahead of tunnelling progress
- Changing notification distribution suppliers
- Rescheduling property condition survey appointments
- Raising call centre issues with RMS as the proponent
- Cutting grass on road verges

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 if the following occurred:

- A parameter exceeds the site-specific trigger value (SSTV) for two consecutive monthly monitoring events
- A parameter exceeds the SSTV for any single monitoring event by more than 30%
- A parameter downstream exceeds the corresponding parameter upstream for any single monitoring event by more than 20%

Overall, downstream monitoring results were compliant and within the SSTV limits except for NTU on a few occasions. Elevated downstream results were recorded in most months across all three waterways for all parameters except pH and temperature. This result highlights the highly variable nature of the waterways monitored which are situated within highly-urbanised and industrial areas with potential impact occurring as a result of non-Project sources.

Downstream conductivity (EC) and total dissolved solids (TDS) results frequently exceeded upstream values by more than 20% in both Dobroyd Canal and Alexandra Canal, however were below SSTVs. This trend is consistent with historic baseline monitoring results which revealed these waterways are tidally influenced by brackish water and therefore highly variable.

On three occasions, downstream oxidation-reduction potential (ORP) exceeded upstream values by more than 20% across the catchment. Investigation into these results demonstrated each waterway follows a similar trend over time including upstream locations and was not attributed to the Project.

Downstream NTU results from Alexandra canal often exceeded upstream values by more than 20% in Alexandra Canal. An investigation of on-site management practices showed de-watering was compliant with EPL discharge criteria and erosion and sediment controls (ERSED) were adequately installed and maintained.

While investigations into water quality monitoring results were triggered during the reporting period, no changes in water quality have been attributed to Project works.

Improvements in water quality downstream of Project discharge outlets were recorded with improved pH occurring in Dobroyd Canal on four occurrences and Alexandra Canal on two occurrences. Improved downstream turbidity (NTU) was also recorded in Dobroyd Canal on six occurrences, Johnstons Creek on five occurrences and Alexandra Canal on two occurrences.

5.2 Groundwater

In accordance with the Groundwater Monitoring Program (GWMP), continuous groundwater level and quality (conductivity) monitoring was undertaken on 28 bores. Loggers were downloaded, and manual level measurements collected every two months, pending access to each bore.

As detailed in the previous CCR, four monitoring bores were unavailable to the Project and required replacement. During the reporting period, an additional six bores were also identified for replacement. All bores have been drilled, developed and monitoring commenced. A summary of the replacement bores is detailed in Table 5-1. LSB-HC-PT-OW5a was not available for monitoring due to the Project's groundwater pumping test at Hawthorne Canal.

Three vibrating wire piezometers (VWPs) to monitor pore pressure and assess operational groundwater impacts were installed. However, works are ongoing to commission the VWPs with data to be reported in subsequent CCRs.

A groundwater pumping test was also undertaken on the Project at from 25 October 2019 to 21 November 2019. This test was undertaken in accordance with REMM GW9 to investigate the groundwater conditions at Hawthorne Canal to inform tunnel design and construction methodology.

Table 5-1 Groundwater Monitoring Bores replaced during the reporting period

Previous Monitoring Bore	Replacement Monitoring Bore	Reason
HB_BH08d[1]	LSB-GW-HB-BH08d	Bore decommissioned by local council.
HB_BH08s[1]	LSB-HC-PT-OW5a[2]	Bore decommissioned by local council.
HB_BH12	LSB-GW-HB-BH12	Bore located along the tunnel alignment and would be destroyed.
LSB-HB-BH1004[1]	LSB-GW-HB-BH03	Public access to bore unavailable.
HB_BH03	LSB-HB-BH1002	Bore located along the tunnel alignment and would be destroyed.
MT_BH02	LSB-MT-BH1013a	Bore located along the tunnel alignment and would be destroyed.
MT_BH19	LSB-GW-MT-BH19	Bore located along the tunnel alignment and would be destroyed.
SP_BH01	LSB-SP-BH06	Bore located along the tunnel alignment and would be destroyed.
LSB-SPI-BH1010[1]	LSB-SP-BH03	Bore located at Campbell Road site and not safely accessible due to Project works
LSB-SP-BH06	LSB-MT-BH1003	As built bore depth was shallower than planned.

[1] Bores were not available during the CCR reporting period from 28 November 2018 to 28 May 2019.

[2] Monitoring unavailable during the reporting period due to the pumping test at Hawthorne Canal

5.2.1 Groundwater Level

Groundwater levels remained generally constant across the monitoring network with small fluctuations linked to lack of rainfall during the reporting period.

Declines in water levels were observed around Hawthorne Canal at bores located close to the pumping test. This drop in water level was expected and aligned with the commencement of the pumping test, therefore a management response was not required.

A decline in water level was also observed along the middle of the alignment and close to the PBR site. This decline was expected, following the interception of groundwater during tunnelling activities.

5.2.2 Groundwater Quality

Potential changes in groundwater quality were assessed using 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, EC levels remained below SSTV with no management response triggered.

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

Table 5 2 provides a summary of the Project-wise noise and vibration monitoring results during the reporting period.

Table 5-2 Noise and Vibration Monitoring Events Summary

Monitoring Type	Prediction Exceedances	Comments
Attended airborne noise monitoring	2	Based on 73 monitoring events. Two exceedances were attributed to the Project and occurred during out of hours works (OOHW). In both instances, monitoring results were observed above the predicted noise levels. In these instances, works were ceased and noise attenuation barriers (i.e. noise blankets) were deployed around the noise source on site.
Unattended airborne noise monitoring	0	Based on three monitoring events which were undertaken to validate the acoustic performance of the acoustic shed at each tunnelling site.
Unattended Ground-borne noise monitoring	0	Based on 26 monitoring events. Elevated noise levels recorded during the overnight monitoring periods were attributed to non-Project sources included domestic noise, road and air traffic.
Attended vibration monitoring	0	Based on 7 monitoring events. All results were compliant with the relevant criteria for cosmetic damage and human comfort.
Unattended vibration monitoring	0	Based on eight monitoring events. All results were compliant with the relevant criteria for cosmetic damage and human comfort.
Heritage item vibration monitoring	0	Based on 10 monitoring events. All results were compliant with heritage and sensitive structure 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.

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/m^2/month. Therefore, performance criteria exceedances will be assessed and reported in subsequent CCRs following 12 months of data.

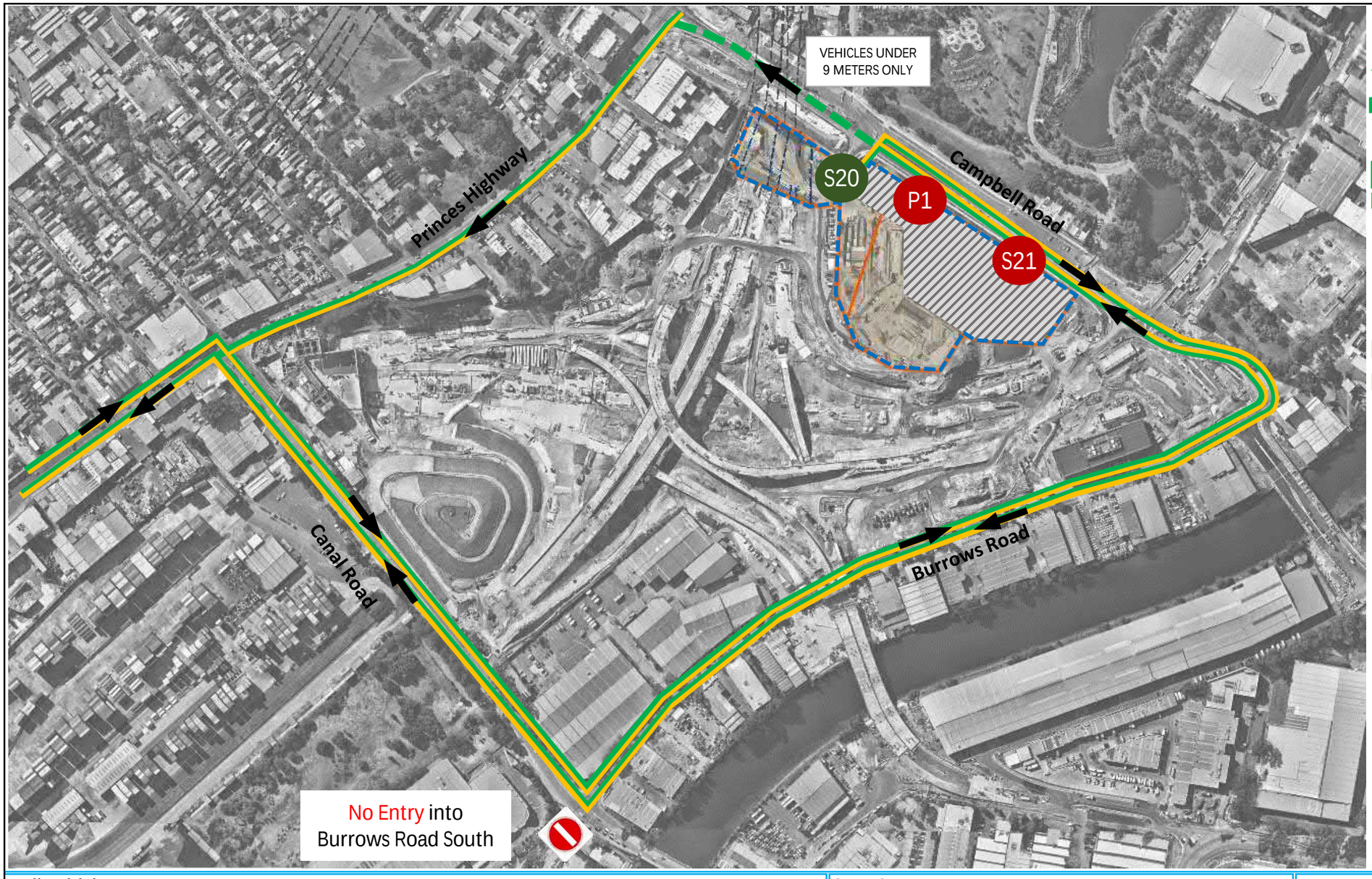
During the reporting period,19 monthly dust results greater than 4 g/m^2 were recorded across the Project. While these are not yet considered to be an actual exceedance of the annual performance criteria, an investigation into site activities and surrounding air quality events was undertaken including a review of data collected by the Office of Environment and Heritage (OEH).

Existing dust management measures implemented on site during the reporting period included:

- Spoil handling within an acoustic shed
- Covered loads for all vehicles transporting spoil and other materials
- On-site dust suppression including water carts, hoses and street sweepers
- Maintenance of hardstand areas
- Dust minimisation toolbox talks delivered to site personnel
- Use of wheel washes and street sweepers to minimise sediment tracking and build up on public roads

During the reporting period, dust results on the Project were found to be highly influenced by the surrounding poor air quality of the Greater Sydney region caused be low rainfall, drought conditions and bushfires.

Appendix A Spoil Vehicle VMP for Campbell Road



Concrete Deliveries

Other Deliveries

Spoil Removal - Bogie

Spoil Removal - T&D

SPI Compound Address:
2 Albert Street
St Peters
2044
NSW

All vehicles must use UHF 14

All drivers to call on UHF approach to confirm ACCESS or EGGRESS setup for the day

Gate Status:

XX Open Gate

XX Closed Gate

Scan QR code to see usage of entry gate to SPI site

SCAN ME

VEHICLE MOVEMENT PLAN ST PETERS INTERCHANGE

PERIOD FROM: 10 October 2019

WestConnex M4-M5 Link Tunnels

Updated: 27 September 2019 by John Yap

Saved: G:\WCX3a\500 Prjt Admin\526 Site Wide\100 Traffic Management\170 Vehicle Movement Plan

030

Adherence to this VMP is mandatory. Deviation from this plan may find you personally liable for regulatory action from the Department of Planning and Environment