

Construction Environmental Management Plan

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Sydney Gateway Road Project
SSI-9737

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Document control

Approval

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Glossary/Abbreviations

Abbreviation	Expanded text
AEO	Airport Environment Officer
ASS	Acid Sulfate Soils
CEMP	Construction Environmental Management Plan
CEMS	Contractors Environmental Management System
Compliance audit	Verification of how implementation is proceeding with respect to a Construction Environmental Management Plan (CEMP) (which incorporates the relevant approval conditions).
CoA	Conditions of approval
Minister, the	Minister of the NSW Department of Planning and Environment (or delegate)
DPIE	Department of Planning, Infrastructure and Environment
ECM	Environment Control Map
EIS	Environmental Impact Statement
EEC	Endangered Ecological Community
EES	Environment, Energy and Science Group of the Department (formerly OEH)
Ecologically sustainable development	Using, conserving and enhancing the community's resources so that the ecological processes on which life depends are maintained and the total quality of life now and in the future, can be increased (Council of Australian Governments, 1992)
EPA	NSW Environment Protection Authority
ERG	Environmental Review Group – generally comprising representatives of TfNSW, Environmental Representative, Project delivery team, regulatory authorities (EPA, DPIE, EES, Sydney Airport Corporation (SYD) and AEO and councils (Bayside, Inner West and City of Sydney) as required. The ERG will be maintained for the duration of the Project and will meet regularly and undertake environmental inspections. The role the ERG is to work collaboratively with the Project team to provide proactive advice on environmental management issues on the Project.
EMS	Environmental Management System
Environmental aspect	Defined by AS/NZS ISO 14001:2015 as an element of an organisation's activities, products or services that can interact with the environment.
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.
Environmental incident	An unexpected event that has, or has the potential to, cause harm to the environment and requires some action to minimise the impact or restore the environment.
Environmental objective	Defined by AS/NZS ISO 14001:2015 as an overall environmental goal, consistent with the environmental policy, that an organisation sets itself to achieve.
Environmental policy	Statement by an organisation of its intention and principles for environmental performance.
Environmental target	Defined by AS/NZS ISO 14001:2015 as a detailed performance requirement, applicable to the organisation or parts thereof, that arises from the environmental objectives and that needs to be set and met in order to achieve those objectives.
Environmental Representative	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.

Abbreviation	Expanded text
EP&A Act	<i>Environmental Planning and Assessment Act 1979 (NSW)</i>
EPL	Environment Protection Licence
ESCP	Erosion and Sediment Control Plan
ESR	Environmental Site Representative (as required by G36, cl 3.3) who is the authorised contact person for communications with the Principal and the EPA on all environmental matters. For the purposes of the CEMP and all Sub Plans, this person will be the JHSW Environment, Sustainability and Approvals Manager or delegate.
EWMS	Environmental work method statement
Hold point	Is a verification point that prevents work from commencing prior to approval from Transport for New South Wales
IS	Infrastructure Sustainability
ISCA	Infrastructure Sustainability Council of Australia
Minister, the	Minister for Planning and Environment
MCoA	NSW Minister for Planning Conditions of Approval
MDP	Major Development Plan
MDP-CoA	Federal Conditions of Approval under the <i>Airports Act 1996</i>
Non-compliance	Failure to comply with the requirements of the Project approval or any applicable licence, permit or legal requirements.
Non-conformance	Failure to conform to the requirements of Project system documentation including this CEMP or supporting documentation.
OEH	Office of Environment and Heritage
PESCP	Progressive Erosion and Sediment Control Plan
PIRMP	Pollution Incident Response Management Plan
Principal, the	Transport for NSW
POEO Act	<i>Protection of the Environment Operations Act 1997 (NSW)</i>
Project, the	Sydney Gateway Road Project
RSR	Response to Submission Report
ROL	Road occupancy licence
SAP	Sensitive Area Plan
SEAR's	Secretary's Environmental Assessment Requirements
SYD	Sydney Airport Corporation
TfNSW	Transport for NSW (formerly Roads and Maritime Services)
UMM	Updated Mitigation Measure as outlined in the Project EIS/MDP documentation.

1 Introduction

1.1 Background

Transport for NSW (TfNSW) have gained approval to deliver a new direct high capacity road connection linking the Sydney motorway network at St Peters interchange, where the M4 and M8 motorways will meet, with Sydney Airport's domestic and international terminals and the Port Botany Precinct.

The Sydney Gateway Road Project ('the Project') will improve access for passengers and freight, support the economy, reduce traffic congestion, and improve amenity and liveability in local centres.

A portion of the Project is located on State land and has been declared critical State significant infrastructure (CSSI) under the *Environmental Planning and Assessment Act 1979* (NSW) (EP&A Act) and *State Environmental Planning Policy (State and Regional Development) 2011*. It was subject to approval under the EP&A Act from the NSW Minister for Planning and Public Spaces. The remaining portion of the Project is located on Commonwealth land leased to Sydney Airport Corporation (SYD) and is subject to the *Airports Act 1996* (Cth) (the Airports Act) and approval under the Act by the Australian Minister for Infrastructure, Transport and Regional Development. To support the application for approval of the Project in accordance with NSW and Commonwealth legislative requirements, a combined environmental impact statement (EIS) and major development plan (MDP) was prepared.

With respect to the approval requirements under the EP&A Act, the EIS/MDP was exhibited by the NSW Department of Planning, Industry and Environment (DPIE) between 20 November and 19 December 2019, and submissions were received by DPIE. In response to the submissions, a response to submission report (May 2020) was prepared, which responded to submissions received during the public exhibition period. The response to submission report also updated the mitigation measures that were original presented in the EIS/MDP, which will be referenced as Updated Management Measures (UMM) in this CEMP and associated sub-plans. The portion of the Project under State jurisdiction was approved by the Minister for Planning and Public Spaces on 27 August 2020.

TfNSW have awarded the contract for design and construction of the Sydney Gateway Road Project to John Holland Seymour Whyte Joint Venture (JHSWJV).

1.2 Purpose of this CEMP

This Construction Environmental Management Plan (CEMP) and associated sub plans have been prepared to outline and describe how JHSWJV, during the construction of the portion of the Project on State land, will comply with the NSW Minister for Planning's conditions of approval (CoA), environmental documents and client specifications. Additionally, it outlines how JHSWJV will minimise the environmental risks, and achieve environmental outcomes on the Project by providing a structured approach to ensure appropriate UMMs and controls are implemented.

A separate CEMP targeted to the works undertaken for the Project on Commonwealth land will be developed separately.

Project activities managed by a SEMP in accordance with CoA A15 and/or any construction or works undertaken prior to construction approval are excluded from being managed under this CEMP and associated sub-plans. Once the CEMP is approved the Project will enter the construction phase and the site establishment phase will be concluded. Subsequently, any remaining works for the purpose of establishing the ancillary facilities will be undertaken under the approved CEMP.

Also excluded are plans for operation of the Project, which will be managed under an Operational Environmental Management Plan (OEMP) or alternatively under an EMS to the satisfaction of CoA D2.

A detailed description of the Project is provided in Chapter 7 of the Environmental Impact Statement / Major Development Plan (EIS/MDP).

Implementing the CEMP and sub plans effectively will ensure that the Project meets the requirements of the Minister's Conditions of Approval, Updated Mitigation Measures. Environmental Protection Licence and the Project's other environmental performance requirements..

The CEMP has been prepared in accordance with:

- Roads and Maritime QA Specification G36, G38 and G40.
- The Project approval SSI-9737.
- *Environmental Management Plan Guideline - Guideline for Infrastructure Projects* (Department of Planning, Industry and Environment, April 2020).
- AS/NZS ISO 14001.
- John Holland Group (JHG) Environmental Management System (EMS).

This CEMP will:

- Describe the Project, including a description of activities to be undertaken during construction (including the scheduling of construction) including site layout figures.
- Identify environmental obligations attached to the Project.
- Provide details of how the performance outcomes, commitments and mitigation measures specified in the EIS/MDP and the Response to Submissions will be implemented and achieved during construction.
- Outline the environmental policies, guidelines and principles to be followed in the construction of the Project.
- Describe a monitoring program for ongoing analysis of the Project activities and provide procedures for rectification of any environmental non-compliances identified.
- Provide a protocol for managing and reporting environmental incidents and environmental non-compliances.
- Describe the roles and responsibilities of relevant Project personnel as they relate to environmental management during construction of the Project and how their relationship with the Environmental Representative (ER).
- Detail the mitigation measures and controls to be in place to avoid or minimise environmental impacts.
- Provide for training and induction of Project personnel in relation to environmental and compliance obligations.
- Detail the review and update of the CEMP and all associated plans and programs.

The requirements of the Project Planning Approval and the Updated Mitigation Measures (UMMs) and where they are met in this CEMP are shown in Table 1-1, agency consultation requirements for each sub plan are outlined in Appendix A5.

Table 1-1 CoA requirements for CEMP

CoA	Requirement	Reference
C1	A Construction Environmental Management Plan (CEMP) must be prepared to detail how the performance outcomes, commitments and mitigation measures specified in the documents listed in Condition A1 will be implemented and achieved during construction.	This plan
C2	The CEMP must be prepared having regard to the Environmental Management Plan Guideline - Guideline for Infrastructure Projects (Department of Planning, Industry and Environment, April 2020).	This plan Section 1.2
C3	The CEMP must be endorsed by the ER and then submitted to the Planning Secretary for approval no later than one month before the commencement of construction. The approved CEMP and Subplans must be submitted to DITRDC for information no later than two (2) weeks after its approval.	Section 2
C4	The CEMP must provide:	Section 1.3
	(a) a description of activities to be undertaken during construction (including the scheduling of construction) including site layout figures;	Section 1.4
	(b) details of environmental policies, guidelines and principles to be followed in the construction of the CSSI;	Section 1.6
	(c) a program for ongoing analysis of the key environmental risks arising from the activities described in subsection (a) of this condition and cumulative impacts arising from other Projects, including an initial risk assessment undertaken before the commencement of construction;	Section 3.2
	(d) details of how the activities described in subsection (a) of this condition will be carried out to: (i) meet the performance outcomes stated in the documents listed in Condition A1; and (ii) manage the risks identified in the risk analysis undertaken in subsection (c) of this condition;	Section 4 CEMP Sub-plans
	(e) an inspection program detailing the activities to be inspected and frequency of inspections;	Section 3.9
	(f) a protocol for managing and reporting any: (i) incidents; and (ii) non-compliances with this approval or statutory requirements;	Section 3.10 Section 4.14
	(g) procedures for rectifying any non-compliance with this approval identified during compliance auditing, incident management or at any time during construction;	Section 3.10
	(h) a list of all the CEMP Sub-plans required in respect of construction, as set out in Condition C5. Where staged construction of the CSSI is proposed, the CEMP must also identify which CEMP Sub-plan applies to each of the proposed stages of construction;	N/A
	(i) a description of the roles and environmental responsibilities for relevant roles and their relationship with the ER;	Section 3.3
	U) for training and induction for employees, including contractors and sub-contractors, in relation to environmental and compliance obligations under the terms of this approval; and	Section 3.5

CoA	Requirement	Reference
	(k) for periodic review and update of the CEMP and all associated plans and programs.	Section 3.13
C13	Any of the CEMP Sub-plans may be submitted along with, or subsequent to, the submission of the CEMP but in any event, no later than one (1) month before construction.	Section 4
C14	Construction must not commence until the CEMP and all CEMP Sub-plans have been approved by the Planning Secretary. The CEMP and CEMP Sub-plans, as approved by the Planning Secretary, including any minor amendments approved by the ER, must be implemented for the duration of construction. Where construction of the CSSI is staged, construction of a stage must not commence until the CEMP and Sub-plans for that stage have been approved by the Planning Secretary.	This Plan
EM1	A CEMP will be prepared to detail the approach to environmental management during construction in accordance with the conditions of approval.	This Plan

This CEMP is the overarching document in the EMS for the Sydney Gateway Road Project that includes a number of management documents. It is applicable to all staff and sub-contractors associated with the construction of the Project.

1.3 Project description

This section provides a brief overview of the Project as referred to in the CoA, as described in Chapter 7 and 8 of the EIS/MDP as updated in the response to submissions (Appendix A).

The Project is located about eight kilometres south of the Sydney central business district, in the suburbs of Tempe, St Peters and Mascot. It sits within the boundaries of the Inner West, City of Sydney and Bayside local government areas.

The Project also aims to provide improved access to Sydney Airport land located on both sides of Alexandra Canal and across the Botany Rail Line.

The key features of the Project are illustrated in Figure 1-1, which include:

- Road links to provide access between the Sydney motorway network and Sydney Airport's terminals, consisting of the following components:
 - St Peters interchange connection – a new elevated section of road extending from St Peters interchange to the Botany Rail Line, including an overpass over Canal Road.
 - Terminal 1 connection – a new section of road connecting Terminal 1 with the St Peters interchange connection, including a bridge over Alexandra Canal and an overpass over the Botany Rail Line.
 - Qantas Drive upgrade and extension – widening and upgrading Qantas Drive to connect Terminals 2/3 with the St Peters interchange connection, including a high-level bridge over Alexandra Canal.
 - Terminal links – two new sections of road connecting Terminal 1 and Terminals 2/3, including a bridge over Alexandra Canal.
 - Terminals 2/3 access – a new elevated viaduct and overpass connecting Terminals 2/3 with the upgraded Qantas Drive.
- Road links to provide access to Sydney Airport land:
 - A new section of road and an overpass connecting Sydney Airport's northern lands on either side of the Botany Rail line (the northern lands access).

- A new section of road, including a signalised intersection with the Terminal 1 connection and a bridge, connecting Sydney Airport's existing and proposed freight facilities on either side of Alexandra Canal (the freight terminal access).
- An active transport link, about 3 kilometres long and located along the western side of Alexandra Canal, to maintain connections between Sydney Airport, Mascot and the Sydney central business district.
- Intersection upgrades and/or modifications.
- Construction of operational ancillary infrastructure including maintenance bays, new and upgraded drainage infrastructure, signage and lighting, retaining walls, noise barriers, flood mitigation basin, emplacement mounds, utility works and landscaping.

As part of the above, the Project includes four new bridges over Alexandra Canal and six overpasses over roads and the Botany Rail Line (the rail corridor). The proposed bridges and overpasses are described in sections 7.3 to 7.8 of the EIS/MDP, as amended in Appendix A of the response to submission report. The names used in those sections are indicative reference names applied for the purposes of the impact assessment.

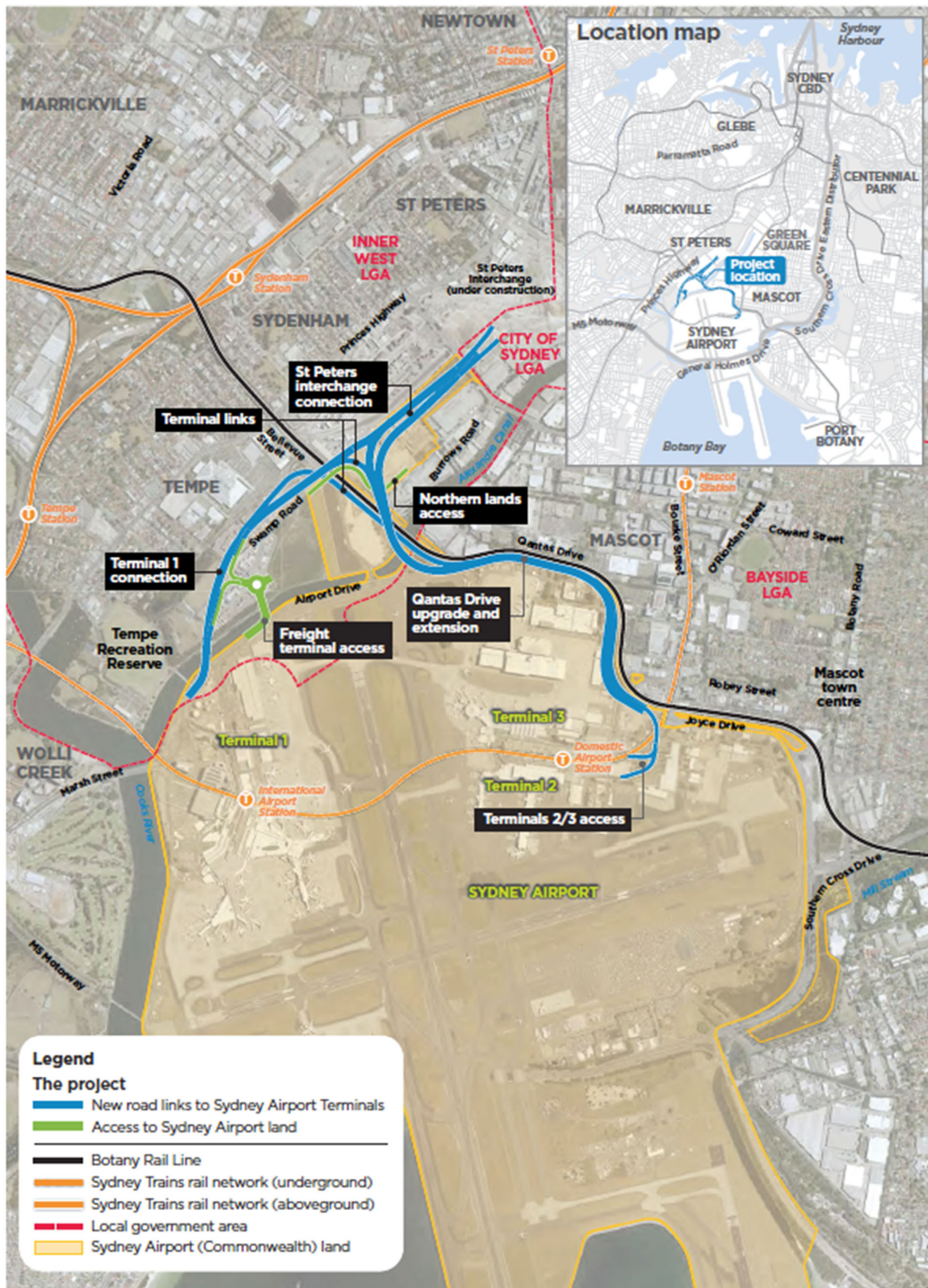


Figure 1-1 Project overview

1.4 Construction activities and scheduling

Key construction activities of the Project are described in Table 1-2 below. Some Project activities may be undertaken prior to construction as part of early works packages or site establishment activities, and therefore the below list is not an exhaustive list of Project activities. These early works packages and site establishment activities include activities that do not constitute 'construction' as defined in the CoA. Major ancillary facilities located on state land will be managed in accordance with the Site Establishment Management Plan (SEMP).

More detailed plans showing an overview of construction activities are included in Appendix A.8 of this Plan.

Table 1-2 Key construction activities

Component	Typical activities
Enabling works	Low impact works including survey, investigation works, low impact utility works and other works as determined by the ER to have minimal environmental impact. It should be noted that these enabling works are not considered to be Construction under the definition in Table 1 of the Project Planning Approval SSI 9737. As such are excluded from being managed under this CEMP and associated sub-plans.
Site establishment	<ul style="list-style-type: none"> Installing site fencing, hoarding and signage. Installing site environment management controls, including sediment and erosion control, screening and noise attenuation. Installing traffic management measures. Establishing work areas, construction compounds and site access arrangements. Establishing workforce parking areas. Clearing/trimming of vegetation. Providing services (including power and water) to construction compounds and work areas. Establishing temporary road, pedestrian and cyclist diversions where required. <p>Site establishment activities will be undertaken in accordance with the Site Establishment Management Plan (SEMP) prepared in accordance with CoA A15 until such time as the CEMP is approved. Once the CEMP is approved the Project will enter the construction phase and the site establishment phase will be concluded. Subsequently, any remaining works for the purpose of establishing the ancillary facilities will be undertaken under the approved CEMP.</p>
Building and structure demolition	<p>Removal of building/structures listed in Table 8.1 of the EIS/MDP, which would typically include:</p> <ul style="list-style-type: none"> A hazardous material surveys. Installing hoarding, scaffolding and protection barriers around the perimeter of the site or building. Decommissioning/terminating building services. Temporary propping and/or waterproofing to ensure the structural integrity of adjacent structures. Removing materials inside buildings. Demolishing the main structure using an excavator, bobcat, cranes or other conventional methods, following a 'top-down' approach, with no use of explosive demolition techniques. Removing materials from the site for recycling or disposal.

Component	Typical activities
Earthworks	<ul style="list-style-type: none"> • Piling for bridge and overpass abutments. • Roadways and the active transport link, including excavation and filling to the required level. • Drainage infrastructure. • Retaining walls. • Utility works.
Road construction and widening	<p>Construction of new sections of road and upgrading/widening existing sections of road will be undertaken using conventional road construction/widening processes and will require preparatory works and road works.</p> <p>Preparatory works</p> <ul style="list-style-type: none"> • Clearing any vegetation. • Removing and stockpiling topsoil. • Removing existing kerbs and other road elements/furniture (for road upgrade/widening). • Earthworks. • Managing contaminated material where it is encountered, including material from within the former Tempe landfill site. • Adjusting adjacent properties and accesses where required. <p>Road works</p> <ul style="list-style-type: none"> • Constructing retaining walls to design levels. • Installing new or adjusting existing drainage and other utilities. • Constructing new pavement, including placing and compacting select fill, sub-base and asphalt wearing surface. • Installing new kerb and gutter. • Installing new concrete medians. • Finishing work, including line marking, installing safety barriers, lighting, signage and landscaping.
Bridge and overpass construction	<p>Bridge structures proposed, including super-T or box girder and steel tied arch. The indicative construction methods for these structure types are summarised in Table 8.3 of the EIS/MDP and are subject to detailed design.</p> <p>Following construction of the bridge structures, each bridge would be fitted out with decking and road pavement, drainage scuppers, edge barriers, anti-throw and headlight glare screens (as required), lighting, signage and line marking.</p> <p>Construction of bridge abutments and piers would be common for all bridge types. Crane pads would potentially be required at a number of bridge work areas to ensure that material can be safely lifted.</p>

Component	Typical activities
Retaining walls	<ul style="list-style-type: none"> Excavating below the existing ground surface for foundations. Installing drainage. Installing steelwork/formwork and concrete pouring (for cast in situ walls). Installing precast segments and retaining straps for reinforced earth retaining walls. Backfilling and compacting soil behind the retaining wall panels. Installing capping or edge beams for the retaining wall panels.
Drainage	<ul style="list-style-type: none"> Removing and reconstructing/altering existing pits and pipes. Installing new pits and pipes. Connecting new drainage infrastructure to the existing drainage network. Constructing new drainage outlets and scour protection at Alexandra Canal. Constructing the flood detention basin for use during construction and operation.
Finishing and post-construction rehabilitation	<ul style="list-style-type: none"> Erecting directional and other signage, and roadside furniture such as street lighting. Landscaping and revegetation. Site demobilisation. Removing site fencing and construction compounds. Rehabilitating work and construction compound areas.

Construction of the Project is planned to commence in mid-2021, with a planned completion date scheduled approximately 3.5 years after commencement. An indicative program is shown in Figure 1-2 which has been updated from the indicative program shown in Section 8.3 of the EIS/MDP, in accordance with ongoing detailed design.

	2021				2022				2023				2024			
Work Phase	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Enabling works																
Site establishment																
Main construction works																
Finishing and post-construction																

Figure 1-2 Indicative construction program

1.5 Environmental Management System overview

1.5.1 Overview of Project Environmental Management System

The Project EMS is based on the JHG EMS (which is accredited to ISO 14001), tailored to satisfy Project-specific requirements. It provides a framework to ensure an integrated approach to meeting Project requirements and defines how JHSWJV will minimise impacts to the environment. It comprises a combination of governance documentation, Project-specific management plans (including this CEMP), procedures and tools.

The basis for the EMS is the concept of Plan-Do-Check-Act (PDCA). The PDCA model provides an iterative process to achieve continual improvement. The concept has been applied to the John Holland EMS and this CEMP. It can be briefly described as follows.

- Plan: establish environmental objectives and processes necessary to deliver results in accordance with the John Holland environmental policy.
- Do: implement the processes as planned.
- Check: monitor and measure processes against the environmental policy, including its commitments, environmental objectives and operating criteria, and report the results.
- Act: take actions to continually improve.

The framework introduced in ISO14001 is integrated into a PDCA model within the John Holland EMS (which, for the purposes of Sydney Gateway will be used by , and in turn this CEMP. This framework is illustrated in Figure 1-3 and Figure 1-4 below.

In accordance with the JHSWJV Environmental Policy (see Appendix A3), JHSWJV will:

- Continually improve the EMS to enhance performance, such as through management review and CEMP revisions, and
- Maintain third party certification of the overarching JHG EMS to ISO 14001 as independent verification of implementation and effectiveness.

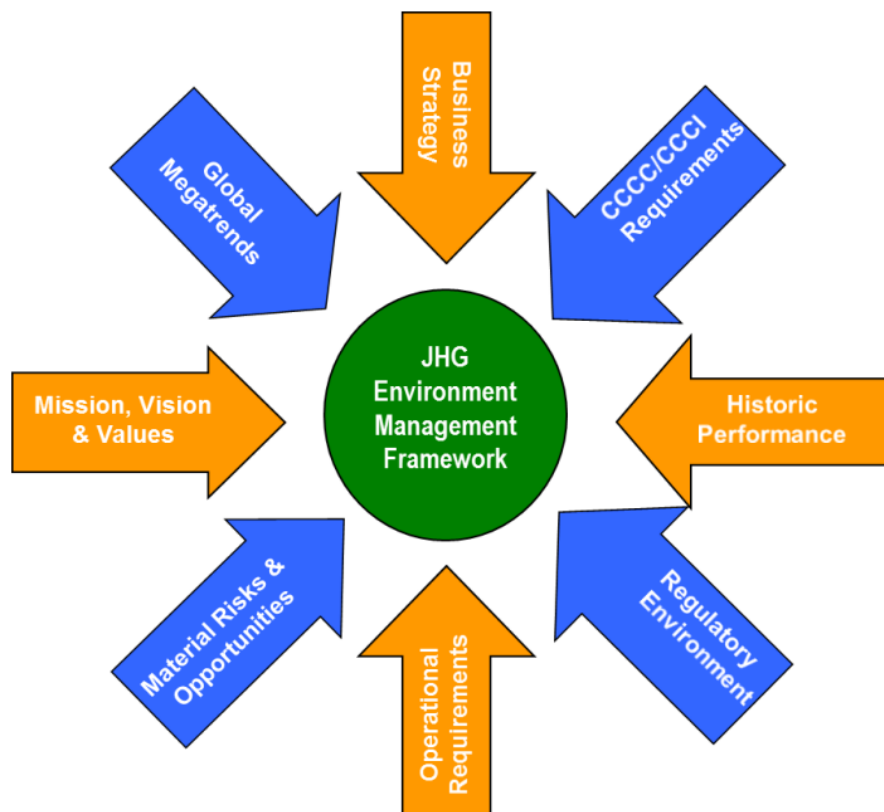


Figure 1-3: Primary Sources of Environmental Considerations

The EMS provides structure to environmental management of the Project and covers areas such as training, record management, inspections, objectives and policies. This CEMP has been prepared as part of the EMS.

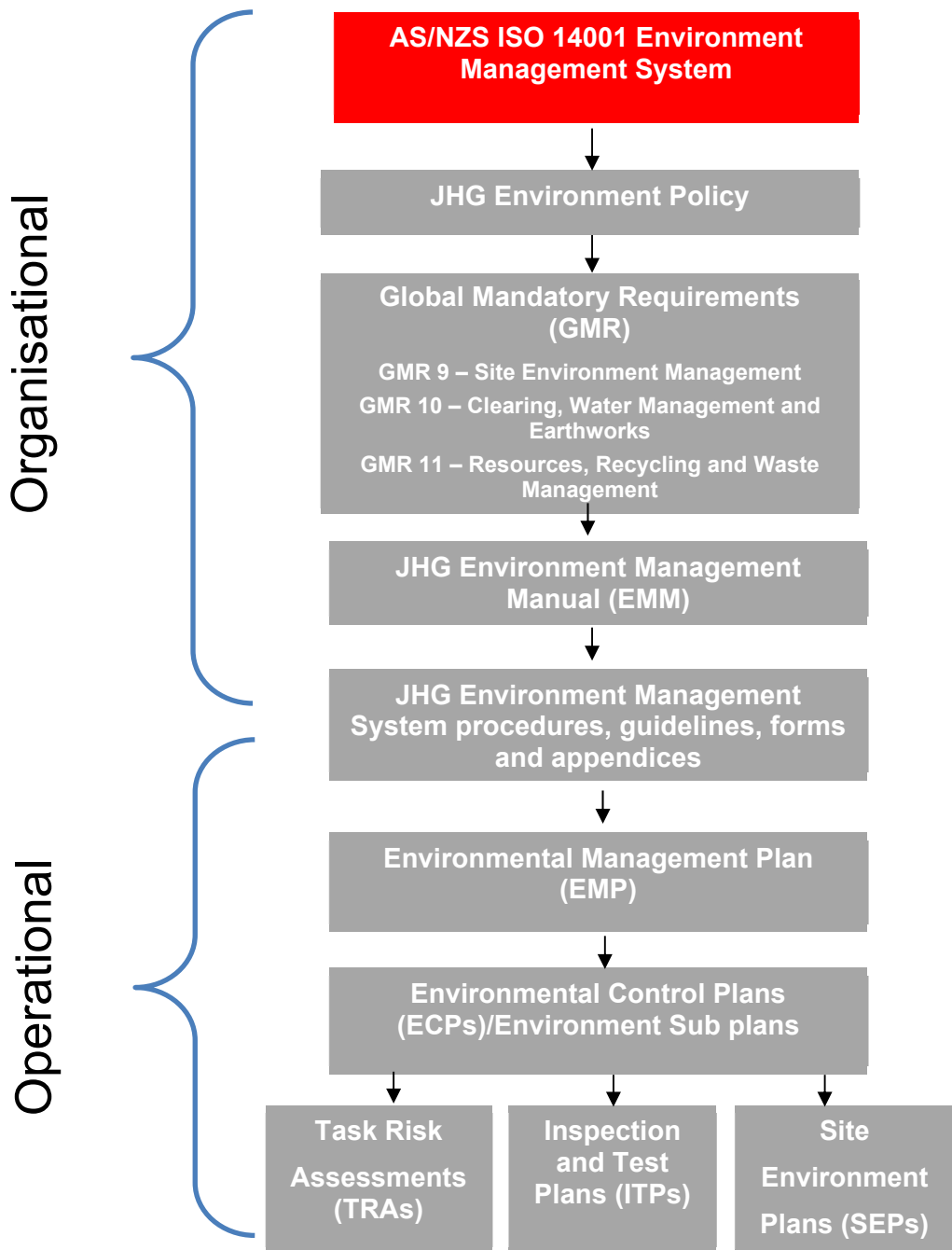


Figure 1-4: Environmental management system structure

1.6 Relationship between this CEMP and other EMS documents

The JHG EMS and Project EMS contains policies, standards, manuals, plans, procedures, processes and other documents that enable the Project to achieve its objectives through planned and controlled processes (refer to Figure 1-3). This CEMP sits within a suite of other documents, procedures and processes that form the Project EMS.

Other Project plans that the CEMP interfaces with include the Project Management Plan, Construction Management Plan, Design Management Plan, Quality Management Plan, Safety Management Plan and other environmental management documents (e.g. plans, protocols, strategies, reports and programs) to ensure the Project CoA and UMMs are implemented.

Table 1.3 below details the sub-plans associated with this CEMP, along with any associated attachments, strategies and documents. Together, these documents will work to satisfy the approval conditions and manage environment and community impacts that have been identified as having the potential to occur as a result of the Project.

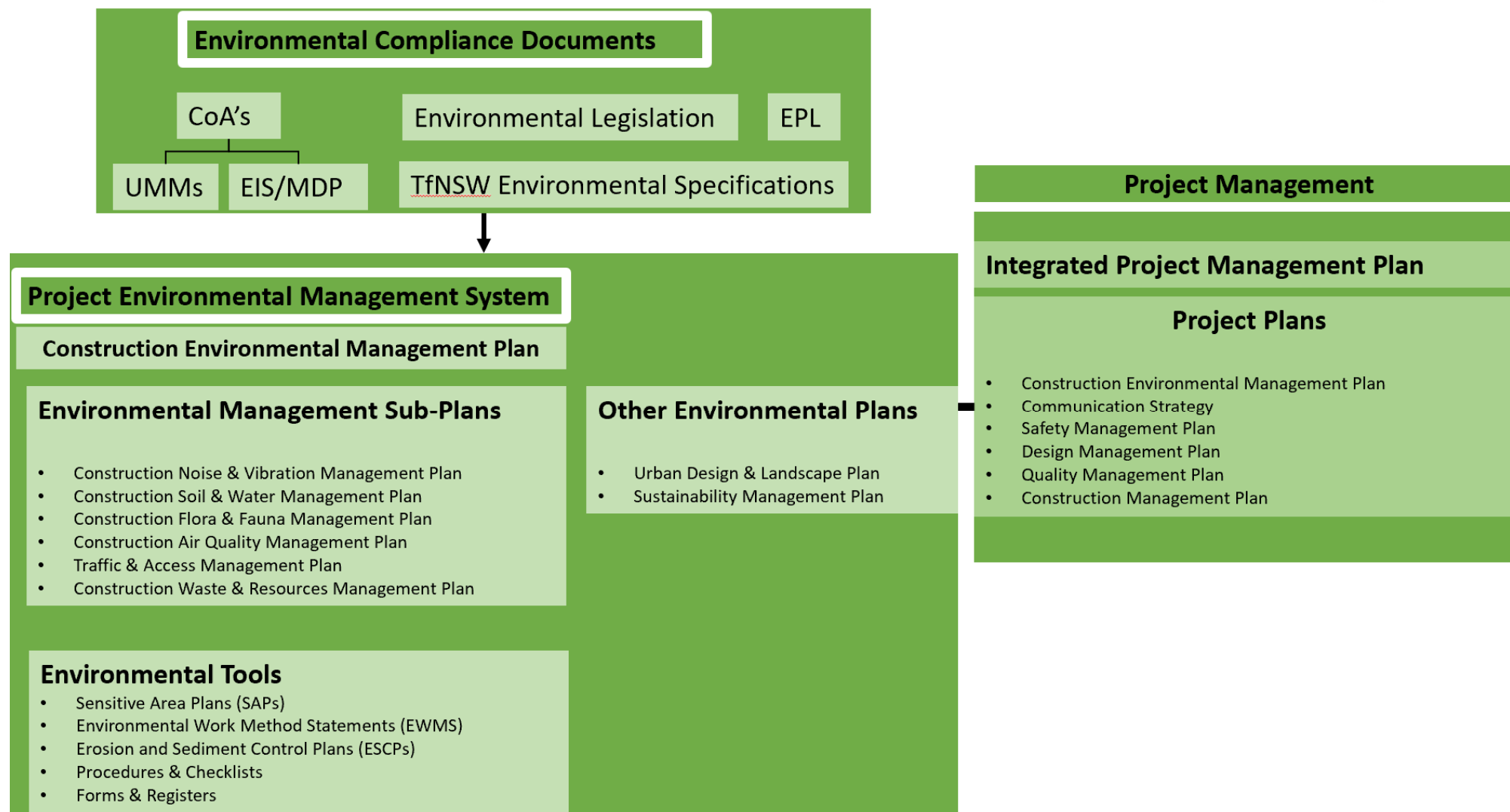


Figure 1-5 CEMP and Project EMS

CEMP sub-plan	Associated attachments	Derived documentation
Waste and Resource Management Plan (State)	<p>Waste Management Strategies</p> <p>Procedures for verifying licences and permits for handling, transportation and disposal of waste;</p> <p>Waste Management Register</p> <p>Waste Avoidance and Resource Recovery Report</p> <p>Offsite Waste Disposal Procedure</p> <p>Procedures for controlling and removing chemical, fuel and lubricant spillage on the Site and adjoining areas</p>	<p>Waste dockets</p> <p>Evidence of appropriate disposal of waste</p>
Air Quality Management Plan (State)	Dust Monitoring & Reporting Procedure	Inspection reports
Flora and Fauna Management Plan (State)	<p>Landscape Strategy Report</p> <p>Tree Management Strategy</p> <p>Fauna Rescue & Release Procedure</p> <p>Procedure for controlling the introduction and spreading of weeds, diseases and pests</p> <p>Unexpected threatened species finds</p> <p>Use of Pesticides Procedure</p> <p>Strategy for reuse of woody debris and bush rock</p> <p>Clearing Permit System</p> <p>Timber Reuse and Disposal Plan</p>	<p>Clearing and grubbing plan</p> <p>Clearing & Grubbing EWMS</p>
Groundwater Management Plan (State)	Groundwater monitoring program	<p>Groundwater monitoring program results</p> <p>Dewatering Management Strategy</p>
Landfill Leachate, Gas and Odour Management Plan (State)	<p>Leachate, landfill gas and odour monitoring program</p> <p>Odour Management Strategy</p> <p>Leachate Management Strategy</p>	Leachate, landfill gas and odour monitoring program results
Non-Aboriginal Heritage Management Plan (State)	<p>Unexpected Finds Procedure</p> <p>Historical archaeological assessment and research design and excavation methodology</p> <p>Heritage Report</p>	Photographic archival recording report
Aboriginal Heritage Management Plan (State)	<p>Unexpected Finds Procedure</p> <p>Aboriginal heritage interpretation strategy</p>	Heritage report (CoA E9)

CEMP sub-plan	Associated attachments	Derived documentation
Contaminated Aquatic Sediments in Alexandra Canal Sub-plan (State)	Environmental Work Method Statements	Inspection reports
Soil and Water Management Plan (State)	Acid Sulfate Soils Management Plan Rehabilitation Strategy Surface Water Quality Monitoring Program Spill Response Procedure Erosion and Sediment Control (ERSED) Strategy Water Treatment and Discharge Procedures Tannin Management Procedure (TBC) Water Quality Discharge Assessments Stockpile Management Plan Contamination Sites Investigation Report Unexpected contaminated land and asbestos finds procedure	Erosion & Sediment Control Plans EWMS - Works in Water ways Surface water quality monitoring and monitoring results Pre-construction land condition assessment Post-construction land condition assessment Contamination Register Remediation Action Plans - certified with Interim Audit Advice or Section B Site Audit Statement
Noise and Vibration Management Plan (State)	Out-of-Hours Work Protocol Noise and vibration monitoring program Land use survey	Construction noise and vibration monitoring sheets
Traffic and Access Management Plan (State)	Road dilapidation report Construction Parking & Access Strategy Travel Demand Management Strategy Active Transport Strategy	Construction staging and temporary work plans

Table 1-3 CEMP sub-plan framework

1.7 Infrastructure Sustainability Rating

Sydney Gateway Stage 1 & 3 Scope of Works and Technical Criteria (SWTC) Appendix D.5 - Sustainability Requirements has an IS Design & As-built Rating score of 60 (Excellent) under v1.2 of the IS Technical Manual. The Sustainability Management Plan (SMP) provides the framework through which JHSW will meet its Infrastructure Sustainability Council of Australia (ISCA) targets. The SMP illustrates the extent to which Project plans integrate sustainability into governance, design, procurement, construction and other functional areas to optimise value for money outcomes over the Project's lifecycle.

Version 1.2 of the IS Technical Manual details environmental requirements that must be met to achieve a score of 60. These requirements relate to categories such as energy and carbon, materials, water and discharges to air, land and water, ecology and urban and landscape design. Land, waste and heritage are also detailed.

The requirements of each category will be integrated into the CEMP Sub Plans outlined in Table 1-3.

2 Endorsement and approval

2.1 Internal approval of CEMP and sub-plans

The CEMP and associated sub-plans, strategies and monitoring programs undergo ongoing review by the JHSWJV Environment, Approvals and Sustainability Manager, relevant JHSWJV senior management and the JHSWJV Project Director. Following the ongoing review and revision process, internal signoff by the JHSWJV Environment, Approvals and Sustainability Manager and JHSWJV Project Director will be provided.

Once internal approval is received, the documents will be provided to TfNSW and the ER for review prior to undertaking external consultation, review and approval processes described below.

2.2 External endorsement and approval of CEMP and sub-plans

Table 2.1 below provides a summary of the relevant authority(s), council(s) and agencies that require consultation during preparation of the CEMP sub-plans and monitoring programs in accordance with the conditions of approval.

External distribution for consultation and approval of the CEMP, sub-plans and monitoring programs will be undertaken by TfNSW who will review the documents for completeness prior to distribution. The CEMP, sub-plans and construction monitoring programs will be updated in consultation with the relevant external parties and will then be endorsed by the ER in accordance with CoA C3 and C21, confirming that they satisfy the requirements of the approval documentation. After this external consultation and endorsement process is complete the required documents will be submitted to the Secretary for approval. This will occur no later than one month prior to the commencement of construction.

A copy of the latest ER Endorsement of the CEMP is included in Appendix A.9 of this Plan.

The ongoing consultation requirements for the Project with external agencies and the community engagement are summarised in Section 3.7.2 and 3.7.3 respectively.

Table 2-1 Stakeholder consultation table

	Source		Stakeholder										
Plan, Strategy or Document A = Approval C = Consultation E = Endorse I = Information	UMM	CoA	DPIE	TfNSW	EPA	ER	Local Council ¹	EESG	DPIE Water	Pipeline Operators	Sydney Water	Heritage Council	Sydney Coordination Office
CEMP													
Construction Environmental Management Plan (CEMP)	EM1	C3	A	C	-	E	-	-	-	-	-	-	-
CEMP Sub-plans													
Waste and Resource Management Sub Plan	WM2 T27.12		I	A	-	E	-	-	-	-	-	-	-
Air Quality Management Sub Plan	AQ2 T27.7		I	A	-	E	-	-	-	-	-	-	-
Flora and Fauna Management Sub Plan	BD3 T27.11	C13 C10	A	C	-	E	-	C	-	-	-	-	-
Groundwater Management Sub Plan		C13	A	C	-	E	-	-	C	-	C	-	-
Landfill Leachate, Gas and Odour Management Sub Plan		C7 C13	A	C	E ²	E	C	-	-	-	-	-	-
Non-Aboriginal Heritage Management Sub Plan	NAH7 T27.9	C13	A	C	-	E	C	-	-	-	C	C	-
Aboriginal Heritage Management Sub Plan	AH4 T27.9		I	A	-	E	C	-	-	-	C	-	-
Contaminated Aquatic Sediments in Alexandra Canal Sub Plan	CS11	C8 C13	A	C	A/ E ²	E		-	-	-	C	-	-

	Source		Stakeholder										
Soil and Water Management Sub Plan	CS9 T27.8	C13	A	C	-	E	C	-	C	-	C	-	-
Noise and Vibration Management Sub Plan	NV5 T27.6	C11 C13	A	C	-	E	C	-	-	C	C	-	-
Traffic and Access Management Sub Plan	TT1 T27.5	C13	A	C	-	E	C	-	-	-	-	-	C
Construction Monitoring Programs													
Noise and Vibration Monitoring Program		C18 C21	A	C	-	E	C	-	-	C	-	-	-
Leachate, landfill gas and odour monitoring program		C17 C21	A	C	-	E	C	-	-	-	-	-	-
Groundwater monitoring program	GW6	C19 C21	A	C	-	E	-	-	C	-	-	-	-
Water quality monitoring program	SW6		A	C	-	E	-	-		-	-	-	-

¹ Local Council includes Inner West Council, Bayside Council and Sydney City Council where impacts are relevant to the Local Government Area

² E indicates that the EPA Accredited Site Auditor needs to provide an interim audit advice as part of this approval requirement

3 Environmental Management Plan

3.1 Preparation and availability of the CEMP

This CEMP has been prepared in accordance with the relevant CoA, requirements of the *Environmental Management Plan Guideline - Guideline for Infrastructure Projects* (Department of Planning, Industry and Environment, April 2020) and the Project Environmental Policy (Appendix A3). It incorporates all requirements of the EIS/MDP documentation and all relevant licences, permits and approvals for the Project.

The CEMP will be made available on the Project website after it is endorsed by the ER and approved by the Secretary. Likewise, the Environmental Policy is available as part of this CEMP on the Project website and will be displayed at the site office and communicated to staff and other interested parties via inductions and ongoing awareness programs.

3.2 Planning

3.2.1 Environmental Risk Assessment Workshop

An environmental risk assessment workshop was held on 24 November 2020 for the Project and reviewed the following activities:

- Traffic and transport and impact to local roads.
- Noise and vibration impacts as a result of the Project.
- Air quality and odour concerns associated with the Project, particularly working in the Tempe Tip area.
- Contamination concerns and management of existing contamination to be disturbed by the Project.
- Water quality impacts.
- Potentially for local flood characteristics to worsen.
- Impacts to airport operations.
- Approval requirements and processes.
- Change management.

The environmental risk assessment workshop involved representatives from JHSWJV Environment Team, JHSWJV Project Management Team, TfNSW, local councils, Sydney Airport, EPA Accredited Site Auditor, and the ER.

A Project overview was presented to the attendees to introduce the anticipated risk areas. Each risk areas were discussed and assessed to identify the relevant risk ratings for various activities and the associated environmental hazards, mitigation measures and residual risks. Each of these items were documented in an environmental risk register, which is captured in the Environmental Aspects and Impacts Register in Appendix A2. Where residual risk is assessed as high, or if required under the Deed Specification, an Environmental Work Method Statement will be developed for that activity.

Where relevant, the requirements from the TfNSW (formerly Roads and Maritime) Environmental Specifications, CoA and UMMs will be incorporated into the environmental risk assessment, particularly in developing the agreed activity specific site controls.

Ongoing analysis of the key environmental risks arising during construction will be undertaken as part of the management review process detailed in Section 3.12. Any required updates to the CEMP as a result of the management review process will be undertaken in accordance with Section 3.13.

3.2.2 John Holland Risk Assessment Process

John Holland's Safety, Quality and Environment (SQE) Risk Assessment procedure involves preparing a series of progressively more in-depth risk assessments and method statements for project activities including:

- Project Workplace Risk Assessment (WRA) strategic risk assessment conducted by all Projects to gauge SQE risks and optimise their management by applying the 'hierarchy of controls'. Must be informed by Pre-Tender and Contract Award SQE Reviews. Must engage relevant subject matter experts
- Activity Method Statement (AMS); a method statement and risk assessment for individual work elements in the WRA, details the specific methodology to be employed, the associated SQE risks and their controls. Must be informed by the WRA, must engage relevant subject matter experts and Client Representative
- Task Risk Assessment (TRA); a method statement and risk assessment for individual tasks in the AMS, details the specific methodology to be employed, the associated SQE risks and their controls. Must be informed by the AMS and be facilitated by supervision with the participation of the workforce. Must be completed prior to work commencing.

Project WRA, AMSs and TRAs are pivotal to the management of all activities during delivery. They allow operational controls to be developed and implemented, case by case, for all the different workplaces, activities and tasks that are encountered in the contracting industry.

Project WRA's, AMS's and TRA's are owned by Project Management, Project Engineers, Supervisory Staff and Workforce. Project subject matter experts act as advisors during the preparation of these documents ensuring that information from the CEMP and relevant Projects sub plans are suitably incorporated and acted upon. Implementation of the Managing SQE Risk Procedure by the Project team, will allow the actions identified in relation to risks and opportunities, and the achievement of environmental objectives, to be incorporated and used to:

- establish operating criteria
- implement control, in accordance with the operating criteria.

Further detail of the John Holland risk assessment process may be found in the Project Workplace Safety Management Plan, Process Planning/Programming and Risk Management. The John Holland risk management process is maintained to AS/NZS ISO 31000:2018 Risk Management – Principals and Guidelines.

3.2.3 Regulatory requirements and compliance

3.2.3.1 Legislation

A register of legal and other requirements for the Project is contained in Appendix A1. This register is maintained as a checklist. This register will be reviewed at regular intervals, such as during management reviews, and updated with any applicable changes. Any changes made to the legal requirements register will be communicated to the wider Project team, including subcontractors where necessary through toolbox talks, specific training and other methods detailed in Section 3.4 of this CEMP.

3.2.3.2 Approvals, permits and licences

A number of approvals permits and licenses will be required to be obtained for the Project, which will be obtained and maintained as required throughout the life of the Project. Appendix A1 contains a register of relevant environmental approvals, permits and licenses. The register will be maintained by the JHSWJV Environmental Manager and will be reviewed prior to the commencement of construction and/or stages of construction, and at regular intervals during construction and at least annually as part of the management review.

The EIS/MDP recognised that the following approvals and licences are required for the Project (as relevant to the State).

Table 3-1 Summary of environmental approvals, permits and licences

Approval / permit / licence	Legislation	Project component	Responsibility	Status
Instrument of Approval	Division 5.2 of the <i>Environmental Planning and Assessment Act, 1979</i> .	Portion of Project on State land.	TfNSW	Approved (27 August 2020).
Environment Protection Licence (EPL)	<i>Protection of the Environment Operations Act 1997</i> .	Road construction (see Schedule 1, Clause 35).	JHSW	To be issued prior to scheduled activities.
Road Occupancy Licences (ROL)	Section 138 of the <i>Roads Act 1993</i> .	Work on an existing public/classified road.	JHSW	Ongoing – multiple licences may be required.
Controlled Activity Approval for intrusion into the prescribed airspace	<i>Airports Act 1996</i> and the <i>Airports (Protection of Airspace) Regulations 1996</i> (Cth) (the Airspace Regulations)	All controlled activities, including: - Permanent structures (such as buildings) that intrude into the prescribed airspace - Temporary structures or other objects (such as cranes) that intrude into the prescribed airspace - Any activities causing intrusions into the prescribed airspace through glare from artificial light or reflected sunlight, air turbulence from stacks or vents, smoke, dust, steam or other gases or particulate matter	JHSW	Prior to activities that will intrude on the prescribed airspace

3.2.4 Environmental objectives and targets

As a means of assessing environmental performance during construction of the Project, environmental objectives and targets have been established. These objectives and targets have been developed with consideration of key performance outcomes for each key issue, as identified during the environmental risk assessment workshop, and as specified in the Project approval and UMMs. The objectives and targets are consistent with the Project environmental policy and will assist in monitoring whether the commitments of the policy are being met.

The performance of the Project will be monitored against the objectives and targets. Project performance monitoring will be documented in the internal and external audits, which will be undertaken in accordance with Section 3.11.5.

Environmental objectives and targets for the Project are incorporated into relevant environmental management sub plans and a summary is provided in Table 3.2 below.

The key objective of the CEMP is to ensure all environmental requirements are captured, scheduled and assigned responsibility as outlined in:

- The combined Environmental Impact Statement (EIS) / Major Development Plan (MDP) prepared for the Sydney Gateway Project – Stages 1 & 3.
- Conditions of Approval for SSI 9737 issued by the Minister for Planning and Public Spaces (NSW), on 27 August 2020.
- Updated Mitigation Measures (UMM) detailed in the Response to Submissions Report.
- Roads and Maritime specifications G36, G38 and G40.
- The Project's Environmental Protection Licence (EPL).
- Relevant legislation and other requirements described in this Plan.

The following environmental targets have been established for the Project:

- Full compliance with statutory approvals.
- No regulatory infringements (PINs or prosecutions).
- Address non-conformances and corrective actions within specific timeframes.
- Disseminate regular Project updates and other information through the Project website and other tools identified in the Community Engagement Strategy.
- Record and response to complaints within the timeframe specified in the Communication Strategy.
- Develop and maintain a program of ongoing environmental training.
- Capture lessons learnt from environmental incidents to minimise repeat issues.
- Achievement of an 'Excellent' Design and As Built rating from Infrastructure Sustainability Council of Australia (ISCA)

3.2.5 Environmental performance outcomes

In addition to the objectives and targets outlined in Section 3.2.4 above, the following Project performance outcomes have been established for the Project (as per Section 27.4 of the EIS/MDP). These will be captured and addressed in the relevant supporting Plan and Sub-Plans as noted below.

Table 3-2 Environmental performance outcomes

Performance outcome	Where addressed
<u>Consultation</u> The Project is developed with meaningful and effective engagement.	Communications Strategy
<u>Transport and traffic</u> Existing access, network connectivity and the safety and efficiency of the existing transport system is maintained.	Traffic and Transport Management Plan

Performance outcome	Where addressed
The Project is integrated with existing and future local and regional transport infrastructure and planning strategies.	
<u>Noise and vibration – amenity</u> The Project minimises impacts on the local community by controlling noise and vibration. Feasible and reasonable mitigation measures are implemented to minimise the noise and vibration impacts on sensitive receivers.	Construction Noise & Vibration Management Plan
<u>Noise and vibration – structural</u> The Project minimises impacts on structures by controlling vibration through construction planning. Feasible and reasonable mitigation measures are implemented to minimise the structural vibration impacts. Vibration intensive construction work is managed to avoid or minimise adverse impacts on the structural integrity of buildings and heritage items.	Construction Noise & Vibration Management Plan
<u>Place making and urban design</u> The Project provides a sense of arrival and contributes positively to the surrounding urban environment. Connectivity within the community is enhanced through pedestrian and cyclist access. Vegetation is retained where feasible and reasonable.	Urban Design & Landscape Plan
<u>Visual amenity</u> The Project is designed to have regard to the surrounding landscape and visual environment and to minimise the potential for visual impacts. The Project is visually integrated with its surroundings, where possible.	Urban Design & Landscape Plan
<u>Socioeconomic, land use and property</u> The Project is appropriately integrated with adjoining land uses and access to private properties is maintained. The Project is appropriately integrated with local and regional land use planning strategies. Construction of the Project has a positive impact on the local and greater Sydney economy.	Urban Design & Landscape Plan
<u>Heritage</u> The design is sympathetic to the historic significance of Sydney Airport and the heritage significance of surrounding listed heritage items, and where practicable, avoids and minimises impacts on heritage. Visual impacts on heritage items are mitigated through individually tailored landscape treatments. Impacts on heritage are managed in accordance with relevant legislation, including the EP&A Act, the Heritage Act 1977 (NSW), Airports (Environment Protection) Regulation 1997 and relevant guidelines.	Non Aboriginal Heritage Management Plan Aboriginal Heritage Management Plan
<u>Biodiversity</u> The Project is designed to minimise impacts on biodiversity. Where practicable, the design minimises the need to clear vegetation.	Flora and Fauna Management Plan
<u>Flooding</u>	Flood Mitigation Strategy.

Performance outcome	Where addressed
<p>Construction is undertaken in a manner that minimises the potential for adverse flooding impacts, through staging of works and implementation of mitigation measures.</p> <p>Construction compounds and work sites are designed such that flows are not significantly impeded.</p>	
<p><u>Water - hydrology</u></p> <p>The Project avoids long term impacts on surface water and groundwater hydrology.</p> <p>Opportunities to reuse water resources during construction are considered during the design process.</p> <p>The use of water during construction is minimised.</p>	<p>Hydrogeological Report</p> <p>Construction Soil and Water Management Plan</p>
<p><u>Water – quality</u></p> <p>Impacts to water quality during construction and operation are minimised.</p> <p>The Project protects or contributes to achieving the water quality objectives, during construction and operation by establishing discharge criteria that protect the environmental values of the receiving waters.</p>	<p>Construction Soil and Water Management Plan</p>
<p><u>Soils</u></p> <p>Site-specific soil characteristics are taken into consideration during detailed design and construction.</p> <p>Soils excavated from potential acid sulfate areas are subject to the provisions of an acid sulfate soil management plan. Once acid sulfate soils have been treated, depending on the results of testing, they are either reused on site or disposed of at an appropriate facility.</p> <p>Existing contamination is managed in accordance with relevant regulatory requirements.</p> <p>Any spoil for off-site disposal is assessed, classified, managed and disposed of in accordance with the Waste Classification Guidelines (NSW EPA, 2014a).</p>	<p>Construction Soil and Water Management Plan</p>
<p><u>Air quality</u></p> <p>Adverse impacts on existing air quality are minimised.</p>	<p>Air Quality Management Plan</p>
<p><u>Health and safety</u></p> <p>Utilities are managed in consultation with utility providers to minimise impacts on the community and Sydney Airport.</p> <p>Traffic management during construction is implemented to minimise the risk to public safety.</p> <p>The majority of potential impacts on amenity and community wellbeing, and access and connectivity during construction is temporary and short term.</p> <p>Safe and efficient road user movements is achieved through the Project design and care is taken to minimise incidents and crashes during construction.</p>	<p>Air Quality Management Plan</p> <p>Traffic and Transport Management Plan</p> <p>Construction Noise & Vibration Management Plan</p> <p>Safety Management Plan</p>
<p><u>Sustainability</u></p> <p>The preferred waste management hierarchy of avoidance, minimisation, reuse, recycling and disposal is implemented.</p> <p>Measures to minimise waste, manage waste and conserve resources throughout the construction of the Project are implemented.</p>	<p>Waste and Resource Management Plan</p>

Performance outcome	Where addressed
Construction staff have an increased level of understanding and awareness of waste and resource use management issues.	
<u>Climate change risk</u> Resilience to future extreme rainfall and sea level rise as a result of climate change. Surrounding asset owners are engaged for a coordinated approach to address potential future climate change related impacts. Workplace health and safety aspects are considered, such as future climate change related heat stress.	Sustainability Management Plan

3.2.6 Environmental Work Method Statements

Environmental work method statements (EWMS) are prepared to manage and control high risk activities that have the potential to negatively impact on the environment. EWMS will be prepared prior to the commencement relevant construction activities and will incorporate relevant mitigation measures and controls, including those from relevant management sub plans. They also identify key procedures to be used concurrently with the EWMS. EWMS are specifically designed to communicate requirements, actions, processes and controls to construction personnel using plans, diagrams and simply written instructions.

EWMS will be prepared progressively in the lead up to and throughout construction in consultation with relevant members from the Project team.

EWMS for activities identified as having high environmental risk will undergo a period of consultation with stakeholders (such as TfNSW Environmental Manager, ER and authorities), if required prior to approval. A list of upcoming/future EWMS will be provided to Environmental Review Group (ERG) participants for consultation.

The EWMS will include at least the following elements:

- Description of the work activity, including any plant and equipment to be used.
- Outline of the sequence of tasks for the activity, including interfaces with other construction activities.
- Identification of any environmental and/or socially sensitive areas, sites or places.
- Identification of potential environmental risks/impacts due to the work activity.
- Mitigation measures to reduce the identified environmental risk, including assigned responsibilities to site management personnel.
- Process for assessing the performance of the implemented mitigation measures.

All construction personnel and sub-contractors undertaking a task governed by an EWMS must participate in training on the EWMS and acknowledge that they have read and understood their obligations by signing an attendance record prior to commencing work.

Regular monitoring, inspections and auditing of compliance with the EWMS will be undertaken by Project management and environmental personnel to ensure that all controls are being followed and that any non-conformances are recorded and corrective actions implemented.

3.2.7 Erosion and Sediment Control Plans

Progressive Erosion and Sediment Control Plans (PESCPs) are used to identify the locations of erosion and sediment controls within the Project site. They are produced for construction stages from initial vegetation clearing to rehabilitation, when erosion and sediment controls are no longer

required and are removed. PESCPs will be developed and implemented prior to commencing activities at all work areas where there is a risk of erosion and sediment loss.

John Holland has engaged a Soil Conservationist for the project to provide guidance on the approach for the design, construction and demolition phases of the project. The Soil Conservationist is a suitably qualified expert and a practising ESC professional. They will be involved in analysis of the site conditions based on technical documents available along with the Blue Book to determine suitable mitigation measures and develop the key PESCPs and ongoing reviews onsite. The Soil Conservationist will also review plans developed by John Holland's Environmental Manager in consultation with the General Superintendent, Project engineers, the Foreman and other site personnel, as required. These plans will be modified over time to reflect the changing site conditions and may be produced in conjunction with EWMS to provide more detailed site-specific environmental mitigation measures.

3.2.8 Sensitive Area Plans

Sensitive Area Plans (SAPs) provide a simple but effective tool to identify key risk areas, assist in the planning and management of specific areas and promote ongoing communication with construction personnel throughout the Project. They consist of a series of plans that clearly show the overarching environmental and socially sensitive areas within and surrounding the Project footprint, including vegetation, heritage, sensitive receivers, waterways, contamination, etc.

The SAPs for the Project are provided in Appendix A6. If any new environmental constraints or sensitive areas are identified during construction, the SAPs will be updated, however they will be document controlled separately to this CEMP or other applicable sub-plans. Therefore, an update to the SAPs will not require this CEMP or sub-plans to be updated. The SAPs included in Appendix A6 will be updated during scheduled CEMP reviews.

In addition to SAPs, environmental control maps (ECMs) will be utilised to communicate site-specific sensitivities with regards to environment and community risk. The ECMs will be developed for specific site areas and provided to site management staff (foreman) and project engineers, to ensure awareness of site constraints is understood.

3.2.9 Environmental Procedures

The Project environmental management system procedures, forms and other documents provide instructions and records related to both environmental and non-environmental activities throughout the Project. A list of forms and checklists (subject to change) to be used to monitor environmental performance is provided in Table 3-4 and are listed as an Appendix.

Project specific procedures will be developed in accordance with the requirements for the Project. Where applicable, existing contractor procedures and work instructions will be applied or amended for use on the Project. These procedures are listed within the relevant section of this CEMP.

3.2.10 Global Mandatory Requirements

The Global Mandatory Requirements (GMRs) outline the control strategies and minimum standards for managing, and where possible, eliminating the key risks we are exposed to across our business.

These standards will assist the business to:

- Minimise the impact of our activities on the environment and communities
- Reduce our use of natural resources and energy, and the generation of waste
- Be a reliable and trustworthy partner to our customers, dedicated to providing environmentally sustainable solutions throughout our diverse business.

With a wide variety of environmental legislation and regulations across our operations, as well as the unique needs of each workplace, it can be a challenge to identify and comply with all

environmental requirements. The GMRs set environmental standards that can be applied across JHSWJV to ensure a consistent approach to environmental management.

Table 3-3: Forms and Checklists

Record Type	Notes
Environmental Incident Report Form	Used on an as-needs basis when an environmental incident occurs
Environmental Site Inspection Checklist	Used at least once a week during environmental site inspections
Water discharge permit	Used prior to the transfer of, or discharge of water from sediment retention basins, excavations or holding tanks
Noise Monitoring Record Sheet	If required, used to record noise levels over a 15minute monitoring duration for construction activities to ensure they comply with noise criteria.
Monthly Register for Waste Materials	Used monthly to track waste materials used on site including hazardous material (i.e. asbestos)
Equipment Maintenance and Calibration Record Register	Used on an as-needs basis when equipment is maintained or calibrated
Water Monitoring Record Register	Used after water discharge to record water quality and approvals.
Rainfall Monitoring Record	Used after rainfall events.
Health, Safety and Environmental Report	Used monthly to report on environmental performance
Environmental Incident Register	Used on an as-needs basis when an environmental incident occurs.
Environment Design Review Checklist	Used by the design team to ensure all environmental design requirements are complied with.
Subcontractor Energy Usage Report (if required)	Used monthly to report on subcontractor usage.
Sub-contractor performance review	Used to evaluate the overall performance on each sub-contractor, including environmental performance.
Pre – Clearing assessment checklist	Used prior to the trimming and/or removal of any vegetation as the Biodiversity Management Plan

3.3 Resources, responsibilities and authority

The key environmental management roles and responsibilities for the construction phase of the Project are described below. The structure of these roles is shown in Figure 3-1.

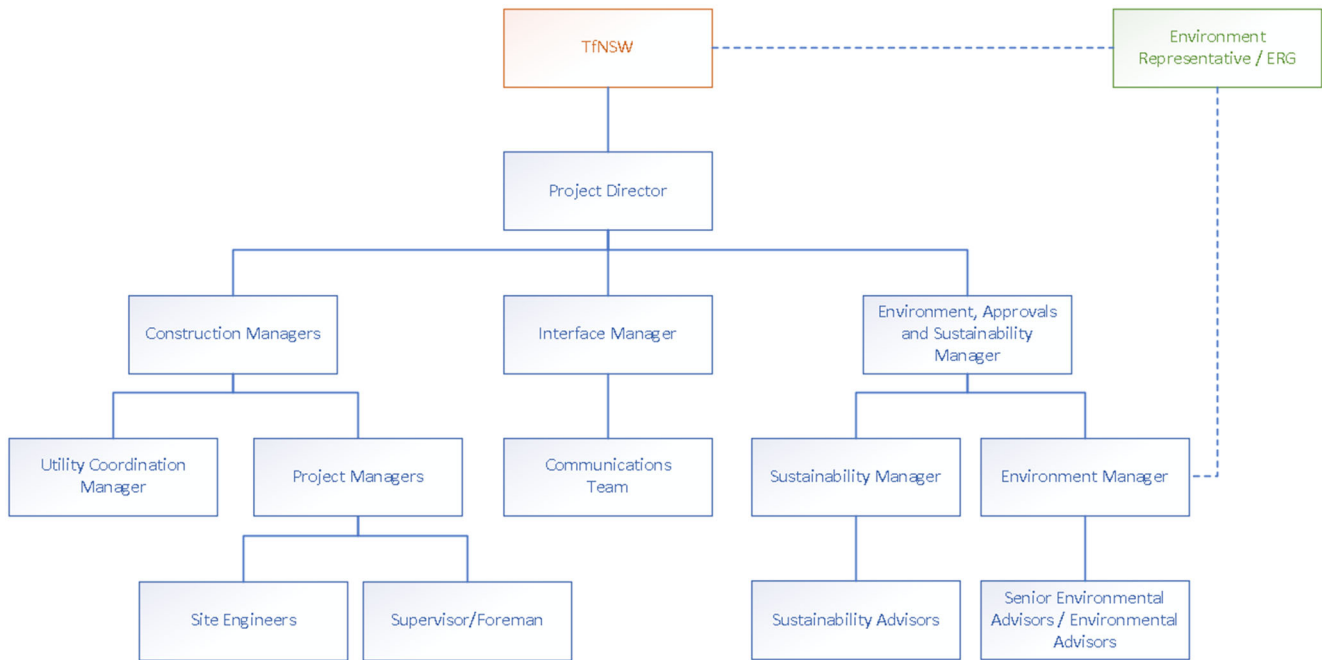


Figure 3-1 Management structure

3.3.1 Roles and responsibilities

This section provides a summary of all relevant roles and responsibilities for the construction of the Project.

Environmental Representative(s)

In accordance with the CoA, the ER(s) will, for the duration of the Project:

- receive and respond to communication from the Planning Secretary in relation to the environmental performance of the CSSI.
- consider and inform the Planning Secretary on matters specified in the terms of this approval.
- consider and recommend to the Proponent any improvements that may be made to work practices to avoid or minimise adverse impact to the environment and to the community.
- review documents identified in Conditions A9, A15, C1, C5 and C15 and any other documents that are identified by the Planning Secretary, to ensure they are consistent with requirements in or under this approval and if so:
 - make a written statement to this effect before submission of such documents to the Planning Secretary (if those documents are required to be approved by the Planning Secretary); or
 - make a written statement to this effect before the implementation of such documents (if those documents are required to be submitted to the Planning Secretary / Department for information or are not required to be submitted to the Planning Secretary/Department).
- regularly monitor the implementation of the documents listed in Conditions A9, A15, C1, C5 and C15 to ensure implementation is being carried out in accordance with the document and the terms of this approval.
- as may be requested by the Planning Secretary, help plan, attend or undertake audits of the CSSI commissioned by the Department including scoping audits, programming audits, briefings and site visits, but not independent environmental audits required under Condition A29 of this approval.

- as may be requested by the Planning Secretary, assist the Department in the resolution of community complaints.
- assess the impacts of minor construction ancillary facilities as required by Condition A17 of this approval.
- consider any minor amendments to be made to the CEMP, CEMP Sub-plans, Construction Monitoring Programs and Site Establishment Plans that comprise updating or are of an administrative nature, and are consistent with the terms of this approval and the CEMP, CEMP Sub-plans and Construction Monitoring Programs approved by the Planning Secretary and, if satisfied such amendments are necessary, approve the amendment. This does not include any modifications to the terms of this approval; and
- prepare and submit to the Planning Secretary and EESG, EPA, Heritage Council, DPIE Water, where requested by those agencies, for information, an Environmental Representative Monthly Report providing the information set out in the Environmental Representative Protocol under the heading "Environmental Representative Monthly Reports." The Environmental Representative Monthly Report must be submitted within seven (7) days following the end of each month for the duration of the ER's engagement for the CSSI.

JHSWJV Project Director

The environmental responsibilities of the Project Director include (but are not limited to) the following:

- Ensure all works comply with relevant regulatory and Project requirements.
- Ensure the requirements of this CEMP are fully implemented, and in particular, that environmental requirements are not secondary to other construction requirements.
- Endorse and support the Project environmental policy attached at Appendix A3.
- Liaise with TfNSW, Environmental Representative and other government authorities as required.
- Participate and provide guidance in the regular review of this CEMP and supporting documentation.
- Provide adequate resources (personnel, financial and technological) to ensure effective development, implementation and maintenance of this CEMP.
- Ensure that all personnel receive appropriate induction training, including details of the environmental and community requirements.
- Ensure that complaints are investigated to ensure effective resolution.
- Stop work immediately if an unacceptable impact on the environment is likely to occur.

JHSWJV Construction Director

The environmental responsibilities of the Construction Director include (but are not limited to) the following:

- Plan construction work in a manner that avoids or minimises impact to environment.
- Ensure the requirements of this CEMP are fully implemented.
- Ensure construction personnel manage construction work in accordance with statutory and approval requirements.
- Support the JHSWJV Environment, Approvals and Sustainability Manager in achieving the project environmental objectives.

- Ensure environmental management procedures and protection measures are implemented.
- Ensure all Project personnel attend an induction prior to commencing work.
- Liaise with TfNSW and other government authorities as required.
- Stop work immediately if an unacceptable impact on the environment is likely to occur.

JHSWJV Superintendent

The environmental responsibilities of the superintendent include (but are not limited to) the following:

- Communicate with all personnel and sub-contractors regarding compliance with the CEMP and site-specific environmental issues.
- Ensure all site workers attend an environmental induction prior to the commencement of works.
- Co-ordinate the implementation of the CEMP.
- Co-ordinate the implementation and maintenance of pollution control measures.
- Identify resources required for implementation of the CEMP.
- Support the JHSWJV Environment, Approvals and Sustainability Manager in achieving the Project environmental objectives, including on ground implementation of the EWMS and ESCP.
- Report any activity that has resulted, or has the potential to result, in an environmental incident immediately to the JHSWJV Environment, Approvals and Sustainability Manager / Environmental Advisor.
- Co-ordinate action in emergency situations and allocate required resources.
- Stop activities where there is an actual or immediate risk of harm to the environment and advise the Construction Manager and Environment, Approvals and Sustainability Manager.

JHSWJV Community and Stakeholder Manager

The environmental responsibilities of the community and stakeholder manager include (but are not limited to) the following:

- Ensure that all community consultation activities are carried out.
- Report any environmental issues to the Environment, Approvals and Sustainability Manager raised by stakeholders or members of the community.
- Communicate general Project progress, performance and issues to stakeholders including the community.
- Maintain the 24-hour complaints hotline.

JHSWJV Environment, Approvals and Sustainability Manager

The environmental responsibilities of the Environment, Approvals and Sustainability Manager, (also known in this document as the Environmental Manager), include, but are not limited to, the following:

- Overall responsibility for the implementation of environmental matters on the Project.
- Report to Project Director and other senior managers on the performance and implementation of the CEMP.

- Ensure management reviews of the CEMP are undertaken annually, documented and actions implemented.
- Ensure environmental risks of the Project are identified and appropriate mitigation measures implemented.
- Identify where environmental measures are not meeting the targets set and where improvement can be achieved.
- Obtain and update all environmental licences, approvals and permits as required.
- Liaise with Environmental Representative and approval authorities.
- Preparing reports on a monthly basis outlining the Project Works undertaken and the achievements that have been met, as well as identifying those areas where improvements were made.
- Oversee site monitoring, inspections and audits.
- Develop and facilitate induction, toolbox talks and other training programs regarding environmental requirements for all site personnel.
- Notify TfNSW and relevant authorities in the event of an environmental incident or environmental non-conformance and manage corrective action implementation and close-out of these.
- Stop activities where there is an actual or immediate risk of harm to the environment, or to prevent environmental non-conformities, and advise the Project Director, Construction Manager and Superintendent.

JHSWJV Environmental Advisor

The environmental responsibilities of the Environmental Advisor include, but are not limited to, the following:

- Assist in preparing and revising the CEMP, sub-plans and associated documentation in accordance with all relevant requirements.
- Undertake site inspections, carry out monitoring activities and complete site checklists.
- Ensure monitoring records are appropriately maintained, reviewed and any non-compliance issues addressed.
- Assist all site staff with issues concerning Project environmental matters.
- Assist in developing training programs regarding environmental requirements and deliver where required, including delivery of the environmental component of toolbox talks.
- Stop activities where there is an actual or immediate risk of harm to the environment and advise the Project Manager, Construction Manager, Superintendent and JHSWJV Environmental Manager.

Wider Project team (including sub-contractors)

The environmental responsibilities of the wider Project team (including sub – contractors) include (but are not limited to) the following:

- Comply with the relevant requirements of the CEMP, or other environmental management guidance as instructed by a member of the Project's management.
- Participate in the mandatory Project/site induction program.

- Report any environmental incidents to the foreman immediately or as soon as practicable if reasonable steps can be adopted to control the incident.
- Undertake remedial action as required to ensure environmental controls are maintained in good working order.
- Stop activities where there is an actual or immediate risk of harm to the environment and advise the Project Manager, Construction Manager, Superintendent or JHSWJV Environmental Manager.

3.4 Selection and management of subcontractors

The JHSWJV Environment, Approvals and Sustainability Manager, or delegate, will participate in the tender assessment and selection process for JHSWJV subcontractors as necessary based on the associated environmental risks. All Subcontractors will be required to complete a subcontractor questionnaire or similar.

Environmental requirements and responsibilities are to be specified to subcontractors in the contract documentation. As part of the selection process, consideration will also be given to their past environmental performance.

All subcontractors are required to work in accordance with the approved CEMP. This includes participation in:

- Project and / or site inductions, where the requirements and obligations of the CEMP are communicated and toolbox talks. A record of all subcontractors inducted will be maintained as part of the Project induction and training register.
- Carrying out observations, inspections, audits and incident investigations (as required).
- Planning, implementing and monitoring environmental protection measures and keeping environmental records; and
- Development and / or review of EWMSs (as required).

All environmental documentation submitted by contractors will be subject to review and approval (if required) by JHSWJV staff to ensure compliance with TfNSW deed requirements and CoA, before works may begin.

If subcontractors are using or are permitted to use their own environmental management system, the subcontractor must demonstrate that their EMS is certified to ISO14001 and implemented to meet JHSWJV's minimum environmental requirements. A standard form will be developed that will be used to assess:

- The subcontractor's general work practices.
- The effectiveness of the subcontractor's environmental protection measures.
- The subcontractor's compliance with the requirements of this CEMP; and
- The maintenance of environmental measures.

3.5 Subcontractor Management

Sub-contractor environmental requirements and responsibilities are to be specified in the contract documentation. All sub-contractors are required to work in accordance with the approved CEMP.

All subcontractors will operate under John Holland's Integrated Management System (IMS). To ensure compliance with the minimum requirements of the IMS, subcontractors will be treated as if they were JHSWJV employees, that is, all parts of the IMS apply to their operations. To ensure compliance and detect any non-conformance, subcontractors will be subject to:

- environmental inspections of their work areas with key subcontractor representatives and site supervisors

- Environmental audits undertaken by the project Environmental Manager.

John Holland operates under the HSE behavioural framework which forms a key pillar when engaging with site personnel. The framework forms part of the induction and outlines the expected behaviours around environmental management for 'everyone', 'supervisors' and 'managers'.

Examples of poor performance and behaviour include the ongoing failure to close out actions following Environmental Inspections, absent controls in the work area (such as Erosion and Sediment controls) or non-compliance with approval issues such as working hours and/or plant/equipment parked under drip lines of trees or outside the boundary. To manage poor performance and behaviour several mechanisms are available for use when a subcontractor continually fails to meet their contractual obligation such as:

- provide the ongoing support and guidance to teams in the field through the Environmental team
- re-induct individuals/teams where required and provide specific training, such as Erosion and Sediment Control
- involvement of senior management from the Project and Subcontractor to discuss poor performance at a higher level
- disciplinary action if required.

Sub-contractor performance will also be managed using the John Holland Accountable Culture Tool (ACT). Poor performance will be managed with the tools provided in the John Holland ACT by the Environment, Approvals and Sustainability Manager and Project Director.

3.6 Competence, training and awareness

To ensure that this CEMP is effectively implemented, each level of management is responsible for ensuring that all personnel reporting to them are aware of the requirements of this CEMP. The Environmental, Sustainability and Approvals Manager, or their delegate, will coordinate the environmental training, which may be presented in conjunction with other training and development activities (e.g. safety).

3.6.1 Health, Safety and Environment Behavioural Framework

Presented as four core themes; 'Standards', 'Communication'; 'Risk management' and 'Involvement'; our HSE behaviours describe a set of everyday behaviours that are expected of all employees and people we work with to drive better HSE outcomes. These themes are the key elements of a culture that displays strong HSE performance. The HSE Behavioural Framework integrates on-site planning and management of environmental aspects with our approaches to health and safety. This extends to the way we manage subcontractors, carry out regular inspections, deal with incidents and identify lessons learned and improvement opportunities.

The HSE Behaviours are a set of behaviours that, if displayed consistently, will support strong safety and environment performance at a workplace. The HSE Behaviours are outlined in a simple framework below that is easy to understand.

Theme	Everyone	Supervisors	Managers
Standards	Follow rules	Ensure compliance	Set high standards
Communications	Speak up	Encourage the team	Communicate openly
Risk management	Be mindful	Promote risk awareness	Confront risk
Involvement	Get Involved	Involve the team	Involve others

Figure 3-2 Behavioural Framework

Represented in the framework above are twelve cells that identify HSE behaviour expectations set out across three employee groups noted as Everyone, Supervisors and Managers, and the four themes. Each cell is interdependent of each other and is supported by a set of behaviours that are expected of people and a set of behaviours that are considered undesirable.

As part of the CEMP, the HSE behaviours will be integrated within:

- **Inductions and Training** – to communicate the expected HSE Behaviours to staff, subcontractors and workforce
- **Toolbox and Pre-Starts** – to communicate expected HSE Behaviours to workplace members as they relate to a specific task or change in hazards/risks
- **Audits and reviews** – to identify a workplace's strengths.

In addition, this project will have an HSE Behavioural Plan that will provide the framework for incorporating the desired behaviours through all levels of project delivery.

3.6.2 Environmental induction

All personnel (including sub-contractors) are required to attend a compulsory site induction that includes an environmental component prior to commencement on-site. This is done to ensure all personnel involved in the Project are aware of the requirements of the CEMP and to ensure the implementation of UMMs.

Short-term visitors to site undertaking inspections / entering the site (such as regulators) will be required to undertake a visitors induction and be accompanied by inducted personnel at all times. Temporary visitors to site for purposes such as deliveries will be required to be accompanied by inducted personnel at all times. The JHSWJV Environment, Sustainability and Approvals Manager (or delegate) will conduct the environmental component of the site inductions.

The environmental component of the induction must cover the applicable elements of the CEMP and will include as a minimum:

- Relevant details of the CEMP including purpose and objectives.
- Requirements of due diligence and duty of care.
- Key conditions of licences, permits and approvals.

- Potential environmental emergencies on site and the emergency response procedures.
- Reporting and notification requirements for pollution and other environmental incidents.
- Specific environmental management requirements and responsibilities.
- Incident response and reporting requirements.
- The existence of EWMS for high risk activities.
- Information relating to the location of environmental constraints.
- Key environmental issues and measures.

The induction will also include information about the surrounding community, the key stakeholders and any location specific sensitivities. The induction will provide information on what to do if approached by a member of the public or media, and an outline of Project personnel and sub-contractor responsibilities and obligations relating to the community.

An induction register will be maintained as a record of all environment inductions and kept on-site. The JHSWJV Environment, Sustainability and Approvals Manager may authorise amendments to the induction at any time. Possible reasons for changes to the induction may be Project modifications, legislative changes or amendments to this CEMP or related documentation.

The ER will review and approve the induction program (where required) and monitor implementation

3.6.3 Toolbox talks, training and awareness

Toolbox talks will be one method of raising awareness and educating personnel on issues related to all aspects of construction including environmental issues. The toolbox talks are used to ensure environmental awareness continues throughout construction.

Toolbox talks will also be tailored to specific environmental issues relevant to upcoming works and will include details of EWMSs for relevant personnel. Relevant environmental issues include (but are not limited to):

- Erosion and sedimentation control
- Dewatering
- Contamination and spoil management
- Hours of work
- Emergency and spill response
- Aboriginal and non-Aboriginal heritage
- Noise and vibration management,
- Air quality, dust control and odour management, and
- Sustainability.

Toolbox talk attendance is mandatory and attendees of toolbox talks are required to sign an attendance form and the records maintained.

Targeted environmental awareness training will be provided to individuals or groups of workers with a specific authority or responsibility for environmental management or those undertaking an activity with a high risk of environmental impact. Topics covered may include those detailed above, or others deemed necessary in the lead up to or during construction. The proposed training matrix for the project is based on the risks below in Table 3-4:

Table 3-4 Proposed Training Matrix

Training	Senior Managers	General Superintendent	Engineers	Environmental Staff	Community Staff	Foreman	Leading Hands	Labourers	Subcontractors	Design Staff	Administrative Staff
Project induction	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Environmental on-boarding	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cultural heritage awareness and areas of sensitivity	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Fauna Awareness (including both terrestrial and aquatic fauna)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Working in and near waterways	✓	✓	✓	✓		✓	✓	✓	✓		
Construction noise and vibration management	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Contamination		✓	✓	✓		✓	✓	✓	✓		
Erosion and Sediment Control	✓	✓	✓	✓		✓	✓	✓			
Spill response	✓	✓	✓	✓		✓	✓				
Pollution Incident Response (including fire response).	✓	✓	✓	✓	✓	✓	✓	✓	✓		

The Environment, Approvals and Sustainability Manager (or delegate) will review and approve the training program and monitor implementation. Site awareness notes, in the form of posters, or similar will be developed and distributed to the General Superintendent, Project engineers, the Foreman and others with a responsibility for managing specific work locations or activities. This documentation may also be distributed to the broader workforce at daily pre-start meetings or made available in project offices / break facilities.

3.6.4 Daily Pre-Start Meetings

The pre-start meeting is a tool for informing the workforce of the day's activities, safe work practices, environmental protection practices, work area restrictions, activities that may affect the works, coordination issues with other trades, hazards and other information that may be relevant to the day's work.

The Foreman will conduct a daily pre-start meeting with the site workforce before the commencement of work each day (or shift) or where changes occur during a shift. The daily pre-start is encouraged to be an interactive meeting, providing the workforce with an opportunity to provide comment on the management of site activities.

The environmental component of pre-starts will be determined by relevant foreman and environmental personnel and will include any environmental issues that could potentially be

impacted by, or impact on, the day's activities. All attendees will be required to sign on to the pre-start and acknowledge their understanding of the issues explained.

Pre-start topics, dates delivered and a register of attendees will be recorded.

3.7 Working hours

In accordance with CoA E14, the approved working hours for the Project are:

- 7:00 am to 6:00 pm Mondays to Fridays, inclusive;
- 8:00 am to 6:00 pm Saturdays; and
- at no time on Sundays or public holidays.

In accordance with CoA E15, any works considered to be "highly noise intensive works" that would result in an exceedance of the applicable Noise Management Level (NML) at a receiver must only be undertaken:

- between 8:00 am to 6:00 pm Mondays to Fridays;
- between 8:00 am to 1:00 pm Saturdays; and
- if continuously, then not exceeding three (3) hours, with a minimum cessation of work of not less than one (1) hour.

For the purposes of any highly noise intensive works, 'continuously' includes any period during which there is less than one (1) hour between ceasing and recommencing any of the highly noise intensive works.

Construction activities which are defined as annoying under the ICNG are defined as 'highly noise intensive works. These include:

- Using power saws (for cutting timber, masonry, road pavement or steel work);
- Grinding metal, concrete or masonry;
- Rock drilling;
- Line drilling;
- Vibratory rolling;
- Bitumen milling and profiling;
- Jackhammering;
- Rock-hammering or rock-breaking, and
- Impact piling.

It should be noted that an assessment may be undertaken for high noise activities (such as vibratory rolling) to demonstrate that the activity may not trigger this threshold.

Notwithstanding the above approved working hours for the Project, works may be undertaken outside of the approved working hours in the following circumstances, in accordance with CoA E16:

- for the delivery of materials required by the NSW Police Force or other appropriate authority for safety reasons; or
- where it is required in an emergency to avoid injury or the loss of life, to avoid damage or loss of property or to prevent environmental harm; or
- where the relevant road authority has advised the Proponent in writing that carrying out Work during the hours specified in Condition E14 would result in a high risk to road network operational performance and a road occupancy licence will not be issued during the hours specified in Condition E14; or

- where an approval is required for a controlled activity in accordance with the Airports Act 1996 and the approved time is outside the hours specified in Condition E14; or
- where the rail authority has advised the Proponent in writing that a Rail Possession is required and approval has been given to complete Work during the rail possession; or
- where different construction hours are permitted or required under an EPL in force in respect of the CSSI; or
- where an EPL is not required or in force, Work approved through an Out-of-Hours Work Protocol (appended to the NVMP in Appendix B10) developed in accordance with Condition E18; or
- construction that causes:
 - $L_{Aeq(15\text{ min})}$ noise levels no more than 5 dB(A) above the rating background level at any residence in accordance with the Interim Construction Noise Guideline (DECC, 2009), and
 - $L_{Aeq(15\text{ min})}$ noise levels no more than the 'Noise affected' noise management levels specified in Table 3 of the Interim Construction Noise Guideline (DECC, 2009) at other sensitive land uses, and
 - continuous or impulsive vibration values, measured at the most affected residence are no more than the preferred values for human exposure to vibration, specified in Table 2.2 of Assessing Vibration: a technical guideline (DEC, 2006), and
 - intermittent vibration values measured at the most affected residence are no more than the preferred values for human exposure to vibration, specified in Table 2.4 of Assessing Vibration: a technical guideline (DEC, 2006); or
- where negotiated agreements with directly affected residents and sensitive land uses have been reached.

In accordance with CoA E17, on becoming aware for the need for emergency work, notification of the reasons for such work must be provided to the ER, the Planning Secretary and the EPA. Best endeavours to notify all noise and/or vibration affected sensitive receivers of the likely impact and duration of those Works will be made prior to emergency works being undertaken.

3.8 Communication

3.8.1 Internal Communication

Clear lines of communication within the JHSWJV is key to minimising environmental impacts and achieving continual improvements in environmental performance. This includes communication within the JHSWJV Environment and wider Project team.

The environmental team will meet regularly to discuss any issues with environmental management on-site, any amendments to plans that might be required or any new / changes to construction activities.

Regular meetings may also be scheduled with the ER and relevant TfNSW personnel. The purpose of these meetings will be to communicate ongoing environmental performance and to identify any issues to be addressed.

In addition, environment team members will participate in regular toolbox talks and training and will provide input into daily pre-starts, when required. This will provide an opportunity for the environment team members to communicate on environmental performance, to advise on any upcoming sensitive environmental matters for future work areas, receive feedback from on-site personnel and generally raise awareness on environmental matters. This process is further described in Section 3.6.3.

Internal communication hierarchies will be developed and distributed to the JHSWJV Environment Team, and updated if any changes occur, such as new staff members joining the team. The

communication hierarchy will provide details of who to contact in the event of any environmental problems and/or pollution events and will include contact details of each team member.

3.8.2 Liaison with EPA, government authorities or other relevant stakeholders

The JHSWJV Environment, Approvals and Sustainability Manager (or delegate) has the responsibility to report on the ongoing environmental performance of the Project to TfNSW, ER, EPA, and other regulatory agencies. The JHSWJV Environment, Approvals and Sustainability Manager (or delegate) will report regularly to TfNSW on progress and any key environmental matters and to the EPA, as required.

The JHSWJV Construction Director and the JHSWJV Environment, Approvals and Sustainability Manager (or delegate) are 24-hour contacts. They have the authority to halt the progress of the works if necessary. They are the key emergency response personnel during an environmental site emergency.

The JHSWJV Environment, Approvals and Sustainability Manager (or delegate) is the authorised contact person for communications with the client and the EPA on environmental matters.

3.8.2.1 Environmental Review Group

To facilitate consultation with environmental regulatory agencies and the community, TfNSW will establish an Environmental Review Group (ERG). The purpose of this ERG will be to ensure prompt and effective consultation and resolution of environmental issues raised by or affecting Government agencies, Council, TfNSW and the community. The ERG will meet once a month or as otherwise agreed by the regulatory agencies and TfNSW.

3.8.3 Community liaison and/or notification

To ensure effective community engagement and communication, JHSWJV will establish and community engagement team, who will be responsible for implementation and coordination of the Project's community consultation and notifications, in accordance with the Communication Strategy.

A database of stakeholders and their interests / issues and contact details will be maintained throughout construction.

For activities that have the potential to significantly impact the community, or provide risk to the Project or TfNSW, JHSWJV will develop specific communication plans and packages to support delivery and clearly identify and mitigate issues and risks.

Community engagement and notifications will include the use of a number of tools and platforms during construction, and will include:

- Notifications regarding work outside standard working hours and work that might impact residents, businesses and stakeholders.
- Email/SMS updates.
- Newsletters, information brochures and fact sheets to provide regular community and business updates on the progress of the construction program.
- Meetings with key stakeholders as needed.
- Traffic alerts.
- Sydney Gateway portal updates and enhancements.
- Site signage around construction and ancillary facilities.
- Media including media releases, social and advertisements.

The community engagement team will aim to notify all noise and/or vibration affected sensitive receivers of the likely impact and duration of works, including emergency works when necessary, if required in accordance with the CoA, UMM or EPL and in accordance with the Communication Strategy. Project contact cards will be issued to construction personnel to be used in the event a

member of the public or media approaches them on-site. As discussed in Section 3.5.2, Project staff will attend Project-specific community awareness training to ensure they respond to the community in a sensitive and appropriate manner if approached.

3.8.4 Complaints management

A Complaints Register has been developed for the Project in accordance with the requirements of CoA B10.

All community inquiries and complaints related to the construction activities will be referred to the 24-hour community information line 1800 654 446. A postal address (Sydney Gateway Project, 10 Bourke Road, Mascot, NSW 2020) and email (SydneyGateway@jhswh.com.au) has been provided for receipt of complaints and enquiries. The telephone number, the postal address and the email address was published in newspapers circulating in the local area prior to the commencement of construction and is provided on the Project website (www.rms.nsw.gov.au/sydneygateway) and will be on site boundary fencing / hoarding at each construction site.

Records of all complaints received will include the following details:

- Date and time of the complaint
- Method by which the complaint was made
- Any personal details of the complainant
- The nature of the complaint
- Action taken in relation to the complaint and any follow up
- If no action taken, reasons why.

This information will be included in a Communications Register, in accordance with CoA B10. The information contained within the register will be made available to the Minister on request and will be provided to the ER on any day that complaints are received.

Attempts will be made to resolve all complaints in accordance with the community engagement strategy. An initial response to complaints will be provided within 24 hours of a complaint being received. A further detailed response, including steps taken to resolve the issue(s) that lead to the complaint, will be provided within 10 days. All complaints will be closed off in the stakeholder database. At all times the stakeholder will be kept informed of when they will receive a response.

The JHSWJV Environment, Sustainability and Approvals Manager (or delegate) will apply an adaptive approach to ensure that corrective actions are applied in consultation with the appropriate construction staff to allow modifications and improvements in the management of any environmental issues resulting in community complaints.

Within one working day of receiving a complaint, a written report will be provided to TfNSW. This will outline the complaint and action taken to remedy the problem. A final report, which will include proposed measures to prevent reoccurrence, will be submitted to TfNSW within five working days.

Further details of the Complaints Management System are outlined in the Communication Strategy.

3.9 Incidents and Emergencies

In the event of an environmental incident, an Incident and Emergency Response Plan, which has been prepared in accordance with the TfNSW Environmental Incident Classification and Reporting Procedure, will be implemented. The full procedure is provided in Appendix A7.

The Procedure addresses:

- types of incidents
- criteria for classifying of environmental incidents
- processes for systematically responding to and managing emergency situations; and

- processes and legal requirements (e.g. Acts, Regulations, EPL) for the reporting and notification of an environmental incident.

Whilst the TfNSW Procedure will be followed, the incident will also be classified and tracked as per with the John Holland procedure JH-MPR-SQE-010 Incident Management and Investigation. The Procedure covers the management of events including:

Table 3-5 Incident Classification

Incident Classification	Definition
TfNSW Category 1 incidents John Holland Category 1A/1P John Holland Category 2A/2P	<ul style="list-style-type: none"> • potential breaches of legislation or failures of process that result in actual off-site environmental harm; or • Breaches of CoA under SSI 9737; or • residual on-site environmental harm or work undertaken outside approved areas, without required approval or without environmental assessment; or • any Material Harm pollution incident as defined by Part 5.7 of the <i>Protection of the Environment Operations Act 1997</i> (POEO Act) including: <ul style="list-style-type: none"> ◦ pollution incidents. ◦ conservation breaches. ◦ heritage breaches. ◦ planning and compliance breaches.
TfNSW Category 2 incidents John Holland Category 3A/3P John Holland Category 3A/2P	<ul style="list-style-type: none"> • failures of process or events that do not result in off-site environmental harm, or residual on-site environmental harm. These incidents may result in temporary on-site environmental harm that can be rectified to pre-existing conditions
TfNSW Reportable events John Holland Category Report Only	<ul style="list-style-type: none"> • an event or unexpected find that occurs outside the scope of reasonable environmental controls and mitigation measures
TfNSW Regulatory action John Holland Category Report Only	<ul style="list-style-type: none"> • formal regulatory action from an environmental regulator (that has not already been reported in conjunction with another incident)

Environmental incidents that would be or have the potential to be classified as Category 1 under the TfNSW Environmental Incident Classification and Reporting Procedure, will be notified verbally immediately to the TfNSW representative and TfNSW Environmental Manager. Incident reports will be provided to TfNSW Representative and the ER in accordance with the Procedure, including lessons learnt from each environmental incident and proposed measures to prevent the occurrence of a similar incident. All efforts will be undertaken immediately to avoid and reduce impacts of incidents and suitable controls put in place. Incidents will be closed out as quickly as possible, taking all required action to resolve each environmental incident.

In accordance with CoA A34, DPIE will be notified as soon as possible and no later than 24 hours after JHSWJV become aware of an environmental incident (that causes or threatened to cause material harm as defined within the Project Planning Approval). This initial notification may be via telephone and will quote the CSSI name and number, along with the time, date, location and nature

of the incident. Subsequent written notification will be provided to the Planning Secretary in accordance with CoA A35 (unless otherwise approved by the Planning Secretary).

This notification process is in addition to other regulatory incident reporting requirements, including any requirements under the Pollution Incident Response Management Plan (PIRMP), required in accordance with the Project EPL.

The EPA will be notified of any pollution incidents on or around the site via the EPA Environment Line (telephone 131 555) in accordance with Part 5.7 of the *Protection of the Environment Operations Act 1997* (NSW) (POEO Act). The circumstances where this will take place include:

- i. it involves actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial, or
- ii. it results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding \$10,000 (or such other amount as is prescribed by the regulations)

Where an incident involves a potential impact to an Aboriginal site, EES, Heritage, and Registered Aboriginal Parties will be notified and their input sought in closing out the incident.

All other environmental incidents, reportable events and regulatory action will be reported to TfNSW as outlined in the Incident and Emergency Response Plan

The Contractor will provide all records of the environmental incidents and regulatory action to TfNSW Project team.

3.9.1 Emergency Response

The Incident and Emergency Response Plan includes:

- a list of key emergency personnel including a list of internal personnel & external agencies names, numbers & specific responsibilities for emergency planning and response here, or in an appendix;
- details of how staff are inducted into the emergency response procedures and Plan;
- details of when the PIRMP will be implemented and who determines when an incident requires use of the PIRMP; and
- the definition of an incident, incident notification and reporting requirements for relevant approval, permit and licences requirements.

The Project team will:

- prepare to respond by planning actions to prevent or mitigate adverse environmental impacts from emergency situations;
- respond to actual emergency situations;
- take action to prevent or mitigate the consequences of emergency situations, appropriate to the magnitude of the emergency and the potential environmental impact;
- periodically test the planned response actions, where practicable;
- periodically review and revise the process and planned response actions, in particular after the occurrence of emergency situations or tests; and
- provide relevant information and training related to emergency preparedness and response, as appropriate, to relevant interested parties, including persons working under its control.

The Project team shall maintain documented information to the extent necessary to have confidence that the process is carried out as planned. JHSWJV will provide all records of the environmental incidents and regulatory action to the TfNSW Project team. TfNSW Environment Branch will maintain records relating to environmental incidents. All necessary contact numbers will be identified in advance and stored for immediate access should a pollution incident need to be notified. These

contact numbers will also be identified in the Pollution Incident Response Management Plan prepared for the Project.

Emergency planning and awareness training will be undertaken for the Project and will include but not be limited to development of a communication protocol, both internal and external, during emergencies, identified potential environmental emergencies that may occur on the Project, and the response procedures for these emergencies and tests of the emergency response procedures.

3.9.2 Incident Investigation

Where required, due to the severity or ongoing nature of the incident, investigations will be conducted and action plans established to ensure that the event does not occur again. Environmental investigations will include:

- identification of the cause, extent and responsibility of the incident
- identification and implementation of the necessary corrective action
- identification of the personnel responsible for carrying out the corrective action
- implementation or modification of controls necessary to avoid a repeat occurrence of the incident
- recording of any changes in written procedures required
- advising the relevant government agencies if any substantial pollution has occurred.

Where there are lessons learnt from the investigation or current procedures are identified as being ineffective, the CEMP will be revised by the Environment, Approvals and Sustainability Manager to include the improved procedures or requirement.

3.10 Environmental Non-conformance

An environmental non-conformance can generally be defined as a failure to comply with:

- Relevant environmental legislation
- Project Planning Approval
- Environment Protection Licence
- D&C Deed

These non-conformances will be documented using the John Holland Procedure Non-conformance and Corrective Action (JH-MPR-SQE-007).

Where a non-conformance is raised as part of an audit or an incident or complaint investigation the audit, incident or complaint report may be used to close out the non-conformance and it is not necessary to raise a separate non-conformance reporting process.

3.10.1 Corrective and Preventative Actions

Corrective actions will be identified as follows:

- Where an issue is identified and raised, the Environment, Approvals and Sustainability Manager or delegate will liaise with the appropriate JHSW personnel or qualified person(s) to determine the most appropriate corrective action to implement.
- Where assessed by Environment, Approvals and Sustainability to be appropriate, the corrective action will be actioned through the non-conformance report.

Preventive actions will be identified as follows:

- Environmental events, relevant incidents, complaints, audit findings and non-conformances are discussed at the regular Coordination Meetings with TfNSW and the ER. Trends relating to environmental incidents and non-compliance findings may be reviewed at these meetings to identify any reoccurring issues that are indicative of the need to take preventative action. Any member of the JHSW team, including subcontractors can contribute and provide suggestion to any required or appropriate preventative action.
- Where assessed by Environment, Approvals and Sustainability Manager as necessary, a preventive action will be raised and action undertaken through a SIN.

3.10.2 Non-Conformance Reports and Close-out

Where a non-conformance is detected a report will be raised. Non-conformances will be documented with the following information:

- date raised and by whom
- description of the system deficiency (non-conformance)
- cause and proposed remedy and action to prevent recurrence
- reinspection information
- date closed and by whom

Details included in non-conformance reports will be specific to the event that has taken place (for example, specific reference to the Planning Condition where a non-conformance has been identified).

Environmental related non-conformances are raised with the Approvals, Environment and Sustainability Manager to determine appropriate actions and dates. On completion of agreed actions, the Approvals, Environment and Sustainability Manager shall sign-off the to signify close-out and provide a copy to TfNSW and the ER. Any changes to operations or practices resulting from actions are to be communicated to employees and sub-constructors as required. A register of all non-conformances raised during delivery of the Works will be maintained on SharePoint.

3.11 Monitoring, inspections and auditing

Regular compliance activities, such as inspections, observations and monitoring will be undertaken throughout construction of the Project. Subcontractors' works will be included in inspections, observations, monitoring and audits as appropriate.

3.11.1 Environmental inspections

Table 3.3 below outlines the key environmental inspections anticipated to be undertaken throughout construction of the Project. Where aspect specific inspections are required (for example post rainfall inspections or landfill cap integrity inspection) these will be covered in the specific Sub-Plans. Copies of all inspection records will be kept on file.

Table 3-6 Environmental inspection requirements

Item	Frequency	Standards	Reporting	Responsibility
Regular inspections				
Environmental site inspection	Weekly	Weekly Environmental Inspection Checklist	Closed out Weekly Environmental Inspection Checklist	JHSWJV Environment Team

Item	Frequency	Standards	Reporting	Responsibility
ER site inspection	Fortnightly	CoA A21 <i>Environmental Representative Protocol</i> (October 2018)	Environmental Representative Inspection Report Environmental Representative Monthly Report	Environmental Representative
ERG site inspection	Quarterly	Environmental Inspection Checklist	Environmental Inspection checklist / notes	Environment personnel
Plant / equipment inspections including maintenance and emissions	Regularly or in accordance with manufacturer's specifications	POEO Act 1997	Plant and vehicle inspection logs	Mechanical Foremen and Operators
Management observations	Monthly	Project EMS	Observation notes	Environment, Approvals and Sustainability Manager (or delegate) Project Director (or delegate)
Visual surveillance	Daily during activities with high environmental risk	Project EMS	Site Foreman's logbook	Site Foreman
Shutdown Environmental inspections	Prior to any period where the worksites will be shut down for more than four days (i.e. long weekends, the Christmas period, etc.) a shutdown inspection to identify any additional environmental controls needed to minimise the potential for environmental impacts during the site shutdown period will be undertaken	Project EMS	Inspection Checklist	JHSWJV Environment Team

Copies of all environmental inspection reports prepared in accordance with this CEMP and sub-plans will be kept with the Project records and closed out within the agreed timeframes.

3.11.2 Environmental Representative, TfNSW and ERG inspections

The ER, TfNSW representatives and members of the ERG will undertake regular inspections of works sites, and in particular critical activities throughout construction of the Project. Inspections by the ER and TfNSW representatives will be undertaken on a fortnightly basis, depending on the complexity and anticipated risks associated with the stage of construction.

ERG inspections will be undertaken on a quarterly basis depending on the construction staging of Project.

The Environment & Sustainability Manager (or authorised delegate) will participate in all ER, TfNSW and ERG inspections, and records maintained. Deficiencies and required actions will be analysed and prioritised at the completion of the inspection and timeframes for implementation of corrective actions agreed.

3.11.3 Daily surveillance

Daily inspection will be carried out during Project activities that have a high inherent environmental risk, such as work near water, vegetation clearing activities or work near a sensitive environment. Daily surveillance will include a check of relevant environmental controls and resources required to ensure effective operation and maintenance. If deficiencies are noted, they can be rectified immediately. The Foreman will undertake the inspections and note any deficiencies or repairs in the Foreman Logbook.

3.11.4 Environmental monitoring

Monitoring will be undertaken to validate the impacts predicted for the Project, to measure the effectiveness of environmental controls and implementation of this CEMP, and to address approval requirements. The monitoring requirements for required aspects are included in the relevant environmental management sub plans and summarised in Table 3.4 below.

Table 3-7 Summary of construction phase environmental monitoring

CoA / UMM	Description	Relevant Sub-Plan or CEMP Chapter
C7, CS14	Monitor landfill gases accumulating in buildings, basins and subsurface trenches and pits associated with the CSSI	Landfill Leachate, Gas and Odour CEMP Sub-plan
C15 (a), NV6, NV8, NV12, NV13	Noise and vibration Monitoring Program	Noise and Vibration Management Plan
C15 (b), AQ2, AQ4, AQ5	Leachate, landfill gas and odour Monitoring Program	Landfill Leachate, Gas and Odour CEMP Sub-plan
C15 (c), GW4, GW6	Groundwater Monitoring Program	Groundwater Management Plan / Soil and Water Management Plan
GW5	Leachate monitoring	Leachate Management Strategy (as part of the Landfill Leachate, Gas and Odour CEMP Sub-plan)
SW16, SW6	Soil and Water Monitoring Program	Soil and Water Management Plan
RtS 6.4.3	Air Quality Monitoring Program	Air Quality Management Plan

Monitoring will be undertaken in accordance with relevant guidelines, or in accordance with the detail provided in the aspect-specific monitoring program or plan. In general terms each monitoring program will provide the following, where appropriate:

- details of baseline data available;
- details of baseline data to be obtained and when;
- details of all monitoring of the Project to be undertaken;
- the parameters of the Project to be monitored;
- the frequency of monitoring to be undertaken;
- the location of monitoring;
- the timeframes and format for reporting of monitoring results and the agencies that will be provided with copies of the monitoring reports;
- procedures to identify and implement additional mitigation measures where results of monitoring are unsatisfactory; and
- any consultation to be undertaken in relation to the monitoring programs.

Where monitoring results are outside of the expected range and are directly attributable to the Project, the process described in Section 3.11 will be implemented. Steps in the process will include:

- An analysis of the results by the JHSWJV Environment, Sustainability and Approvals Manager in more detail with a view of determining possible causes.
- A site inspection by the JHSWJV Environment, Sustainability and Approvals Manager or delegate.
- Advising relevant personnel of the problem.
- Identifying and agreeing on actions to resolve or mitigate the issue.
- Implementing actions to rectify or mitigate the issue.

A non-conformance may be issued by the JHSWJV Environment, Sustainability and Approvals Manager (or delegate) in response, if required specifically by the monitoring program.

The timing for any improvement will be agreed between the relevant Engineer/Superintendent and JHSWJV Environment, Sustainability and Approvals Manager (or delegate) based on the level of risk (e.g. a significant risk will require immediate action).

All environmental monitoring equipment shall be maintained and calibrated according to manufacturer's specifications and appropriate records kept.

3.11.5 Auditing

Table 3.8 presents auditing requirements that are applicable to the Project.

3.11.6 Contractor internal audits

Internal auditing will be undertaken generally on a regular basis throughout the Project. The purpose of auditing is to verify compliance with:

- This CEMP and Sub Plans;
- Approval requirements (CoAs, UMMS); and
- Any relevant legal and other requirements (e.g. licenses, permits, regulations, TfNSW deed documentation).

An audit checklist will be developed and amended as necessary to reflect changes to this CEMP, subsequent approvals and changes to Acts, regulations or guidelines.

3.11.7 Independent audits

Auditing will also be undertaken by an independent environment auditor independent to the Sydney Gateway road Project in accordance with *ISO 19011:2014 - Guidelines for Quality and/ or Environmental Management Systems Auditing*.

Table 3-8 Contractor and independent audit requirements

Audit Type	Requirement	Timing	Responsibility	Recipient
External audits				
Initial independent audit	CoA A29 Verify compliance with consent conditions, approval documents, legal requirements, specifications	Within 12 weeks of the commencement of construction	JHSWJV Environment, Approvals and Sustainability Manager	TfNSW Environment, Manager DPIE
Ongoing independent audit	CoA A29 Verify compliance with approval and legal requirements, specifications	At intervals no greater than 26 weeks from the date of the initial independent audit.	JHSWJV Environment, Approvals and Sustainability Manager	TfNSW Environmental Manager DPIE
Internal audits				
Internal audit	Risk targeted auditing against the CEMP and CEMP Sub-Plans	Quarterly	JHSWJV Environmental Advisor	JHSWJV Environment, Approvals and Sustainability Manager
JHSWJV EMS Audit	JHSWJV EMS compliance	Within 12 months of works commencing and then annually	JHSWJV Environmental Advisor	JHSWJV Environment, Approvals and Sustainability Manager

3.11.8 Other reporting

Prior to, during and following construction, various reports will be prepared to fulfil TfNSW and other reporting needs, and requirements under the Project approval. Table 3.6 sets out the reporting requirements applicable to the Project, timing of the reporting, who is responsible for managing preparation of the reports and the intended recipient(s).

Additional reporting may be necessary as the works progress. In such a circumstance, Table 3.6 will be amended to reflect these changes.

Table 3-9 Reporting requirements

No.	Report	Requirement	Timing	Responsibility	Recipient
1	Monthly environmental report	For incorporation in Project Monthly Reports including environmental statistics (i.e. incidents, regulatory action, complaints on environmental issues), regulatory and authority considerations, monitoring program	Within 10 working days of the end of each calendar month.	JHSWJV Environment, Approvals and Sustainability Manager	TfNSW



No.	Report	Requirement	Timing	Responsibility	Recipient
		performance and key environmental issues.			
2	EPL monthly report	Details of all non-compliances with conditions of EPL, measures taken to prevent recurrence, and details of discharges from sediment basins where water quality results exceed EPL conditions. This report will also included any monitoring data and analysis as required by the EPL.	Within 10 working days of the end of each calendar month.	JHSWJV Environment, Approvals and Sustainability Manager	EPA
3	EPL annual returns	Report on compliance with EPL.	Within 60 days of the anniversary of the EPL.	JHSWJV Environment, Approvals and Sustainability Manager	EPA
4	ER inspection report	Report of site environmental performance following routine inspections.	Fortnightly	Environmental Representative	TfNSW /DPIE
5	ER monthly report	Report of environmental performance during the calendar month.	Monthly	Environmental Representative	TfNSW /DPIE
6	Environmental risk assessment	Conducted for each construction stage, Project changes and significant issues.	Prior to construction during development of CEMP and as required thereafter.	JHSWJV Environment, Approvals and Sustainability Manager	TfNSW
7	Monitoring results	Report on monitoring data recorded and potential exceedances against criteria.	As required	JHSWJV Environment, Approvals and Sustainability Manager Construction Manager Environmental Advisors	TfNSW
8	TfNSW and/or EPA environmental inspection reports	Response to matters raised in TfNSW and/or EPA site inspections.	As required. Typically, every two weeks for TfNSW inspection reports and monthly for EPA inspection reports.	JHSWJV Environment, Approvals and Sustainability Manager Construction Manager Environmental Advisors	TfNSW /EPA
9	Waste Avoidance	Information relating to wastes generated or	Annual within one-month form 1 July	JHSWJV Environment,	TfNSW

No.	Report	Requirement	Timing	Responsibility	Recipient
	and Resource Recovery Report	recycled in accordance with Annexure G36/F	and at actual completion date	Approvals and Sustainability Manager Environmental Advisors	

3.12 Environmental non-conformance

A non-conformance is a failure to comply with a requirement, standard or procedure such as this CEMP or associated documents. Environmental non-conformances may be identified through improvement opportunities, regular environmental inspections/monitoring, internal or external audits, complaints, community consultation, observations or through incident management. The Environmental Representative, TfNSW Representative and/or a public authority may also raise a non-conformance. Any member of the Project team may raise a nonconformance or improvement opportunity.

Non-conforming activities may be stopped, if necessary, by the JHSWJV Environment, Approvals and Sustainability Manager, Environmental Advisors or other Project personnel. The works will not commence until a corrective / preventative action has been closed out. The Environmental Representative may also stop works in these circumstances.

Where non-conformances are identified during a review of compliance, they will be communicated to the JHSWJV Environment, Approvals and Sustainability Manager. This will then be recorded on an environmental action list by the JHSWJV Environment, Approvals and Sustainability Manager that will be issued to the relevant supervisor or Foreman for action.

3.13 Records of environmental activities

3.13.1 Environmental records

The JHSWJV Environment, Approvals and Sustainability Manager is responsible for maintaining all environmental management documents and records as current at the point of use. Types of documents and records include:

- All monitoring, inspection and compliance reports/records.
- Correspondence with public authorities.
- Induction and training records.
- Reports on environmental incidents, other environmental non-conformances, complaints and follow-up action.
- Community engagement information.
- Minutes of CEMP and construction environmental management system review meetings and evidence of any action taken.
- CEMP and Sub Plans.
- EWMS.
- Environmental audit reports.

All environmental management documents are subject to ongoing review and continual improvement. This includes times of change to scheduled activities or to legislative or licensing requirements.

Only the JHSWJV Environment, Approvals and Sustainability Manager, or delegate, has the authority to change any of the environmental management documentation.

3.13.2 Document control

JHSWJV, or TfNSW where relevant, will coordinate the preparation, review and distribution, as appropriate, of the environmental documents and records listed above. During the Project, the environmental documents and records will be stored electronically on the Project document control system.

JHSWJV will implement a document control procedure to control the flow of documents internally and between TfNSW, stakeholders and subcontractors.

The procedure will also ensure that documentation is:

- Developed, reviewed and approved prior to issue.
- Issued for use.
- Controlled and stored for the legally required timeframe.
- Removed from use when superseded or obsolete.
- Archived.

The Document Register is maintained in SharePoint.

3.14 Management review

An annual management review will be undertaken with TfNSW and JHSWJV, and will aim to:

- Identify of areas of opportunity for improved environmental performance.
- Analyse the causes of nonconformities and deficiencies, including those identified in environment inspections and audits.
- Verify of the effectiveness of corrective and preventative actions.
- Highlight any changes in procedures resulting from process improvement.

Where the management review identifies aspects of the CEMP that should be amended, this will be undertaken before the next management review, where appropriate. Any amendments to the CEMP or associated documentation identified as being necessary to avoid non-compliance issues or are in response to key environmental risks will be prioritised to be undertaken as soon as practicable. These amendments could include updates to this CEMP and related documentation, revision to the Project's EMS, risk assessment review, re-evaluation of the Project Objectives and targets as well as changes to other Project documents. These changes will be undertaken in accordance with the process identified in Section 3.15.

3.15 CEMP/Sub Plan revision and changes to the Project

3.15.1 CEMP Revision

Change adaptation and continual improvement is key to achieving the environmental objectives and targets described in Section 3.2.4. Ongoing measurement and evaluation, as well as regular audit and review of the effectiveness of this CEMP will be undertaken throughout the Project.

Monthly reports undertaken by the Environmental Representative and JHSWJV Environment, Approvals and Sustainability Manager, and management reviews provide specific opportunities to identify improvements in the EMS and/or this CEMP.

3.15.1.1 Minor amendment

Minor amendments to the CEMP and sub-plans will typically include those that are editorial in nature or are considered minor in their environmental and community impacts and do not compromise the ability of the Project to meet approval or legislative requirements. Under Condition A24(i), the Environmental Representative is authorised to:

consider any minor amendments to be made to the CEMP, CEMP Sub-plans, Construction Monitoring Programs and Site Establishment Plans that comprise updating or are of an administrative nature, and are consistent with the terms of this approval and the CEMP, CEMP Sub-plans and Construction Monitoring Programs approved by the Planning Secretary and, if satisfied such amendments are necessary, approve the amendment. This does not include any modifications to the terms of this approval.

Examples of minor amendments to the CEMP and sub-plans are listed in the below table, however, should not be considered an exhaustive list and it will be subject to the ER's discretion under A24.

Table 3-10 Example minor amendments required throughout the Project

Potential amendment	Document	Justification
Administrative – Changes to company logos.	CEMP and related documents	No material changes to content of documents.
Administrative – Changes to staff, company and/or agency/authority names.	CEMP and related documents	No material changes to content of documents.
Administrative – terminology (legislative name changes).	CEMP and related documents	No material changes to content of document, so long as the terminology change is not associated with legislation, processes or guidelines that require a material change to mitigation measures described in the CEMP and related documents.
Minor – Updates required due to changing government agency policies and procedures.	CEMP and related documents	No material changes to content of document, so long as the policy or procedure change does not result in material change to mitigation measures described in the CEMP and related documents.
Minor – Updates required in response to periodic audits as per EMS.	CEMP and related documents	No material changes to content of document. Change required as a process of the EMS and approved CEMP process, and should not delay the Project. Changes not considered material in nature.
Minor – Updates required in response to incident investigation.	CEMP and related documents	No material changes to content of document. Change required as a process of the EMS and approved CEMP process, and should not delay the Project. Changes not considered material in nature.
Minor – Changes in construction methodology that are consistent with the terms of the approval, including impacts	CEMP and related documents	No material changes to content of document. Changes not considered material in nature.

Potential amendment	Document	Justification
on the environment when considered individually or cumulatively.		
Minor – Amendments to documentation in response to an assessment under 3.14.2	CEMP and related documents	No material changes to content of document. Changes not considered material in nature.

Where a minor amendment is proposed, the JHSWJV Environment, Approvals and Sustainability Manager will provide justification to the ER and TfNSW representative. Upon determination that the change can be considered minor, the document will be revised and will then be issued to the Environmental Representative for certification of the changes (with a copy to DPIE for information once certified). Where the ER deems the change not a minor amendment, the CEMP will be provided to the Secretary of DPIE for approval.

3.15.2 Changes to the Project

Refinements to the Project may result from detailed design refinements or changed circumstances throughout construction. TfNSW is required to seek formal approval from the Minister for any Project modifications

To establish the significance of the change, any design refinements or significant change in scope of works must be communicated to the JHSWJV Environment, Sustainability and Approvals Manager who will undertake a review to confirm it is captured within existing documentation

If required a consistency assessment will need to be completed by the JHSWJV Environment, Sustainability and Approvals Manager or JHSWJV Environmental in consultation with the TfNSW Environmental Manager.

Should the consistency assessment determine that a Project modification may be required i.e. the impacts are of a nature and scale that it is not considered consistent with the Project approval, the Environmental Representative will be informed and modification application under Section 5.25 of the EP&A Act 1979 prepared and lodged by TfNSW to the Secretary DPIE for determination.

If the consistency assessment determines that the change to the Project is in line with the TfNSW Part 5.2 Assessment procedure, and that the changes to the Project are consistent with the impacts assessed in the EIS/MDP and the Response to Submission Report, TfNSW will approve all refinements that are deemed consistent with the Project approval, where appropriate.

If required, the CEMP and Sub-plans will be updated by way of a minor change approved by the ER (as required) to incorporate any additional potential environmental impacts or mitigation or management measures that resulted from the proposed changes. Affected personnel will be made aware of changes before the relevant works commence through toolbox talks, daily pre-start meeting, HSE committees or forums arranged to specifically address changes.

4 Construction control

A number of environmental management sub-plans support the CEMP. These documents are prepared to identify requirements and processes applicable to specific impacts or aspects of the Project. They address requirements of the CoA, UMMs and other measures identified in the environment assessment documentation.

Environmental strategies may also be developed as required throughout the Project. These will also guide environmental management of potential impacts on-site.

A list of construction sub-plans and strategies for the Project, and their approval requirements, are provided in Table 4-1.

Table 4-1 Environmental management sub plans and strategies

Document name	Approval requirements
Waste and Resource Management Plan	TfNSW endorse the document
Air Quality Management Plan	TfNSW endorse the document
Flora and Fauna Management Plan	Consultation with EESG DPIE approval required
Groundwater Management Plan	Consultation with DPIE Water, Sydney Water DPIE approval required
Landfill Leachate, Gas and Odour Management Plan	Consultation with Inner West Council and NSW EPA EPA Accredited Site Auditor Interim Audit Advice DPIE approval required
Non-Aboriginal Heritage Management Plan	DPIE approval required
Aboriginal Heritage Management Plan	TfNSW endorse the document
Contaminated Aquatic Sediments in Alexandra Canal Sub-plan	Consultation with Sydney Water, NSW EPA EPA Accredited Site Auditor Interim Audit Advice DPIE approval required
Soil and Water Management Plan	Consultation with DPIE Water, Sydney Water and relevant Councils DPIE approval required
Noise and Vibration Management Plan	Consultation with pipeline operators, Sydney Water and relevant Councils DPIE approval required
Traffic and Access Management Plan	DPIE approval required
Noise and Vibration Monitoring Program	Consultation with pipeline operators and relevant Councils DPIE approval required
Leachate, landfill gas and odour monitoring program	Consultation with Inner West Council and NSW EPA EPA Accredited Site Auditor Interim Audit Advice DPIE approval required
Groundwater monitoring program	Consultation with DPIE Water

Document name	Approval requirements
	DPIE approval required
Water quality monitoring program	TfNSW endorse the document

Where a separate sub-plan is not required, information regarding environmental management and control of specific areas is outlined in the below sections.

4.1 Soil and water quality management

A Soil and Water Management Plan (SWMP) has been developed to manage the soil and water risks on this Project. This document is developed in accordance with CoA C5 and CoA C6 and located in Appendix B9

4.2 Contaminated land

Management of contaminated land will be detailed in the SWMP, located in Appendix B9, as well as in the Contaminated Aquatic Sediments in Alexandra Canal Management Plan (CoA C8) and in the Landfill Leachate Gas and Odour Management Plan (CoA C7). These documents have been developed in accordance with CoA C6 and are located in Appendices B9, B8 and B5, respectively.

The details regarding the management of contaminated land included in the abovementioned management plans satisfy the requirements of the *Contaminated Land Management Act 1997* (NSW), TfNSW publication "Guideline for the Management of Contamination", TfNSW "Environmental Incident Classification and Reporting Procedure", and EPA guidelines on contaminated land management.

4.3 Spill prevention and response

A Pollution Incident Response Management Plan (PIRMP) and a Spill Response Procedure has been developed to manage spill prevention and response on the Project. This document is developed in accordance with Part 5.7 of the Protection of the Environment Operations Act 1997 (NSW) (POEO Act) and UMM HS1. Whilst the PIRMP is a standalone document, the Spill Response Procedure is located in the appendices of the Spill Response Procedure in Appendix B9.

4.4 Air quality

An Air Quality Management Plan (AQMP) has been developed to manage the air quality risks on this Project. This document is developed in accordance with UMM AQ1 and located in Appendix B2.

4.5 Fire safety and burning off

The fire-fighting equipment, including fire extinguishers, will be provided on site and in vehicles to ensure the safety of public and property in compliance with the *Rural Fires Act 1997* and the *Local Government Act 1993*.

Total fire ban declarations and resultant work restrictions will be communicated to staff during the daily pre-start meetings. During total fire bans, work prohibited by the ban can only proceed if a permit is issued by NSW Rural Fire Service and the work can be performed in accordance with the issued permit.

All personnel involved in welding, grinding, thermal or oxygen cutting, heating or other fire or spark-producing operations will be trained in fire prevention, safety and basic fire-fighting skills.

4.6 Noise control

A Noise and Vibration Management Plan (NVMP) has been developed to manage the risks on this Project. This document is developed in accordance with CoA C11 and UMM NV1 and located in appendix B10.

The NVMP also contains:

- A Noise and Vibration Monitoring Program (refer to CoA C15, C16 and C18),
- A Construction Strategy (refer to CoA E89), and
- An Out of Hours Work Protocol (refer to CoA E77 and UMM NV5).

4.7 Vibration

A NVMP has been developed to manage the risks on this Project. This document is developed in accordance with CoA C11 and UMM NV1 and located in Appendix B10

4.8 Biodiversity

A Fauna and Flora Management Plan has been developed to manage the risks on this Project. This document is developed in accordance with CoA C5 and CoA C6 and located in Appendix B3.

4.9 Aboriginal heritage

An Aboriginal Heritage Management Plan (CAHMP) has been developed to manage the risks on this Project. This document is developed in accordance with UMM AH4 and located in Appendix B7.

4.10 Non-aboriginal heritage

A Heritage Management Plan (CHMP) has been developed to manage the risks on this Project. This document is developed in accordance with CoA C5 and REMM NAH7 and located in Appendix B6.

4.11 Waste Management and Resource Recovery

A Waste and Resource Management Plan (WRMP) has been developed to manage the waste management and resource use risks on this Project. This document is developed in accordance with REMM WM2 and located in Appendix B1.

4.12 Use of pesticides

In accordance with the relevant Specification G36 Clause 4.12 and best practice, the use of pesticides will be undertaken in accordance with the *Pesticides Act 1999*, other relevant legislation, product specifications and any relevant industry codes of practice.

Pesticide use is to be in accordance with, as a minimum, the TfNSW Pesticide Notification Plan and will be avoided in the following conditions:

- On hot days when plants are stressed.
- After the seed has set.
- Within 24 hours of rain or when rain is imminent.
- When winds will cause drift of pesticides into non-target areas.

For detailed information regarding pesticide use on the Project refer to the Weed Management Protocol located in the FFMP in Appendix B3.

4.13 Work in environmentally sensitive areas

Clause 4.13 of G36 is addressed in section 3.2.4 of this CEMP

4.14 Environmental incident notification and reporting

Clause 4.14 of G36 is addressed in section 3.8 of this CEMP. The response to environmental emergencies and incidents is to be consistent with the Incident and Emergency Response Plan prepared in accordance with the RMS Environmental Incident Classification and Reporting Procedure (Appendix A7). In accordance with CoA A34, the Department will be notified as soon as possible and no later than 24 hours after JHSWJV become aware of an environmental incident. This initial notification may be via telephone and will quote the CSSI name and number, along with the time, date, location and nature of the incident.

4.15 Ancillary Site facilities

Prior to the approval of this CEMP, the works associated with the establishment of ancillary facilities, or construction compounds, will be managed in accordance with the SEMP. The completion of any establishment activities not yet completed by the time this CEMP is approved or for those ancillary facilities established after the approval of this CEMP, these activities will be managed in accordance with this CEMP.

Controls outlined in Section 4 of the CEMP and the CEMP sub-plans will be implemented to reduce environmental impacts associated with the establishment and use of the ancillary facilities.

In particular, the following management and mitigation measures that are specific to the management of ancillary facilities will be implemented:

- Boundary screening must be erected around all construction ancillary facilities that are adjacent to sensitive receivers for the duration of construction, unless otherwise agreed with the relevant Council and with affected residents, business operators and/or landowners (CoA A18). This excludes boundary screening where the Airport Operator (or CASA or Airservices Australia) has advised approval is required under the Airports Act 1996 and that the approval will not be granted (CoA A19).
- Boundary hoarding around construction compounds, or other shielding structures, will be implemented to minimise noise impacts where construction noise will exceed the relevant noise management levels at nearby sensitive receivers (UMM NV11).
- Provision of signage on fencing or hoarding surrounding the construction ancillary facilities, including the CSSI name and application number (CoA A36).
- Construct the Project, including ancillary facilities, in a manner that minimises visual impacts of construction sites (CoA E64 and UMM LV8).
- Lighting of work areas, compounds, and work sites will be oriented to minimise glare and light spill impact on adjacent receiver (UMM LV10).

Additional information on the operation of ancillary facilities during construction is provided in:

- Section 3.6, which outlines the approved working hours for construction activities at ancillary facilities.
- Appendix A4, which outlines the assessment and approval processes for any additional or minor ancillary facilities for the construction of the Project.
- Traffic and Access Management Plan, which contains a car parking strategy for construction staff at the ancillary facilities.
- Soil and Water Management Plan, which contains ESCPs for all ancillary facilities.

Figures 4-1 and 4-2 below illustrates the location of the Project construction compounds, noting that construction compound C3 is the only ancillary facility on State land. The workforce car park and access are considered to fall outside the SEMP requirement.



Figure 4-1 Construction compound locations

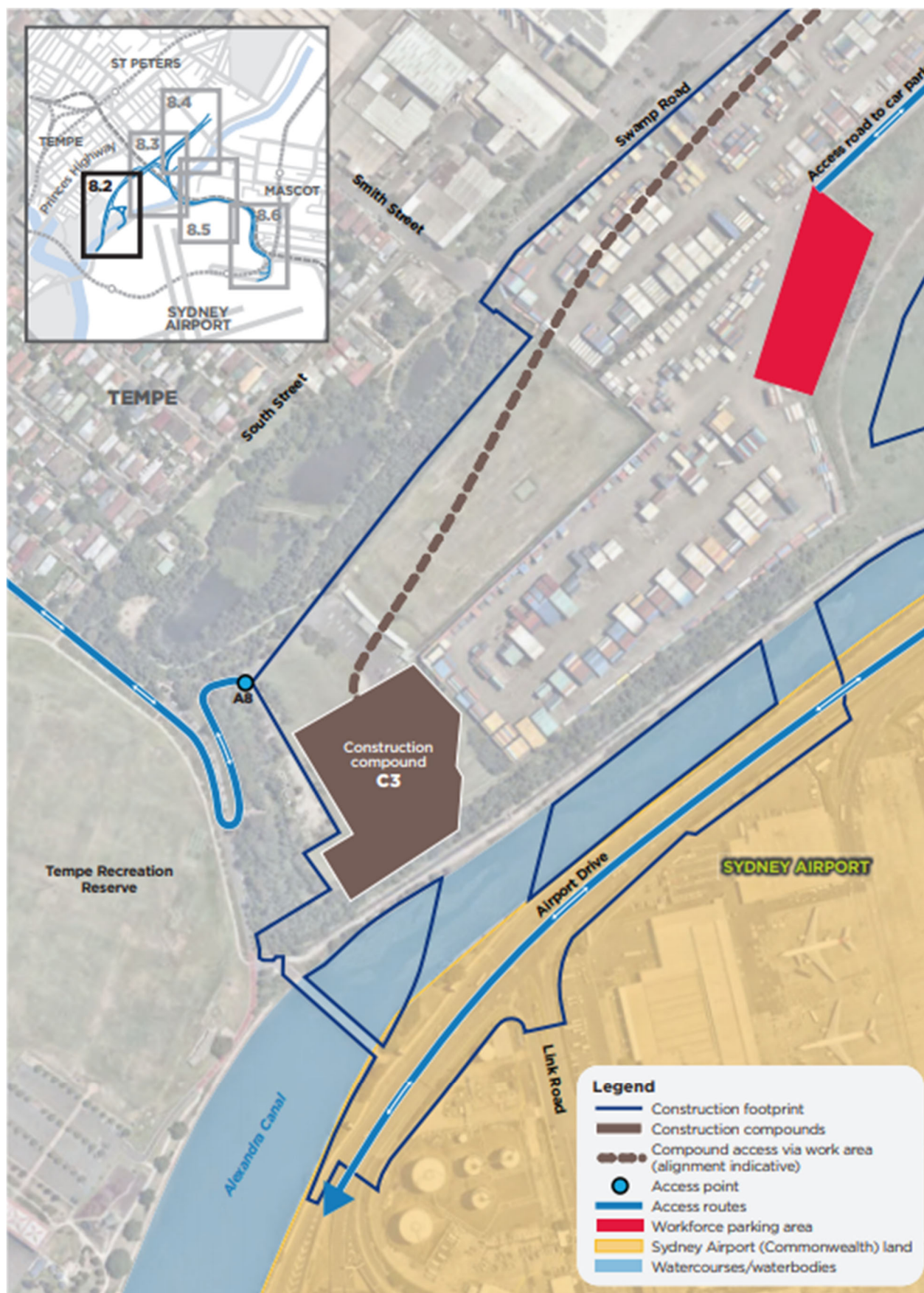


Figure 4-2 Construction compound C3 location

4.16 Restoration of site

On completion of the works, all areas disturbed by construction activities (including the temporary ancillary facility sites, materials storage, access and haul roads) will be reinstated and restored to a condition similar to that existing before disturbance and in accordance with the Place, Design and Landscape Plan (CoA E78), which will act as the urban design and landscape plan required under UMM LV1. This will include:

- Site compound and stockpile site clean-up.
- Fuel and chemical/contaminated areas restoration, including spill clean-up as required.
- Weed control and seeding, planting, watering and maintenance.
- Access and haul road restoration.
- Compacted/disturbed ground restoration, including soil remediation, ripping and topsoiling of the area where applicable.

Following restoration, a post-construction land condition assessment will be arranged for each area used for construction. The land condition assessment will be undertaken by an independent environmental consultant who is approved by the TfNSW Representative. This report will then be submitted to the TfNSW Representative, in the format detailed in *Management of Wastes on Roads and Maritime Services Land* (RMS 2014).

Appendix A1. Legal requirements and compliance tracking

Table 4-2: Legal register

Act	Activity / aspect	Requirement	Reference	Applicability
General				
<i>Environmental Planning and Assessment Act 1979</i>	All	The Project has been declared critical State Significant Infrastructure (CSSI) by virtue of Schedule 5, clause 4 of State Environmental Planning Policy (State and Regional Development) 2011. Comply with the terms Minister for Planning's approval for the project. Obtain the Minister's approval for any project modifications that are not consistent with the planning approval.	S5.13 S5.14	Yes – the provisions are applicable to EIS Project area.
		Environmental assessment and public consultation, including a preferred infrastructure report that outlines any proposed changes to the SSI	S5.147	Yes
		Application of other provisions of the EP&A Act Approvals and legislation that does not apply Approvals and legislation that must be applied consistently	S5.22 S5.23 S5.24	Yes
<i>Protection of the Environment Operations Act 1997</i>	Site licensing	Do not carry out or allow an activity listed in Schedule 1, or carry out work to enable such an activity, unless the premises are licensed by the EPA. This applies to 'road construction' and 'extractive activities' (and any other scheduled activity undertaken for the Project).	S47 S48	Yes - an EPL is triggered for road construction.
	Environmental Protection	Do not risk harming the environment by wilfully or negligently: <ul style="list-style-type: none"> • Disposing of waste unlawfully • Causing any substance to leak, spill or otherwise escape (whether or not from a container) or • Emitting an ozone depleting substance. 	S115 S116 S117	Yes

<i>Roads Act 1993</i>	All	Requires the consent of the appropriate road authority for carrying out work on, or disturbing, the surface of a public road. Where the proponent is a public authority, the roads authority must consult with the applicant before making a decision.	S79	Yes
<i>Airports (Protection of Airspace) Regulations 1996 (Cth)</i>	Activities that intrude into the prescribed airspace	Protection of the airspace at and around airports, which include the OLS and PANS-OPS. Consultation with the Civil Aviation Safety Authority and Airservices Australia	All	Yes
Water				
<i>Water Management Act 2000</i> With the exception of controlled activity approvals, the <i>Water Management Act 2000</i> (WM Act) only applies in relation to those water sources covered by operational water sharing plans – these areas cover most of the State's major regulated river systems.	Water access and use	Do not take water from a water source (a lake, river or estuary or place where water occurs naturally on or below the surface of the ground, and includes coastal waters) without an access licence. Do not use water on land (unless supplied by a water utility, irrigation corporation or in accordance with basic landholder rights) without a water use approval.	S56 S60A S89 S91A S91(3)	No - Public authorities are exempt from the need to obtain an approval. Third parties (such as JHSWJV) undertaking works on behalf of the Crown are similarly exempt.
	Water management works	Do not construct/use a water supply work, drainage work or flood work without the appropriate approval.	S90 S91B S91C S91D	No – Not applicable to the Project.
	Waterfront land	Do not deposit material, excavate, or remove material within a watercourse bank, shore or bed, or on land 40 metres inland, or interfere with the likely flow of water to such a body, without a controlled activity approval.	S91	No – Under the Water Management (General) Regulation 2018 (cl.41), public authorities are exempt from the need to obtain a controlled activity approval.

	Groundwater	An aquifer interference approval/licence may be required under Section 91(3) of the WM Act if construction groundwater is intercepted by the Project.	S91	No - Under the EP&A Act the Project is exempt from this requirement. .
<p>Water Act 1912 Note that this Act is being progressively repealed by the WM Act.</p> <p>With the exception of controlled activity approvals, the WM Act only applies in relation to those water sources covered by operational water sharing plans – these areas cover most of the State's major regulated river systems.</p>	Surface water	Obtain a licence or permit for construction or use of 'work' for purposes including the taking and using of water.	S21B	No - Public authorities are exempt from the need to obtain an approval. Third parties (such as JHSWJV) undertaking works on behalf of the Crown are similarly exempt.
	Groundwater	Obtain a licence where interference with groundwater is likely to occur.	S112 S121A	S112 does not apply to the Crown. TfNSW is therefore not required to obtain a licence under this provision.
	Floodplains	Obtain an approval for controlled works. These include works which occur on a designated floodplain, which can prevent land from being flooded or which can affect water flow to or from a river or lake.	S180	No – An exemption in relation to roads potentially applies – see clause 4 of the Water (Part 8-General) Regulation 1995.
Biodiversity				
<i>Biosecurity Act 2015</i> (formerly <i>Noxious Weeds Act 1993</i>)	Biosecurity matters including pests, disease and weeds	The duty to prevent, eliminate and minimise biosecurity risks posed by biosecurity matters as defined by the Act.	S22	Yes
<i>Biosecurity Regulation 2017</i>	Pests and Diseases	Notify the presence any pest or disease listed in Schedule 1 of the Biosecurity Regulation 2014, within 1 working day after suspecting or becoming aware of the pest or disease.	Regulation cl.7 Schedule 1	Yes
	Fauna	Do not harm any animal that is; of a threatened species, that is part of a threatened ecological community or is a protected animal, unless authorised under other legislation (e.g. planning approval).	S2.1 S2.8	Yes

<i>Biodiversity Conservation Act 2016</i>				
	Habitat	Do not damage habitat of a threatened species or ecological community unless authorised under other legislation (e.g. planning approval).	S2.4 S2.8	Yes
	Biodiversity	Do not damage declared areas of outstanding biodiversity value unless authorised under other legislation (e.g. planning approval).	S2.3 S2.8	Yes
	Flora	Do not pick a plant that is; of a threatened species, that is part of a threatened ecological community or is a protected plant, unless authorised under other legislation (e.g. planning approval).	S2.2 S2.8	Yes
<i>Fisheries Management Act 1994</i>	Dredging or reclamation	Provide the Minister for Primary Industries 28 days' notice of planned dredging or reclamation work.	S199	No - Under the EP&A Act the Project is exempt from this requirement
	Mangroves, seagrasses and marine vegetation	Do not harm any mangroves, seagrasses or other marine vegetation on public water land protected by the regulations without a permit.	S205	Yes
	Fish passage	Do not block fish passage without a permit	S219	Yes
<i>Environment Protection Biodiversity Conservation Act, 1999 (Commonwealth)</i>	Flora and fauna conservation	Do not kill, injure or take a member of a listed threatened species without a permit.	Part 13	Yes
		Comply with the terms of any EPBC Act approval for the project.	N/A	No – No EPBC approvals required for the Project
Heritage				
<i>Heritage Act 1977</i>	Heritage	Do not disturb or excavate land with knowledge or reasonable cause to suspect that the disturbance or excavation will or is likely to result in a relic being discovered, exposed, moved, damaged or	S139	No - Under the EP&A Act the Project is exempt from this requirement

		destroyed; or do not disturb or excavate land on where a relic has been discovered or exposed.		
		Do not undertake an activity that will affect a place, building, work, relic, moveable object or precinct which is subject to an Interim Heritage Order or is listed on the State Heritage Register without approval from the Heritage Council.	S56-57	No - Under the EP&A Act the Project is exempt from this requirement
		Notify the Heritage Council on discovery of a relic	S146	Yes
<i>National Parks and Wildlife Act 1974</i>	Aboriginal places and objects	Do not harm or desecrate an Aboriginal object or Aboriginal place without consent	S86 S90	N/A
		Notify the NPWS within reasonable time of becoming aware of the location or discovery of certain Aboriginal objects.	S89A	Yes
		An Aboriginal heritage impact permit may be issued.	S90	No – Under the EP&A Act the Project is exempt from this AHIP requirement
<i>Aboriginal and Torres Strait Islander Heritage Protection Act 1984</i> (Commonwealth)	Protection of areas and objects	Report any discovery of Aboriginal remains to the Federal Minister for the Environment and Heritage.	S20	Yes
		Comply with the provisions of any declaration in relation to a significant Aboriginal area or object.	S22	Yes
Air Quality				
<i>Protection of the Environment Operations Act 1997</i>	Air quality	Do not operate plant which emits air pollution caused by poor maintenance or operation	S124	Yes
		Do not cause or neglect to prevent air pollution (eg dust exceeding reasonable levels without active management measures in place)	S126	
		Do not cause or permit the emission of an offensive odour	S129	
<i>Protection of the Environment</i>	Air quality	Excessive impurities are visible for a continuous period of more than 10 seconds	S15	

Operations (Clean Air) Regulation 2002		Air emission concentrations for scheduled premises	Schedule 4	
Pollution and Incident Response				
Protection of the Environment Operations Act 1997	Harming the environment	Do not risk harming the environment by wilfully or negligently: <ul style="list-style-type: none">disposing of waste unlawfully.causing any substance to leak, spill or otherwise escape (whether or not from a container); oremitting an ozone depleting substance	S115 S116 S117 S120	Yes
	Control equipment	Properly and efficiently maintain and operate any installed pollution control equipment (including monitoring devices).	S167 S120	Yes
	Notification of pollution incidents	Notify the EPA immediately of pollution incidents where material harm to the environment is caused or threatened.	S148	Yes
Local Government Act 1993	Fire related incident	In the event of a fire related incident, the Project will comply with the requirements of the Act.	N/A	Yes
Rural Fires Act 1997			N/A	Yes
Noise				
Protection of the Environment Operations Act 1997	Plant maintenance and operation	Do not operate plant if it emits noise caused by poor maintenance or operation.	S139	Yes
	Materials management	Do not cause noise by failing to properly and efficiently deal with materials.	S140	Yes
Contaminated material				
Protection of the Environment Operations Act 1997	Land pollution	Do not cause or permit land pollution other than under authority of a licence or regulation. (However it is not a land pollution offence to place virgin excavated natural material or lawful pesticides and	S142A – S142E	Yes

		fertilisers on land, or by placing matter on land that has been notified to the EPA as an unlicensed landfill and which is operated in accordance with the regulations.)		
<i>Contaminated Land Management Act 1997</i>	Reporting contamination	<p>Notify the EPA if:</p> <ul style="list-style-type: none"> Contaminants exceed thresholds contained in guidelines or the regulations where contamination has entered or will foreseeably enter neighbouring land, the atmosphere, groundwater or surface water Contaminants in soil are equal to or exceed guideline levels with respect to the current or approved use of the land. Contamination meets other criteria that may be prescribed by the regulations. 	S60	Yes
Waste				
<i>Protection of the Environment Operations Act 1997</i>	Littering	<p>Do not litter in a public place or an open private place. Do not litter from a vehicle.</p> <p>Only deposit advertising material in receptacles provided for mail or newspapers or under the door of the premises.</p> <p>Do not deposit advertising material on or in vehicles.</p>	Part 5.6A	Yes
	Waste and transportation	<p>Do not undertake a scheduled waste activity unless in accordance with an EPL.</p> <p>A licence must be obtained when construction and demolition wastes are applied to land under certain circumstances. This includes the reincorporation of crushed road base material back into roads and the placing of excess fill material onto properties. A licence is not required if the material:</p> <ul style="list-style-type: none"> Is VENM Does not exceed 200 tonnes in the Sydney, Newcastle and Wollongong areas, or 20,000 tonnes outside these areas. Is covered by a "general exemption". Current exempted materials are ENM, recycled aggregates and raw mulch. These exemptions are conditional and require some 	Part 3.2 Schedule 1	Yes

		<p>chemical testing of materials before they are placed onto land.</p> <ul style="list-style-type: none"> A licence must be obtained if more than 2,500 tonnes (or cubic metres) is stored on a stockpile site at any one time, or more than 30,000 tonnes of waste is received per year from offsite. 		
		Only transport waste to a facility that can lawfully accept the waste.	S143	Yes
		Do not dispose of waste in a manner that harms or is likely to harm the environment.	S115	Yes
<i>Protection of the Environment Operations (Waste) Regulation 2005</i>	Waste and transportation	Comply with general requirements for the transport of waste. For example, any vehicle used by the person to transport waste must be kept in a clean condition and be maintained so as to prevent spillage of waste. For some wastes only licensed transporters can be used.	Cl.49	Yes
		Comply with record keeping requirements in relation to the transport of certain types of waste.	Part 3	Yes
		Obtain an approval under Section 110A of the <i>Protection of the Environment Operations (Waste) Regulation 2014</i> to exhume waste from the former Tempe Landfill	S110A	Yes until such time as the EPL is issued.
<i>Waste Avoidance and Resource Recovery Act 2001</i>	Waste and transportation	Establish the waste hierarchy. Promotes waste avoidance and resources recovery by developing waste avoidance and resource recovery strategies.	-	Yes
<i>Sydney Water Act 1994</i>	Waste water / leachate	Approval to discharge wastewater / leachate to sewer under a Trade Waste Agreement. Approval to be surrendered from the Inner West Council and granted to JHSW	S49	Yes
Hazards and risks				
<i>Environmentally Hazardous Chemicals Act, 1985</i>	Hazards and risks	Obtain a licence to undertake prescribed activities involving environmentally hazardous chemicals or declared chemical wastes.	S28	Yes

<i>Dangerous Goods (Road and Rail Transport) Act 2008</i>	Hazards and risks	Ensure that dangerous goods are transported in a safe manner.	S9	Yes
<i>Pesticides Act 1999</i>	Hazards and risks	<ul style="list-style-type: none"> • Use pesticides in an environmentally sensitive manner. • Do not use an unregistered pesticide without a permit. • Read the label or permit for the pesticide. • Use registered pesticides in accordance with instructions on the label. • Do not use any restricted pesticide unless authorised by a certificate of competency or a pesticide control order under the Act. • Compliance with pesticide codes of practice is required. 	S12 S13 S14 S15 S17	Yes
Traffic				
<i>Transport Administration Act 1988</i>	Traffic management	Comply with the functions of TfNSW relating to traffic management and safety	S52A	Yes
Road Rules 2014	Use of roads	Establish the road rules that are applicable to vehicles and road users on roads in NSW	-	
		Provisions of Road Rules 2014 not applicable to a person at the site of, and engaged in, roadworks	310	
Roads Act 1993	Use of roads	Obtain a Road Occupancy Licence prior to commencement of traffic related works that require access to roads	S138	
Greenhouse gas emissions				
<i>National Greenhouse and Energy Reporting Act, 2007 and Regulations 2008</i>	Greenhouse gas emissions	Accounting and reporting of greenhouse gases produced and energy consumed during construction.	-	Yes – JHSWJV triggers the thresholds for reporting under the Act.

Table 4-2: TfNSW G36, G38 and G40 Specification

TfNSW Specification	Reference	Requirement
G36	Section 2	Develop, implement and maintain for the duration of the deed, a Contractor's Environmental Management System (CEMS) that meets the requirements of the NSW Government Environmental Management System Guidelines.
G36	3.1	Prepare a Contractor's Environmental Management Plan (CEMP) for the Work Under the deed. include an Environmental Policy that contains a commitment to the principles of Ecologically Sustainable Development as detailed in the <i>Protection of the Environment Administration Act 1991 (NSW)</i> ; describe all relevant elements of, and include references to, the CEMS documentation and how these will apply to the Work Under the deed; address all aspects and stages of the Work Under the deed.
G36	3.1	Include any Sub-Plans specified in Annexure G36/A2 that are required to address specific issues.
G36	3.2.1	Prior to commencement of any work on Site, carry out an environmental risk assessment workshop to identify all the environmental constraints associated with the Work Under the deed and address the environmental risks associated with the constraints and activities you propose to undertake. Use the environmental risk assessment workshop to develop risk mitigation and management strategies to eliminate or reduce the risk exposure.
G36	3.2.2	The CEMP must identify your obligations under environmental legislation that are relevant to the Work Under the deed, including those listed in Annexure G36/M.
G36	3.2.2	Obtain each necessary approval, license and permit not obtained by the RMS Representative prior to the commencement of any work which relates to that approval, license, notification or permit. Include copies of such approvals, licenses and permits in the CEMP.
G36	3.2.2	Include in your CEMS a compliance tracking program and keep the program up to date.
G36	3.2.3	Include in the CEMP environmental objectives and target for the Work Under the deed which must be consistent with RMS Environment Policy Statement.
G36	3.2.4	Prepare and implement Environmental Work Method Statements (EWMS) specified in D&C G36, D&C 38 and/or D&C G40 and others as required. Develop the EWMS in consultation with the relevant site management personnel to ensure that all issues are addressed, methods and activities are practical, and all personnel are aware of their commitments and responsibilities. Review the EWMS

TfNSW Specification	Reference	Requirement
		periodically to ensure its effectiveness and proper implementation and incorporate any improvements or changes identified into subsequent revisions.
G36	3.3	Provide sufficient resources, including site personnel, for the effective implementation of the CEMP for the duration of the Work Under the deed. The CEMP must indicate the names, responsibilities and authority of your site management personnel who have primary responsibility for developing, implementing and maintaining the CEMS and the CEMP for the Work Under the deed, and rectifying any environmental nonconformities identified by you or the RMS Representative.
G36	3.3	Nominate in the CEMP a full-time Environmental Site Representative (ESR) who will be the authorised contact person for communications with the RMS Representative and the EPA on all environmental matters.
G36	3.4	Include environmental management requirements in the planning, selection and management of subcontractors. Include a requirement to comply with the CEMP in all contractual arrangements with your subcontractors.
G36	3.5	The CEMP must include a site-specific environmental induction and training plan that describes the minimum level of training, experience and/or qualifications required for staff and subcontractors working on Site, the names of the persons to be trained, the proposed frequency of training and the procedures for training. Establish and maintain a register of environmental training carried out, including dates, names of persons trained and trainer details.
G36	3.6	Normal working hours are from Monday to Friday between 7.00 am to 6.00 pm and Saturday between 8.00 am to 1.00 pm inclusive but excluding public holidays. The CEMP must include a procedure for notifying the RMS Representative, all relevant Authorities and the community, in advance of any proposal to work outside of these working hours. Such changes in working hours must comply with all licenses, permits, approvals, consents, notification, statutory requirements, etc. and have been appropriately justified and assessed.
G36	3.7	Describe in the CEMP the processes for external and internal communication in relation to the environmental aspects of the Work Under the deed.
G36	3.7.1	The CEMP must identify at least two persons (together with their contact telephone numbers) who will be available to be contacted by the EPA on a 24 hour basis and who have authority to take immediate action to shut down any activity, or to effect any pollution control measure, as directed by an authorised officer of the EPA.
G36	3.7.2.1	Notify local residents about any new or changed construction activities which will affect access to their properties or otherwise disrupt the residents' use of their premises, at least five (5) working days before commencing work affecting residents.
G36	3.7.2.3	Inform the RMS Representative, and the residents of the proposed work outside normal working hours in accordance with the Environment Protection held by you.

TfNSW Specification	Reference	Requirement
G36	3.7.3	Within one (1) working day of receiving a complaint about any environmental issue, including any pollution incidents, arising from the Work Under the deed, submit a written report to the RMS Representative detailing the complaint and the action taken to remedy the problem. A final report together with your proposed measures to prevent the recurrence of such incidents must be submitted to the RMS Representative within five (5) working days.
G36	3.8	<p>The CEMP must include:</p> <ul style="list-style-type: none"> a) your key emergency response personnel, their respective responsibilities and contact details including all-hours contact telephone numbers; b) emergency services (e.g. ambulance, fire brigade, spill clean-up services); c) your communication strategy, both internal and external (refer to Clause 3.7), during emergencies; d) any identified potential environmental emergencies that may occur on Site, and the response procedures for these emergencies; e) frequency of tests of the emergency response procedures. <p>Induct all staff and subcontractors working on the Site about the potential environmental emergencies and provide training in implementing the relevant environmental safeguards and risk mitigation measures.</p>
G36	3.9	Include in the CEMP procedure(s) to monitor and measure, on a regular basis, your environmental management performance and to evaluate compliance with this Specification.
G36	3.9	<p>Undertake regular site environmental inspections to assess the adequacy and effectiveness of your environmental controls. The site environmental inspections must cover the following:</p> <ul style="list-style-type: none"> high risk activities and processes; work in environmentally sensitive areas; and site preparedness for adverse weather conditions, including adequacy of environmental controls and availability of emergency equipment.
G36	3.9	Include in the CEMP a risk-based auditing program to verify that the Work Under the deed meets the requirements of this Specification.
G36	3.9	Conduct all internal and external environmental audits for the Work Under the deed in accordance with AS/NZS ISO 19011.
G36	3.11	Maintain, as part of the project records in accordance with RMS D&C Q6 Annexure Q/E, legible environmental records of all environmental activities associated with Work Under the deed to demonstrate compliance with the CEMS and CEMP.
G36	3.12	Develop a documented process to periodically review the effectiveness and proper implementation of the CEMP. The management review process must identify opportunities for continual improvement of your environmental management processes and practices and ensure that the CEMS and CEMP remain relevant to the Work Under the deed.

TfNSW Specification	Reference	Requirement
G36	4.1	Comply with the requirements of Specification RMS G38 for soil and water management.
G36	4.2.2	Include in your CEMP a Contaminated Land Management Sub-Plan.
G36	4.2.3	Promptly notify the RMS Representative of any suspected or potential contamination exposed during construction activities and cease all work activities within the vicinity of actual or suspected contaminated land.
G36	4.2.4	Prepare a Remediation Action Plan for remediating the known areas of contamination, and areas of potential contamination in the immediate vicinity.
G36	4.2.5	Implement relevant control measures to divert any surface runoff away from the contaminated land, and capture and treat any surface runoff contaminated by exposure to the contaminated land.
G36	4.3	Plan and execute the Work Under the deed so as to minimise the possibility of pollution of the Site and adjoining areas by chemicals, dangerous goods and other potential contaminants.
G36	4.3	<p>Prepare a procedure for the following activities, as a minimum, to minimise the possibility of pollution of the Site:</p> <ul style="list-style-type: none"> a) refueling or maintenance and cleaning of plant and equipment including concrete agitators, bitumen spray bars and asphalt pavers; b) on-site batching of concrete and asphalt; c) mixing of bitumen with cutting oil and additives; d) application of liquid membranes, including paint and thermoplastic, resin, emulsion, precoat agent and curing compound; e) bulk fuel or chemical deliveries; f) removal and disposal of excess chemicals and water used for washing down of equipment; g) pumping out of oil and grease collection pits; and <p>decanting operations such as for fuel, chemicals and bitumen.</p>
G36	4.4	Prepare and implement an Air Quality Management Sub-Plan as part of the CEMP, or include mitigation strategies within the CEMP, to minimise the impact of dust, offensive odour, and other air pollutants on the surrounding environment, including adjacent properties and sensitive places.
G36	4.5	<p>Comply with the requirements of the Rural Fires Act 1997 (NSW), and the Local Government Act 1993 (NSW) and be guided by the NSW Rural Fire Service publication "Equipment and Machinery Use in Bush Fire Prone Areas". Provide firefighting equipment as required for the safety of persons and property.</p> <p>All items of plant used during proclaimed high fire danger periods that could discharge sparks must be fitted with spark arresters. Do not undertake cutting, welding, grinding or other activities likely to generate fires in the open on days when a total fire ban is proclaimed.</p>

TfNSW Specification	Reference	Requirement
G36	4.6	Prepare and implement a Noise Management Sub-Plan as part of the CEMP, or include mitigation strategies within the CEMP, to minimise the impact of noise from your operations on adjacent properties. The Noise Management Sub-Plan or mitigation strategies must include proposed environmental control measures for all significant noise generating activities. Where works are proposed to be undertaken outside of normal working hours, comply with the requirements of Clause 3.7.2.
G36	4.7	Implement all measures to prevent damage to adjacent public utilities, structures and buildings resulting from construction vibration and air blast. Prepare, as part of the CEMP, a Vibration and Air Blast Management Sub-Plan as part of the CEMP, or include mitigation strategies within the CEMP, that describes the environmental controls to be implemented during construction to minimise the impact of vibration and air blast on adjacent properties and residents.
G36	4.8	Prepare and implement a Flora and Fauna Management Sub-Plan as part of the CEMP, or include mitigation strategies within the CEMP, to provide effective environmental controls to protect all native flora, fauna, and fish from the impact of your construction activities.
G36	4.9	Prepare an Aboriginal Heritage Management Sub-Plan as part of the CEMP or include mitigation strategies within the CEMP to manage any areas of the Site where known Aboriginal objects, places and/or culturally sensitive areas have been identified on Site.
G36	4.10	Prepare a Non-Aboriginal Heritage Management Plan as part of the CEMP or include mitigation strategies within the CEMP to manage any areas of the Site where any known heritage items/s and/or archaeological sites have been identified.
G36	4.11.1	Prepare a Waste Management Sub-Plan as part of the CEMP.
G36	4.11.2	Maintain a Waste Management Register until the Construction Completion Date, to record the type, amount and location of waste reused, recycled, stockpiled and disposed of.
G36	4.12	Use of pesticides must be in accordance with the <i>Pesticides Act 1999</i> , other relevant legislation, label directions and any relevant industry codes of practice.
G36	4.13	Clearly show all identified environmentally sensitive areas and sensitive places on Sensitive Area Maps, submitted as part of the CEMP.
G36	4.13	Prepare and include in the CEMP an EWMS for working in or near the environmentally sensitive areas.
G36	4.14	Prepare and include in the CEMP an environmental incident reporting and investigation procedure, including Pollution Incident Response Management Plan.
G36	4.15.1	Locate and manage your site facilities to minimise impacts on the environment and the community.

TfNSW Specification	Reference	Requirement
G36	4.15.2	Prior to taking possession of any area of land nominated by the RMS Representative as available for use by you for locating your site facilities, including areas for construction materials storage and stockpiling, arrange for a pre-construction land condition assessment of each area you intend to occupy.
G36	4.15.3	When the areas of the RMS Representative's land used for the Contractor's site facilities are no longer required, and after restoration of the areas in accordance with Clause 4.16, arrange for a post-construction land condition assessment for each area that has been used.
G36	4.16	Prior to Construction Completion, restore areas disturbed by you (such as areas for site compounds, material storage, access and haul roads and the provision of RMS Site Facilities) to a condition similar to that existing before disturbance.
G38	Section 2.1.1	Prepare and implement a Soil Water Management Plan
G38	Section 2.1.2	<p>The SWMP must include details of the following, where relevant:</p> <ul style="list-style-type: none"> (a) Purpose and objectives of SWMP. (b) Approvals, licence requirements and relevant legislation. (c) Site investigation and assessment of the following: <ul style="list-style-type: none"> (i) soil properties (including dispersion properties and presence of acid sulphate soils); (ii) rainfall records and design parameters; (iii) waterways and other water related sensitive environments; (iv) groundwater; (v) possibilities of, and limitations on, water extraction. (d) Environmental control measures, including: <ul style="list-style-type: none"> (i) responsibility for its implementation, including the names and contact details of the person(s) responsible; (ii) resources required for its construction, monitoring, maintenance and removal; (iii) implementation schedule for the measures, related to construction activities; (iv) monitoring and maintenance of the environmental controls. (e) Other associated plans, Environmental Work Method Statements (EWMS) and procedures. (f) Construction sediment retention basins, including details of the following: <ul style="list-style-type: none"> (i) design of the construction sediment retention basins, including any temporary modifications to the operational basins, providing details of the approach, standards, criteria and references used in the design of the basins; (ii) management of the basins; (iii) procedures for testing, treatment and discharge of water from the basins; (iv) procedures for the periodic removal and disposal of the sediment collected within the basins. (g) Training, including: <ul style="list-style-type: none"> (i) site induction; (ii) environmental training; (iii) toolbox training.

TfNSW Specification	Reference	Requirement
		(h) Inspection and auditing.
G38	Section 2.1.1	Prepare an Erosion and Sediment Control Plan (ESCP) for the Work Under the Contract
G38	Section 2.2.2	<p>The ESCP must identify all erosion and sediment control risks and describe how these will be addressed during construction. The ESCP must include details of the following where relevant:</p> <ul style="list-style-type: none"> (a) erosion and sediment control measures required: <ul style="list-style-type: none"> (i) before clearing and grubbing of the Site; (ii) before removal of topsoil and commencement of earthworks within the catchment area; (b) how upstream water will be managed so it is not polluted by the construction activities; (c) method of tree removal in intermittent watercourses, leaving grasses and small understorey species undisturbed wherever possible; (d) scour protection measures for haul roads and access tracks when these are an erosion hazard due to either their steepness, soil erodibility or potential for concentrating runoff flow; (e) measures for stabilising temporary drains; (f) measures to minimise erosion during construction of embankments; (g) measures to minimise erosion and control sedimentation from stockpiles; (h) methods of constructing batters to assist the retention of topsoil on the batter slopes; (i) measures to temporarily trap sediment in median areas at regular intervals; (j) controls in runoff flow paths to reduce flow velocities and minimise the potential for erosion; (k) measures for controlling wastewater discharge on or around the Site from dewatering (refer to Clause 3.5), surface washing, grit blasting, saw cutting, drilling, washing vehicles and plant and any other activities which add pollutants to water; (l) measures to be put in place during an extended shut-down of the Site or when rainfall above a certain trigger level is predicted; (m) maintenance of erosion and sediment control structures including measures to restore their capacity; <p>inspection and auditing program for all erosion and sediment controls to ensure that no disturbed area is left without adequate erosion and sediment controls.</p>
G38	Section 2.3	Prepare and implement a Water Quality Monitoring Program
G38	Section 3.5	Establish erosion control and sediment capture measures, and maintain them regularly, to divert offsite stormwater, manage onsite stormwater runoff and stabilise stockpiles in accordance with RMS Technical Guideline EMS-TG- 010: Stockpile Site Management and the BLUE BOOK guidelines.
G38	Section 3.4.1	Conduct any dewatering activities in a manner that does not cause erosion and/or pollute the environment.

TfNSW Specification	Reference	Requirement
G38	Section 3.4.2	Prepare a procedure for all identified dewatering activities as part of the SWMP or ESCP.
G38	Section 3.4.5	Keep records of the following: (i) dewatering procedure; (ii) date and time for each discharge at each location; (iii) water quality test results for each discharge; (iv) personnel approving the dewatering activities; (v) evidence of discharge monitoring, or risk assessment and mitigation measures used to eliminate the risks of pollution or erosion; any other EPA licence requirements where issued.
G38	Section 3.7.1	Where work is required within waterways, prepare an Environmental Work Method Statement (EWMS) for the work(s).
G38	Section 3.2.1	Construct operational basins in accordance with the Design Documentation Drawings or as required.
G38	Section 3.2.2	Design the construction sediment retention basins in accordance with the BLUE BOOK guidelines.
G38	Section 3.2.4	Clean out sediment basins, at minimum, whenever the accumulated sediment exceeds 60% of the sediment storage zone.
G40	Section 2.4	Before clearing commences, identify the limits of clearing by clearly visible markers placed at 25m intervals on each side of the road formation and bridges as shown on the Drawings. Also provide a report which: (a) includes a statement from an Ecologist that identifies the species and location of any weeds growing anywhere in the road reserve over the length to be cleared and grubbed; (b) identifies all locations of threatened flora species and trees which have been marked or otherwise identified for preservation; and lists any trees outside the limits of clearing which are unsound and likely to fall upon the roadway or onto private property.
G40	Section 2.4	Plan and carry out all operations to ensure that there is no damage to any trees outside the limits of clearing specified.
G40	Section 2.4	Trees nominated in (c) above must be marked and identified in the clearing and grubbing plan in a manner which allows them to be identified as one of the listed trees and whether pruning or removal is recommended. Areas of weed infestation identified in the ecologist report (Clause 2.4 (a) must be marked).
G40	Section 2.4	Weeds must be removed and disposed of in accordance with the requirements of the local Council.
G40	Section 2.4	Take protective measures during the operations of clearing and road construction to avoid damaging or destroying threatened flora species and trees which have been marked or otherwise identified for preservation. These measures must include but not be limited to: (i) fencing around trees clear of the canopy line;

TfNSW Specification	Reference	Requirement
		<p>(ii) ensuring no materials are stockpiled and no vehicles are parked under the canopy;</p> <p>(iii) avoiding excavation or the placing of fill near any tree without advice from an ecologist; and routing haul roads and access tracks clear of the canopy.</p>
G40	Section 4.1	<p>Native trees removed during clearing and grubbing may be used in conjunction with soil erosion and sediment control measures. All other native trees removed must be converted to mulch and stockpiled for use during landscape planting under the Contract. This requirement is subject to the following constraints:</p> <p>(a) Where the native vegetation on Site is insufficient to provide the quantities of mulch needed during landscape planting, all native trees removed during clearing and grubbing must be mulched and stockpiled. Under no circumstances must the extent of clearing and grubbing be extended, or weeds or exotic species used to make up any shortfall of mulch;</p> <p>Where the quantity of mulch produced exceeds the quantity required under the Contract, the excess mulch will become your property and must be removed from the Site.</p>

Table 4-3: TfNSW G36, G38 and G40 specification hold and witness points

TfNSW Specification	Clause	Type	Description
G36	3.1	Hold	Submission of CEMP and selected CEMS documents
G36	3.2.2	Hold	Evidence of approvals, licences and permits obtained
G36	3.10	Hold	Verification that environmental nonconformities has been rectified
G36	4.2	Hold	Submission of Remediation Action Plan for contaminated land
G36	4.7	Hold	Building Condition Inspection Reports and Vibration and Air Blast Management Sub-Plan
G36	4.11	Hold	Copy of "s.143 Notice"
G36	4.13	Hold	Working in or near environmentally sensitive areas
G36	4.15.2	Hold	Submission of pre-construction land condition assessment report for each area you intend to occupy for your site facilities
G38	3.1	Hold	Submission of an ESCP(s) and, where required, WQMP for a section of the Works.
G38	3.1	Witness	Submission of written notice that measures set out in the ESCP for a section of the work have been installed.
G40	2.4	Hold	Written notification of intention to clear any area.

Table 4-4: NSW State Conditions of Approval

TfNSW Specification	Clause
A1	The CSSI must be carried out in accordance with the terms of this approval and generally in accordance with the description of the CSSI in the Sydney Gateway Road Project Environmental Impact Statement/Preliminary Draft Major Development Plan (dated November 2019) (the EIS / MDP) and the Sydney Gateway Road Project Response to Submissions Report (dated May 2020).
A2	The CSSI must be carried out in accordance with all procedures, commitments, preventative actions, performance outcomes and mitigation measures set out in the documents identified in Condition A1 unless otherwise specified in, or required under, this approval.
A3	In the event of an inconsistency between the EIS, as amended by the description in the Response to Submissions, or any other document required under this approval, and a term of this approval, the term of this approval prevails to the extent of the inconsistency. <i>Note: For the purpose of this condition, there will be an inconsistency between a term of this approval and any document if it is not possible to comply with both the term and the document.</i>
A4	The Proponent must comply with the written requirements or directions of the Planning Secretary, including in relation to: (a) the environmental performance of the CSSI; (b) any document or correspondence in relation to the CSSI (including the provision of such documentation or correspondence); (c) any independent appointment or withdrawal of an appointment made in relation to the CSSI; (d) any notification given to the Planning Secretary under the terms of this approval; (e) any audit of the construction or operation; (f) the terms of this approval and compliance with the terms of this approval (including anything required to be done under this approval); (g) the carrying out of any additional monitoring or mitigation measures; and (h) in respect of ongoing monitoring and management obligations, and following consultation with the Proponent, compliance with an updated or revised version of a guideline, protocol, Australian Standard or policy required to be complied with under this approval. AS Where the terms of this approval require a document or monitoring program to be prepared or a review to be undertaken in consultation with identified parties, evidence of the consultation undertaken must be submitted to the Planning Secretary with the document. The evidence must include: (a) documentation of the engagement with the party identified in the condition of approval that has occurred before submitting the document for approval; (b) a log of the dates of engagement or attempted engagement with the identified party; (c) documentation of the follow-up with the identified party where engagement has not occurred to confirm that they do not wish to engage or have not attempted to engage after repeated invitations; (d) outline of the issues raised by the identified party and how they have been addressed; and (e) a description of the outstanding issues raised by the identified party and the reasons why they have not been addressed.
A6	This approval lapses five (5) years after the date on which it is granted, unless Work is physically commenced on or before that date.

TfNSW Specification	Clause
A7	References in the terms of this approval to any guideline, protocol, Australian Standard or policy are to such guidelines, protocols, Standards or policies in the form they are in as at the date of this approval.
A8	Any document that must be submitted within a timeframe specified in or under the conditions of this approval may be submitted within a later timeframe agreed with the Planning Secretary. This condition does not apply to the immediate notification required in respect of an incident under Condition A34. Note: Inaction and/or expedience will not be supported as justifications for need unless it can be demonstrated that there are beneficial environmental impacts associated with the request.
A9	The CSSI may be constructed and operated in stages. Where staged construction or operation is proposed, a Staging Report (for either or both construction and operation as the case may be) must be prepared and submitted to the Planning Secretary for information. The Staging Report must be submitted to the Planning Secretary no later than one month before the commencement of construction of the first of the proposed stages of construction (or if only staged operation is proposed, one month before the commencement of operation of the first of the proposed stages of operation). The report must be endorsed by the Environmental Representative (ER) before it is submitted to the Planning Secretary.
A10	The Staging Report must: (a) if staged construction is proposed, set out how the construction of the whole of the CSSI will be staged, including details of work and other activities to be carried out in each stage and the general timing of when construction of each stage will commence and finish; (b) if staged operation is proposed, set out how the operation of the whole of the CSSI will be staged, including details of work and other activities to be carried out in each stage and the general timing of when operation of each stage will commence and finish (if relevant); (c) specify how compliance with conditions will be achieved across and between each of the stages of the CSSI; and (d) set out mechanisms for managing any cumulative impacts arising from the proposed staging.
A11	The CSSI must be staged in accordance with the Staging Report, as submitted to the Planning Secretary.
A12	Where staging is proposed, the terms of this approval that apply or are relevant to the Work or activities to be carried out in a specific stage must be complied with at the relevant time for that stage.
A13	Where changes are proposed to the staging of construction or operation, a revised Staging Report must be prepared and submitted to the Planning Secretary for information no later than one (1) month prior to the proposed change in the staging.
A14	Ancillary facilities that are not identified by description and location in the documents referred to in condition A1 can only be established and used in each case if: (a) they are located within or immediately adjacent to the construction boundary; and (b) they are not located next to a sensitive receiver(s) (including where an access road is between the facility and the receiver), unless the sensitive receiver(s) (both the landowner(s) and occupier(s)) have given written acceptance to the carrying out of the relevant facility in the proposed location; and (c) they have no impacts on heritage items (including areas of archaeological sensitivity), threatened species, populations or ecological communities beyond the impacts approved under the terms of this approval; and (d) the establishment and use of the facility can be carried out and managed within the outcomes

TfNSW Specification	Clause
	set out in the terms of this approval, including in relation to environmental, social and economic impacts.
A15	<p>Before establishment of a major construction ancillary facility (i.e. excluding minor construction ancillary facility(s) established under Condition A17), the Proponent must prepare a Site Establishment Management Plan which outlines the environmental management practices and procedures to be implemented for the establishment of the construction ancillary facility(s). The Site Establishment Management Plan must be prepared in consultation with the relevant councils and EESG, Heritage Council, DPIE Water, Sydney Water and Pipeline Operators as applicable. The Plan must be submitted to the Planning Secretary for approval one (1) month before the establishment of any major construction ancillary facility(s). The Plan must be endorsed by the ER before it is submitted to the Planning Secretary. The Site Establishment Management Plan must detail the management of the establishment of the major construction ancillary facility(s) and include:</p> <ul style="list-style-type: none"> (a) a description of activities to be undertaken during establishment of the facility (including scheduling and duration of works to be undertaken at the site); (b) figures illustrating the proposed site layout; (c) a program for ongoing analysis of the key environmental risks arising from the site establishment activities described in subsection (a) of this condition, including an initial risk assessment undertaken prior to the commencement of site establishment works; (d) details of how the site establishment activities described in subsection (a) of this condition will be carried out to: <ul style="list-style-type: none"> (i) meet the performance outcomes stated in the documents listed in the documents listed in Condition A1, and (ii) manage the risks identified in the risk analysis undertaken in subsection (c) of this condition; and (e) a program for monitoring the performance outcomes, including a program for construction noise monitoring consistent with the requirements of Condition C15. <p>Nothing in this condition prevents the Proponent from preparing individual Site Establishment Management Plans for each major construction ancillary facility.</p>
A16	The use of a major construction ancillary facility for construction must not commence until the CEMP required by Condition C1, relevant CEMP Sub-plans required by Condition C5 and relevant Construction Monitoring Programs required by Condition C15 have been approved by the Planning Secretary.
A17	<p>Lunch sheds, office sheds, portable toilet facilities, and the like, can be established and operated where they satisfy the following criteria:</p> <ul style="list-style-type: none"> (a) are located within the construction boundary; and (b) have been assessed by the ER to have - <ul style="list-style-type: none"> (i) minimal amenity impacts to surrounding residences and businesses, after consideration of matters such as compliance with the Interim Construction Noise Guideline (DECC, 2009), traffic and access impacts, dust and odour impacts, and visual (including light spill) impacts, and (ii) minimal environmental impact with respect to waste management and flooding, and (iii) no impacts on biodiversity, soil and water, and heritage items beyond those already approved under other terms of this approval.
A18	Boundary screening must be erected around all construction ancillary facilities that are adjacent to sensitive receivers for the duration of construction of the CSSI unless otherwise agreed with the relevant Council, and with affected residents, business operators and landowners.

TfNSW Specification	Clause
A19	Boundary screening, that is also a controlled action under the Airports Act 1996, is not required to be erected where the Airport Operator (or CASA or Airservices Australia) has advised the Proponent in writing that approval is required under the Airports Act 1996 and that the approval will not be granted.
A20	Boundary screening required under Condition A18 of this approval must minimise visual, noise and air quality impacts on adjacent sensitive receivers.
A21	Work must not commence until an ER has been approved by the Planning Secretary and engaged by the Proponent.
A22	The Planning Secretary's approval of an ER must be sought no later than one month before the commencement of Work. The proposed ER must be a suitably qualified and experienced person who was not involved in the preparation of the documents listed in Condition A1, and is independent from the design and construction of the CSSI.
A23	The Proponent may engage more than one ER for the CSSI, in which case the functions to be exercised by an ER under the terms of this approval may be carried out by any ER that is approved by the Planning Secretary for the purposes of the CSSI. The ER must meet the requirements set out in the Environmental Representative Protocol (Department of Planning and Environment, October 2018). The appointment of the ER must have regard to the Department's guideline Seeking approval from the Department for the appointment of independent experts (OPIE, 2020).
A24	For the duration of the Work, or as agreed with the Planning Secretary, the approved ER must: (a) receive and respond to communication from the Planning Secretary in relation to the environmental performance of the CSSI; (b) consider and inform the Planning Secretary on matters specified in the terms of this approval; (c) consider and recommend to the Proponent any improvements that may be made to work practices to avoid or minimise adverse impact to the environment and to the community; (d) review documents identified in Conditions A9, A15, C1, CS and C15 and any other documents that are identified by the Planning Secretary, to ensure they are consistent with requirements in or under this approval and if so: (i) make a written statement to this effect before submission of such documents to the Planning Secretary (if those documents are required to be approved by the Planning Secretary); or (ii) make a written statement to this effect before the implementation of such documents (if those documents are required to be submitted to the Planning Secretary / Department for information or are not required to be submitted to the Planning Secretary/Department); (e) regularly monitor the implementation of the documents listed in Conditions A9, A15, C1, CS and C15 to ensure implementation is being carried out in accordance with the document and the terms of this approval; (f) as may be requested by the Planning Secretary, help plan, attend or undertake audits of the CSSI commissioned by the Department including scoping audits, programming audits, briefings and site visits, but not independent environmental audits required under Condition A29 of this approval; (g) as may be requested by the Planning Secretary, assist the Department in the resolution of community complaints; (h) assess the impacts of minor construction ancillary facilities as required by Condition A17 of this approval; (i) consider any minor amendments to be made to the CEMP, CEMP Sub-plans, Construction Monitoring Programs and Site Establishment Plans that comprise updating or are of an administrative nature, and are consistent with the terms of this approval and the CEMP, CEMP Sub-plans and Construction Monitoring Programs approved by the Planning Secretary and, if satisfied such amendments are necessary, approve the amendment. This does not include any modifications to the terms of this approval; and (j) prepare and submit to the Planning Secretary and EESG, EPA, Heritage Council, OPIE Water, where requested by those agencies, for information, an Environmental Representative Monthly Report providing the information set out in the Environmental Representative Protocol under the heading

TfNSW Specification	Clause
	"Environmental Representative Monthly Reports." The Environmental Representative Monthly Report must be submitted within seven (7) days following the end of each month for the duration of the ER's engagement for the CSSI.
A25	<p>The Proponent must provide the ER with all documentation requested by the ER in order for the ER to perform their functions specified in Condition A24 (including preparation of the ER monthly report), as well as:</p> <p>(a) the complaints register to be provided for any complaints received (on any day they are received); and</p> <p>(b) a copy of any assessment carried out by the Proponent of whether proposed work is consistent with the approval (which must be provided to the ER before the commencement of the subject work).</p>
A26	<p>The Planning Secretary may at any time commission an audit of how the ER has exercised their functions. The Proponent must:</p> <p>(a) facilitate and assist the Planning Secretary in any such audit; and</p> <p>(b) make it a term of their engagement of an ER that the ER facilitate and assist the Planning Secretary in any such audit.</p> <p>The Planning Secretary may withdraw its approval of the ER should they consider the ER has not exercised their functions in accordance with this approval.</p>
A27	The Department must be notified in writing of the dates of commencement of construction and operation at least one (1) month before those dates.
A28	If the construction or operation of the CSSI is to be staged, the Department must be notified in writing at least one (1) month before the commencement of each stage, of the date of commencement of that stage.
A29	The Proponent must undertake auditing and audit reporting in accordance with the document Independent Audit, Post Approval Requirements (DPIE, 2020).
A30	Operational compliance auditing is only required at 26 weeks following the commencement of operation.
A31	The Proponent must seek the written agreement of the Planning Secretary to the independent auditor(s) no later than 2 weeks following commencement of construction and prior to the commencement of an Independent Audit. The auditor(s) must meet the competence and independence requirements set out in Section 3 of Independent Audit, Post Approval Requirements (DPIE, 2020).
A32	The Planning Secretary may require initial and subsequent Independent Audits to be undertaken at different times to those specified in Independent Audit, Post Approval Requirements (DPIE, 2020), upon giving at least one (1) month notice to the Proponent of the date upon which the audit must be commenced.
A33	The Planning Secretary may direct the Proponent to undertake Independent Audits in addition to those provided for in Condition A29 when considered necessary to address a particular issue.
A34	The Department must be notified as soon as possible and no later than 24 hours after the Proponent becomes aware of an incident. This initial advice can be via telephone and must identify the CSSI (including the name and application number), time, date, location and nature of the incident
A35	Subsequent written notification must be given and reports submitted to the Planning Secretary in accordance with the requirements set out in Appendix A, unless otherwise approved by the Planning Secretary.
A36	Signage on fencing or hoardings surrounding construction ancillary facilities must include the CSSI name and application number.

TfNSW Specification	Clause
A37	The Proponent must report back to the Planning Secretary within six (6) months of the date of this approval being granted on how the project has commenced in line with its inclusion in the Planning System Acceleration Program.
B1	<p>A Communication Strategy must be prepared to provide mechanisms to facilitate communication about construction and operation of the CSSI with:</p> <p>(a) the community (including adjoining affected landowners and businesses, and others directly impacted by the CSSI), and (b) the relevant councils and EPA, EESG, NSW Health, Heritage Council, DPIE Water, Sydney Water, ARTC and Pipeline Operators, as applicable.</p> <p>The Communication Strategy must address who (the Proponent, Independent Appointments and/or construction contractor) will engage with the community, relevant councils and agencies, how they will engage and the timing of engagements.</p>
B2	<p>The Communication Strategy must:</p> <p>(a) identify people, organisations councils and agencies to be consulted during the design and work phases; (b) include details of the community demographics; (c) set out procedures and mechanisms for the regular distribution of accessible information, including to LOTE and CALO and vulnerable communities about or relevant to the CSSI; (d) identify opportunities for education within the community about construction sites; (e) detail the measures for advising the community in advance of upcoming utility Work including the schedule for out-of-hours Work as required in Condition E19; (f) provide for the formation of issue or location-based community forums that focus on key environmental management issues of concern to the relevant community(ies) for the CSSI; and (g) set out procedures and mechanisms: (i) through which the community can discuss or provide feedback to the Proponent 24 hours a day, seven days a week; (ii) through which the Proponent will respond to enquiries or feedback from the community; and (iii) to resolve any issues and mediate any disputes that may arise in relation to the environmental management and delivery of the CSSI, including disputes regarding rectification or compensation.</p>
B3	The Communication Strategy must be submitted to the Planning Secretary for approval no later than one month before commencement of any Work.
B4	Work for the purposes of the CSSI must not commence until the Communication Strategy has been approved by the Planning Secretary.
B5	For the purposes of Conditions B3 and B4, Work does not include survey, geotechnical and contaminations investigations. The Proponent must provide at least 5 days notification of survey, geotechnical and contamination investigations to residents and business within 500 metres of the subject activity.
B6	The Communication Strategy, as approved by the Planning Secretary, must be implemented for the duration of Work and for 12 months following the completion of construction.

TfNSW Specification	Clause
B7	A Complaints Management System must be prepared and implemented before the commencement of any Work and maintained for the duration of construction and for a minimum for 12 months following completion of construction of the CSSI.
B8	<p>The following information must be available to facilitate community enquiries and manage complaints one (1) month before the commencement of Work and for 12 months following the completion of construction:</p> <ul style="list-style-type: none"> (a) a 24- hour telephone number for the registration of complaints and enquiries about the CSSI; (b) a postal address to which written complaints and enquires may be sent; (c) an email address to which electronic complaints and enquiries may be transmitted; and (d) a mediation system for complaints unable to be resolved. <p>This information must be accessible to all in the community regardless of age, ethnicity, disability or literacy level.</p>
B9	The telephone number, postal address and email address required under Condition B8 of this approval must be made available on-site boundary fencing / hoarding at each construction site and ancillary facility before the commencement of construction. This information must also be provided on the website required under Condition B12 of this approval.
B10	<p>A Complaints Register must be maintained recording information on all complaints received about the CSSI during the carrying out of any Work and for a minimum of 12 months following the completion of construction. The Complaints Register must record the:</p> <ul style="list-style-type: none"> (a) number of complaints received; (b) the date and time of the complaint; (c) the method by which the complaint was made; (d) any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect (e) nature of the complaint; (f) means by which the complaint was addressed and whether resolution was reached, with or without mediation; and (g) if no action was taken, the reason(s) why no action was taken
B11	The Complaints Register must be provided to the Planning Secretary upon request, within the timeframe stated in the request.
B12	<p>A website or webpage providing information in relation to the CSSI must be established before commencement of Work and maintained for the duration of construction, and for a minimum of 24 months following the completion of construction. The following up-to-date information (excluding confidential, private, commercial information or any other information that the Planning Secretary has approved to be excluded) must be published and maintained on the website or dedicated pages including:</p> <ul style="list-style-type: none"> (a) information on the current implementation status of the CSSI; (b) a copy of the documents listed in Condition A1 of this approval, and any documentation relating to any modifications made to the CSSI or the terms of this approval;

TfNSW Specification	Clause
	<p>(c) a copy of this approval in its original form, a current consolidated copy of this approval (that is, including any approved modifications to its terms), and copies of any approval granted by the Minister to a modification of the terms of this approval;</p> <p>(d) a copy of each statutory approval, licence or permit required and obtained in relation to the CSSI;</p> <p>(e) a current copy of the final version of each document required under the terms of this approval; and</p> <p>(f) a copy of the audit reports required under Condition A29 of this approval.</p> <p>Where the information/ document relates to a particular Work or is required to be implemented, it must be published before the commencement of the relevant Work to which it relates or before its implementation.</p>
C1	A Construction Environmental Management Plan (CEMP) must be prepared to detail how the performance outcomes, commitments and mitigation measures specified in the documents listed in Condition A1 will be implemented and achieved during construction.
C2	The CEMP must be prepared having regard to the Environmental Management Plan Guideline - Guideline for Infrastructure Projects (Department of Planning, Industry and Environment, April 2020).
C3	The CEMP must be endorsed by the ER and then submitted to the Planning Secretary for approval no later than one month before the commencement of construction. The approved CEMP and Subplans must be submitted to DITRDC for information no later than two (2) weeks after its approval.
C4	<p>The CEMP must provide:</p> <p>(a) a description of activities to be undertaken during construction (including the scheduling of construction) including site layout figures;</p> <p>(b) details of environmental policies, guidelines and principles to be followed in the construction of the CSSI;</p> <p>(c) a program for ongoing analysis of the key environmental risks arising from the activities described in subsection (a) of this condition and cumulative impacts arising from other projects, including an initial risk assessment undertaken before the commencement of construction;</p> <p>(d) details of how the activities described in subsection (a) of this condition will be carried out to:</p> <p>(i) meet the performance outcomes stated in the documents listed in Condition A1; and</p> <p>(ii) manage the risks identified in the risk analysis undertaken in subsection (c) of this condition;</p> <p>(e) an inspection program detailing the activities to be inspected and frequency of inspections;</p> <p>(f) a protocol for managing and reporting any:</p> <p>(i) incidents; and</p> <p>(ii) non-compliances with this approval or statutory requirements;</p> <p>(g) procedures for rectifying any non-compliance with this approval identified during compliance auditing, incident management or at any time during construction;</p> <p>(h) a list of all the CEMP Sub-plans required in respect of construction, as set out in Condition C5. Where staged construction of the CSSI is proposed, the CEMP must also identify which CEMP Sub-plan applies to each of the proposed stages of construction;</p> <p>(i) a description of the roles and environmental responsibilities for relevant roles and their relationship with the ER;</p> <p>(j) for training and induction for employees, including contractors and sub-contractors, in relation to environmental and compliance obligations under the terms of this approval; and</p> <p>(k) for periodic review and update of the CEMP and all associated plans and programs.</p>

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C5	<p>The following CEMP Sub-plans must be prepared in consultation with the relevant agencies identified for each CEMP Sub-plan. Details of all information requested by an agency during consultation must be included in the relevant CEMP Sub-plan, including copies of all correspondence from those agencies.</p> <ul style="list-style-type: none"> (a) Traffic and Transport -- (Relevant Councils) (b) Noise and Vibration -- (Pipeline Operators and Sydney Water (where vibration generating activities will impact on their assets) and relevant councils) (c) Soil and Water -- (OPIE Water, Sydney Water (if it is proposed to discharge to or impact on its assets) and relevant councils) (d) Contaminated aquatic sediments in Alexandria Canal -- (Sydney Water) (e) Heritage -- (Heritage Council, Sydney Water and relevant councils) (f) Landfill Leachate, Gas and Odour -- (Relevant councils) (g) Groundwater (including contaminated groundwater, all impacts to groundwater resources, groundwater take and any secondary impacts) -- (OPIE Water, Sydney Water (if it is proposed to discharge to or impact on its assets)) (h) Flora and fauna -- (EESG)
C6	<p>The CEMP Sub-plans must state how:</p> <ul style="list-style-type: none"> (a) the environmental performance outcomes identified in the documents listed in Condition A1 will be achieved; (b) the mitigation measures identified in the documents listed in Condition A1 will be implemented; (c) the relevant terms of this approval will be complied with; and (d) issues requiring management during construction, as identified through ongoing environmental risk analysis, will be managed.
C7	<p>The Landfill Leachate, Gas and Odour CEMP Sub-plan must include:</p> <ul style="list-style-type: none"> (a) measures to manage landfill gas emissions and limit odours generated during construction so as not to cause offensive odour beyond the boundary of the construction footprint, including site specific action criteria and notification procedures for receivers potentially affected by odour generation; (b) measures to monitor and manage landfill gases accumulating in buildings, basins and subsurface trenches and pits associated with the CSSI; (c) details of the closure and stabilisation of the impacted area of landfill so it is suitable for its intended uses; (d) methods for the management of leachate including treatment and disposal as well as measures for preventing leachate resulting from Work migrating from the landfill off site; (e) reporting triggers and contingency actions in the event that unacceptable levels of odours, and landfill gases are reached or reported above safe thresholds at the boundary of the construction footprint; (f) reporting triggers and contingency actions should leachate migrate off/site from the landfill or if there is any environmental or health problems caused by leachate; (g) community engagement processes to be undertaken if nuisance odours move beyond the construction boundary; (h) evidence that an EPA accredited Site Auditor has reviewed the Landfill Leachate, Gas and Odour CEMP Sub-plan and has issued an interim audit advice or a Section B Site Audit Statement regarding the appropriateness of the Sub-plan; and (i) evidence that the Landfill Leachate, Gas and Odour CEMP Sub-plan and the interim audit advice or a Section B Site Audit Statement regarding the appropriateness of the Sub-plan issued by the accredited Site Auditor has been submitted to the relevant council and the EPA and they have no further concern.

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	<p>A copy of any advice or recommendations required by this condition must be submitted to the Planning Secretary for information with the Sub-plan.</p> <p>The Sub-plan must be developed in accordance with the objectives of the existing Voluntary Remediation Proposal (Ref. 26050) approved by the EPA.</p>
C8	<p>The Contaminated Aquatic Sediments in Alexandra Canal CEMP Sub-plan must:</p> <ul style="list-style-type: none"> (a) detail how work in Alexandra Canal will be managed; (b) be in accordance with the Remediation Order (Ref. 23004) that applies to the Canal; and (c) include evidence that an accredited EPA Site Auditor has reviewed the Sub-plan and has issued an interim audit advice or a Section B Site Audit Statement regarding the appropriateness of the Sub-plan.
C9	<p>Any variations to the Landfill Leachate, Gas and Odour CEMP Sub-plan and Contaminated Aquatic Sediments in Alexandra Canal CEMP Sub-plan must be approved in writing by the EPA accredited Site Auditor and evidence of the approval submitted to the Planning Secretary for information with the amended Sub-plan.</p>
C10	<p>The Flora and Fauna Management Plan must include, but not be limited to:</p> <ul style="list-style-type: none"> (a) details of the measures to minimise disturbance to native vegetation to the minimum extent necessary; and (b) measures to avoid and minimise impacts on microbats, including pre-construction surveys of potential roost sites in accordance with "Standard survey methods - Roost Search (microbats)" on page 9 of 'Species credit' threatened bats and their habitats NSW survey guide for the Biodiversity Assessment Method,' in built structures to be impacted, to confirm the presence or absence of roosting habitat.
C11	<p>The Noise and Vibration CEMP Sub-plan must be prepared in consultation with businesses that contain noise and vibration sensitive critical working areas that are operational and will be impacted by construction noise and vibration. The Sub-plan must detail how construction would be managed in accordance with Condition E22 to avoid or minimise impacts during sensitive periods.</p>
C12	<p>Notwithstanding Condition C11, the Proponent may implement an existing agreed acoustic framework with a business. The relevant conditions of this approval still apply to any agreed framework.</p>
C13	<p>Any of the CEMP Sub-plans may be submitted along with, or subsequent to, the submission of the CEMP but in any event, no later than one (1) month before construction.</p>
C14	<p>Construction must not commence until the CEMP and all CEMP Sub-plans have been approved by the Planning Secretary. The CEMP and CEMP Sub-plans, as approved by the Planning Secretary, including any minor amendments approved by the ER, must be implemented for the duration of construction. Where construction of the CSSI is staged, construction of a stage must not commence until the CEMP and Sub-plans for that stage have been approved by the Planning Secretary.</p>
C15	<p>The following Construction Monitoring Programs must be prepared in consultation with the relevant agencies identified for each program to compare actual performance of construction of the CSSI against the predicted performance and to inform management measures.</p> <ul style="list-style-type: none"> (a) Noise and vibration -- (Pipeline operators and relevant councils) (b) Leachate, landfills and odour -- (Relevant Councils) (c) Groundwater - (DPIE Water)

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C16	<p>Each Construction Monitoring Program must provide:</p> <ul style="list-style-type: none"> (a) details of baseline data available; (b) details of baseline data to be obtained and when; (c) details of all monitoring of the project to be undertaken; (d) the parameters of the project to be monitored; (e) the frequency of monitoring to be undertaken; (f) the location of monitoring; (g) the timeframes and format for reporting of monitoring results and the agencies that will be provided with copies of the monitoring reports; (h) procedures to identify and implement additional mitigation measures where results of monitoring are unsatisfactory; and (i) any consultation to be undertaken in relation to the monitoring programs.
C17	<p>The Landfill Leachate, Gas and Odour Monitoring Program must include, but not be limited to:</p> <ul style="list-style-type: none"> (a) methods for monitoring landfill gas and odour emissions within construction areas, at the construction boundary and in areas outside of the construction boundary where there is a potential for landfill gas and offensive odours, including odour sampling of Tempe landfill material; (b) a monitoring bore network to monitor any leachate movement offsite; (c) reporting triggers and contingency actions in the event that unacceptable levels of gas or odour are reached or reported above safe thresholds; and (d) detail how the results of the monitoring program will inform the management measures in the CEMP Sub-plan for Landfill Leachate, Gas and Odour.
C18	<p>The Noise and Vibration Monitoring Program must include, but not be limited to:</p> <ul style="list-style-type: none"> (a) noise and vibration monitoring at agreed representative locations adjacent to the construction to confirm construction noise and vibration levels; (b) for the purposes of (a), noise monitoring must be undertaken during the day, evening and night-time periods and within the first month of Work as well as throughout the construction period and cover the range of activities being undertaken at the sites; and (c) provision of any real time noise and vibration monitoring data. The data must be readily available to the construction team, Proponent and ER. The Department and EPA must be provided with access to the real-time monitoring data, on request.
C19	<p>The Groundwater Monitoring Program must include, but not be limited to:</p> <ul style="list-style-type: none"> (a) monitoring and recording of actual volumes of groundwater pumped from all excavations; (b) monitoring and recording of groundwater levels and groundwater quality adjacent to areas where there is physical compaction in areas with shallow groundwater tables or adjacent to the former Tempe Landfill; (c) regular analysis of accumulated data against the groundwater impacts predicted in the documents listed in Condition A1; and (d) a method for providing the groundwater monitoring data to DPIE Water every three (3) months during the monitoring period within one month of the last monitoring period, including the format of the data.
C20	<p>The Construction Monitoring Programs must be developed in consultation with relevant agencies as identified in Condition C15 of this approval and must identify information, including monitoring parameters, requested by a relevant agency to be included in a Construction Monitoring Program.</p>

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C21	The Construction Monitoring Programs must be endorsed by the ER and then submitted to the Planning Secretary for approval at least one month before the commencement of construction.
C22	Construction must not commence until the Planning Secretary has approved all of the required Construction Monitoring Programs, and all relevant baseline data for the specific construction activity has been collected.
C23	The Construction Monitoring Programs, as approved by the Planning Secretary, including any minor amendments approved by the ER, must be implemented for the duration of construction and for any longer period set out in the monitoring program or specified by the Planning Secretary, whichever is the greater.
C24	The results of the Construction Monitoring Programs must be submitted to the Planning Secretary, and relevant regulatory agencies, for information in the form of a Construction Monitoring Report at the frequency identified in the relevant Construction Monitoring Program. Note: Where a relevant CEMP Sub-plan exists, the relevant Construction Monitoring Program may be incorporated into that CEMP Sub-plan.
D1	An Operational Environmental Management Plan (OEMP) must be prepared by having regard to the Environmental Management Plan Guideline for Infrastructure Projects (Department Planning, Industry and Environment, 2020). The plan must detail how the performance outcomes, commitments and mitigation measures made and identified in the documents listed in Condition A1 will be implemented and achieved during operation. This condition (Condition D1) does not apply if Condition D2 of this approval applies.
D2	An OEMP is not required for the CSSI if the Proponent has an Environmental Management System (EMS) or equivalent as agreed with the Planning Secretary, and demonstrates, to the satisfaction of the Planning Secretary, that through the EMS or equivalent: (a) the performance outcomes, commitments and mitigation measures, made and identified in the documents listed in Condition A1 and specified relevant terms of this approval can be achieved; (b) issues identified through ongoing risk analysis can be managed; and (c) procedures are in place for rectifying any non-compliance with this approval identified during compliance auditing, incident management or any other time during operation.
D3	The OEMP or EMS or equivalent as agreed with the Planning Secretary, must be submitted to the Planning Secretary and DITRDC for information no later than one (1) month before the commencement of operation
D4	The OEMP or EMS or equivalent as agreed with the Planning Secretary, as submitted to the Planning Secretary and amended from time to time, must be implemented for the duration of operation and the OEMP or EMS or equivalent must be made publicly available before the commencement of operation.
D5	The Proponent must prepare an operational groundwater monitoring plan to monitor the effects of physical compaction on groundwater resources. The monitoring program must: (a) monitor and record groundwater levels and groundwater quality adjacent to substantial road ramp construction activities loading onto shallow groundwater tables or adjacent to the former Tempe Landfill and use the groundwater bores installed for construction monitoring under Condition C19; and (b) include a method for providing the groundwater monitoring data to DPIE Water every three (3) months during the monitoring period within one month of the last monitoring period, including the format of the data.

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	The monitoring program must be developed in consultation with DPIE Water and submitted to the Planning Secretary for approval at least one month prior to the commencement of operation. The monitoring program must be implemented.
D6	Groundwater monitoring must be undertaken for a period of 18 months once the CSSI is operational, unless the Proponent undertakes a review of future monitoring requirements in consultation with DPIE Water and that review concludes that additional monitoring is no longer required. Within two (2) weeks of the completion of the review, the Proponent must provide a copy of the review to the Planning Secretary for information.
E1	In addition to the performance outcomes, commitments and mitigation measures specified in the documents listed in Condition A1, all reasonably practicable measures must be implemented to minimise the emission of dust and other air pollutants during the construction and operation of the CSSI.
E2	The CSSI must not cause or permit the emission of offensive odour beyond the boundary of the construction footprint.
E3	<p>The CSSI must be designed and constructed to meet the following levels:</p> <ul style="list-style-type: none"> (a) a maximum increase in inundation time of one hour in a 1% AEP flood event; (b) a maximum increase of 10 mm in inundation at properties where floor levels are currently exceeded in a 1% AEP flood event; (c) a maximum increase of 50 mm in inundation at properties where floor levels would not be exceeded in a 1% AEP flood event; and (d) no inundation of floor levels which are currently not inundated in a 1% AEP flood event. <p>Measures identified in the documents listed in Condition A1, to not worsen flood characteristics or other measures that achieve the same outcomes, must be incorporated into the detailed design of the CSSI. The incorporation of these measures must be reviewed and endorsed by a suitably qualified and experienced person in consultation with directly affected landowners, EESG, NSW State Emergency Service (SES) and relevant councils.</p>
E4	Flood information developed during detailed design, such as flood reports, flood management strategies, models and geographic information system outputs, and work as executed information from a registered surveyor certifying finished ground levels, the dimensions and finished levels of all structures constructed as part of the CSSI within the flood prone land, must be provided to the relevant council(s), EESG and the SES in order to assist in preparing relevant documents and to reflect changes in flood behaviour as a result of the CSSI. The council, EESG and the SES must be notified in writing that the information is available no later than one (1) month following the completion of construction. Information requested by the relevant council, EESG or the SES must be provided no later than two (2) months following the completion of construction or within another timeframe agreed with the relevant council, EESG and the SES.
E5	<p>The CSSI must be designed so that:</p> <ul style="list-style-type: none"> (a) all temporary and permanent project lighting complies and is installed in accordance with the relevant requirements in the applicable legislation made under the Civil Aviation Act 1988 and the Airports Act 1996 and NASF Guideline E: Managing the Risk of Distractions to Pilots from Lighting in the Vicinity of Airports to minimise the risk of distraction of pilots; and (b) the potential glare from vehicular headlights distracting pilots is mitigated in accordance with the applicable legislation made under the Civil Aviation Act 1988 and the Airports Act 1996 and the NASF Guideline E: Managing the Risk of Distractions to Pilots from Lighting in the Vicinity of Airports; and (c) the influence of the project on turbulence along the approach to Runway 16R is minimised in accordance with the as low as reasonably practicable (ALARP) principles in consultation with the DITRDC and relevant regulatory aviation stakeholders; and (d) all structures and their use, including but not limited to bridges, lighting, signage and noise walls, do not intrude into the prescribed airspace for Sydney Airport.

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E6	The final design of the CSSI must be provided to the DITRDC as it is developed for review against the requirements of the NASF Guidelines. The construction of individual design elements of the CSSI must not commence until any related advice received from the DITRDC has been considered and addressed. Relevant requirements of the NASF guidelines must be addressed.
E7	An Archival Recording must be undertaken of those parts of Alexandra Canal that will be affected by Works. The archival recording must be prepared in accordance with NSW Heritage Office's How to Prepare Archival Recordings of Heritage Items (1998) and Photographic Recording of Heritage Items Using Film or Digital Capture (2006). The recordings must capture those parts of the Canal impacted by Works, and the immediate surrounds, before, during and after the Works.
E8	<p>Following completion of all Work described in relation to:</p> <ul style="list-style-type: none"> (a) Alexandra Canal; (b) archaeological deposits discovered within areas identified as having a potential to contain archaeological remains; and (c) any unexpected heritage finds discovered during construction; <p>a Heritage Report including the details of archival recordings, further historical research either undertaken or to be carried out and archaeological excavations (with artefact analysis and identification of a final repository for finds), must be prepared in accordance with any guidelines and standards required by the Heritage Council of NSW and Heritage NSW, DPC.</p>
E9	The Heritage Report must be submitted to the Planning Secretary, the Heritage Council of NSW and Heritage DPC for information no later than nine (9) months after the completion of the work referred to in Condition E7.
E10	An Unexpected Heritage Finds and Human Remains Procedure must be prepared to manage unexpected heritage finds in accordance with any guidelines and standards prepared by the Heritage Council of NSW or Heritage DPC.
E11	The Unexpected Heritage Finds and Human Remains Procedure must be prepared and submitted to the Planning Secretary for information no later than one month before the commencement of construction.
E12	<p>The Unexpected Heritage Finds and Human Remains Procedure, as submitted to the Planning Secretary, must be implemented for the duration of construction.</p> <p>Note: Human remains that are found unexpectedly during the carrying out of Work may be under the jurisdiction of the NSW State Coroner and must be reported to the NSW Police immediately.</p>
E13	A detailed land use survey must be undertaken to confirm sensitive receivers (including critical working areas such as flight simulators, operating theatres and precision laboratories) potentially exposed to construction noise and vibration, construction ground-borne noise and operational noise. The survey may be undertaken on a progressive basis but must be undertaken in any one area before the commencement of Work which generates construction or operational noise, vibration or ground-borne noise in that area. The results of the survey must be included in the Noise and Vibration CEMP Sub-plan.

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E14	<p>Work must only be undertaken during the following hours:</p> <ul style="list-style-type: none"> (a) 7:00 am to 6:00 pm Mondays to Fridays, inclusive; (b) 8:00 am to 6:00 pm Saturdays; and (c) at no time on Sundays or public holidays.
E15	<p>Except as permitted by an EPL or Out-of-Hours Work Protocol (where an EPL does not apply), highly noise intensive works that result in an exceedance of the applicable NML at the same receiver must only be undertaken:</p> <ul style="list-style-type: none"> (a) between the hours of 8:00 am to 6:00 pm Monday to Friday; (b) between the hours of 8:00 am to 1:00 pm Saturday; and (c) if continuously, then not exceeding three (3) hours, with a minimum cessation of work of not less than one (1) hour. <p>For the purposes of this condition, 'continuously' includes any period during which there is less than one (1) hour between ceasing and recommencing any of the highly noise intensive works.</p>
E16	<p>Notwithstanding Conditions E14 and E15, Work may be undertaken outside the hours specified in the following circumstances:</p> <ul style="list-style-type: none"> (a) for the delivery of materials required by the NSW Police Force or other appropriate authority for safety reasons; or (b) where it is required in an emergency to avoid injury or the loss of life, to avoid damage or loss of property or to prevent environmental harm; or (c) where the relevant road authority has advised the Proponent in writing that carrying out Work during the hours specified in Condition E14 would result in a high risk to road network operational performance and a road occupancy licence will not be issued during the hours specified in Condition E14; or (d) where an approval is required for a controlled activity in accordance with the Airports Act 1996 and the approved time is outside the hours specified in Condition E14; or (e) where the rail authority has advised the Proponent in writing that a Rail Possession is required and approval has been given to complete Work during the rail possession; or (f) where different construction hours are permitted or required under an EPL in force in respect of the CSSI; or (g) where an EPL is not required or in force, Work approved through an Out-of-Hours Work Protocol developed in accordance with Condition E18; or (h) construction that causes: <ul style="list-style-type: none"> (i) LAeq(15 minute) noise levels no more than 5 dB(A) above the rating background level at any residence in accordance with the Interim Construction Noise Guideline (DECC, 2009), and (ii) LAeq(15 minute) noise levels no more than the 'Noise affected' noise management levels specified in Table 3 of the Interim Construction Noise Guideline (DECC, 2009) at other sensitive land uses, and (iii) continuous or impulsive vibration values, measured at the most affected residence are no more than the preferred values for human exposure to vibration, specified in Table 2.2 of Assessing Vibration: a technical guideline (DEC, 2006), and (iv) intermittent vibration values measured at the most affected residence are no more than the preferred values for human exposure to vibration, specified in Table 2.4 of Assessing Vibration: a technical guideline (DEC, 2006); or

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	<p>(i) where negotiated agreements with directly affected residents and sensitive land uses have been reached.</p> <p>Note: Section 5.24(1)(e) of the EP&A Act requires that an EPL be substantially consistent with this approval.</p>
E17	<p>On becoming aware of the need for emergency Work in accordance with Condition E16(b), the Proponent must notify the ER, the Planning Secretary and the EPA of the reasons for such work. The Proponent must use best endeavours to notify all noise and/or vibration affected sensitive receivers of the likely impact and duration of those Works.</p>
E18	<p>An Out-of-Hours Work Protocol must be prepared to identify a process for the consideration, management and approval of Work outside the hours defined in Condition E14 and that is not subject to an EPL. The Protocol must be approved by the Planning Secretary before commencement of the Work. The Protocol must identify Work activities in terms of their risk of adverse impacts on sensitive receivers and include:</p> <ul style="list-style-type: none"> (d) a process for the consideration of out-of-hours Work against the relevant noise management level (NML) and vibration criteria, including the determination of low, medium and high-risk activities; (e) a process for selecting and implementing mitigation measures for residual impacts in consultation with the community at each affected location, including respite periods consistent with the requirements of Condition E19 and Condition E20. The measures must take into account the predicted noise and vibration levels and the likely frequency and duration that sensitive receivers would be exposed to residual impacts, including the number of noise-awakening events; (f) procedures to facilitate the coordination of out-of-hours Work, including those approved by an EPL or undertaken by a third party, to ensure appropriate respite is provided; (g) an approval process that considers the risks, proposed mitigation, management and coordination of Work, including where - <ul style="list-style-type: none"> (i) the ER reviews all proposed out-of-hours Works and confirms their risk levels, (ii) low risk activities can be approved by the ER, and (iii) medium and high-risk activities are approved by the Planning Secretary; and (h) notification arrangements for affected receivers and the EPA for all approved out-of-hours Work and notification to the Planning Secretary of approved low risk out-of-hours Work.
E19	<p>In order to undertake Work outside hours specified in Condition E14, the Proponent must identify appropriate respite periods for out-of-hours Work in consultation with the community likely to exceed the NML and vibration criteria in Condition E23(a) and (b) at each affected location on at least a three (3) monthly basis. This consultation must include (but not be limited to) providing the community with:</p> <ul style="list-style-type: none"> (a) a schedule of likely out-of-hours work for a period no less than three (3) months; (b) a description of the potential Work, location and duration; (c) the noise characteristics and likely noise levels of the Work; and (d) likely mitigation and management measures to be implemented. <p>The outcomes of the community consultation, the identified respite periods and the scheduling of the likely out-of-hour Work must be provided to the EPA, ER and Planning Secretary for information within two (2) week of undertaking the community consultation.</p>

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	<p>Note: Respite periods can be any combination of days or hours where out-of-hours Work would not be more than 5 dB(A) above the rating background level at any residence.</p>
E20	<p>Additional mitigation measures such as temporary alternative accommodation or other agreed mitigation measures, must be offered/ made available to residents affected by out-of-hours Work (including where utility works are being undertaken for the CSSI) where the construction noise levels, between:</p> <p>(a) 10:00 pm and 7:00 am, Monday to Friday; (b) 10:00 pm Saturday to 8:00 am Sunday; and (c) 6:00 pm Sunday and public holidays to 7:00 am the following day unless that day is Saturday then to 8:00 am,</p> <p>are predicted to exceed the NML by 25 dB(A) or are greater than 75 dBA (LAeq(15 min), whichever is the lesser and the impact is planned to occur for more than two (2) nights over a seven (7) day rolling period.</p> <p>The NML must be reduced by 5 dB where the noise contains annoying characteristics and increased by 10 dB if the property has received at-property noise treatment. The noise levels and duration requirements identified in this condition may be changed through an EPL applying to the CSSI.</p>
E21	<p>All Work undertaken for the delivery of the CSSI, including those undertaken by third parties (such as utility relocations), must be coordinated to ensure respite periods are provided. The Proponent must:</p> <p>(a) reschedule any Work to provide respite to impacted residential receivers so that the respite is achieved in accordance with Conditions E19 and E20; or (b) consider the provision of alternative respite or mitigation to impacted noise sensitive receivers; and (c) provide documentary evidence to the ER in support of any decision made by the Proponent in relation to respite or mitigation.</p>
E22	<p>Noise and vibration generating Work in the vicinity of potentially-affected community, religious, educational institutions and noise and vibration-sensitive businesses and critical working areas (such as flight simulators, theatres, laboratories and operating theatres) resulting in noise levels above the NMLs or vibration levels above the relevant criteria must not be timetabled within sensitive periods, unless other reasonable arrangements with the affected institutions are made at no cost to the affected institution.</p>
E23	<p>Mitigation measures must be implemented with the aim of achieving the following construction noise management levels and vibration criteria:</p> <p>(a) construction 'Noise affected' noise management levels established using the Interim Construction Noise Guideline (DECC, 2009); (b) vibration criteria established using the Assessing vibration: a technical guideline (DEC, 2006) (for human exposure); (c) Australian Standard AS 2187.2 • 2006 "Explosives - Storage and Use - Use of Explosives"; (d) BS 7385 Part 2-1993 "Evaluation and measurement for vibration in buildings Part 2" as they are "applicable to Australian conditions"; and (e) the vibration limits set out in the German Standard DIN 4150-3: Structural Vibration- effects of vibration on structures (for structural damage).</p> <p>Any Work identified as exceeding the noise management levels and/or vibration criteria must be managed in accordance with the Noise and Vibration</p>

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	<p>CEMP Sub-plan.</p> <p>Note: The Interim Construction Noise Guideline identifies 'particularly annoying' activities that require the addition of 5 dB(A) to the predicted level before comparing to the construction Noise Management Level.</p>
E24	<p>Mitigation measures must be applied when the following residential ground-borne noise levels are exceeded:</p> <p>(a) evening (6:00 pm to 10:00 pm) - internal LAeq(1s minute): 40 dB(A); and</p> <p>(b) night (10:00 pm to 7:00 am)- internal LAeq11sm;aute): 35 dB(A).</p> <p>The mitigation measures must be outlined in the Noise and Vibration CEMP Sub-plan required by Condition CS, including in any Out-of-Hours Work Protocol required by Condition E18.</p>
E25	<p>Prior to undertaking dynamic compaction, the Proponent must:</p> <p>(a) complete a trial of different weights and heights at a location that is the furthest from any sensitive structure and residents to refine the minimum working distances for human comfort</p> <p>- preferred values for human exposure to vibration specified in Tables 2.2 and 2.4 of Assessing Vibration: a technical guideline and cosmetic damage in accordance with BS 7385 and DIN 4150;</p> <p>(b) schedule dynamic compaction to occur during the hours specified in Condition E14 unless:</p> <p>(i) the compaction work requires approval as a controlled activity in accordance with the Airports Act 1996 and the approved time is outside the hours specified in Condition E14, or</p> <p>(ii) it can be demonstrated that the preferred values would not be exceeded; and</p> <p>(iii) evidence of this is provided to the Planning Secretary at least one (1) week prior to the activity being undertaken; and</p> <p>(c) provide alternative accommodation for residents within the minimum working distances where exceedance of the preferred values for human comfort are likely and:</p> <p>(i) the impact is planned to occur for more than two (2) nights over a seven (7) day rolling period; and</p> <p>(ii) the works must be completed at night (10:00 pm to 7:00 am).</p>
E26	<p>Owners and occupiers of properties at risk of exceeding the screening criteria for cosmetic damage must be notified before Work that generates vibration commences in the vicinity of those properties. If the potential exceedance is to occur more than once or extend over a period of 24 hours, owners and occupiers are to be provided a schedule of potential exceedances on a monthly basis for the duration of the potential exceedances, unless otherwise agreed by the owner and occupier. These properties must be identified and considered in the Noise and Vibration CEMP Sub-plan.</p>
E27	<p>The Proponent must conduct vibration testing before and during vibration generating activities that have the potential to impact on heritage items to identify minimum working distances to prevent cosmetic and structural damage. In the event that the vibration testing and monitoring shows that the preferred values for vibration are likely to be exceeded, the Proponent must review the construction methodology and, if necessary, amend the methodology and/or implement additional mitigation measures to prevent damage.</p>

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E28	The Proponent must seek and implement the advice of a heritage specialist on impacts to heritage listed structures from installing equipment used for vibration, movement and noise monitoring before its installation.
E29	The Proponent must consult with proponents or applicants of other State significant development and infrastructure projects within 200 metres of the CSSI and take reasonable steps to coordinate Work, including utility Work, to minimise cumulative noise and vibration impacts and maximise respite for affected sensitive receivers.
E30	At no time can noise generated by Work exceed the National Standard for exposure to noise in the occupational environment of an eight-hour (8 hr) equivalent continuous A-weighted sound pressure level of LAeq of 85 dB(A) for any employee working at a location near the CSSI.
E31	<p>The Proponent must prepare an Operational Noise and Vibration Review (ONVR) to confirm noise and vibration control measures that would be implemented for the operation of the CSSI. The ONVR must be prepared in consultation with the relevant council(s), other relevant stakeholders and the community and must:</p> <ul style="list-style-type: none"> (a) confirm the appropriate operational noise and vibration objectives and levels for surrounding development, including existing sensitive receivers; (b) confirm the operational noise predictions based on the final design. Confirmation must be based on an appropriately calibrated noise model (which has incorporated noise monitoring, and concurrent traffic counting, where necessary for calibration purposes). (c) confirm the operational noise and vibration impacts at adjoining development based on the final design of the CSSI, including operational daytime LAeq,1s hour and night-time LAeq, hour traffic noise contours; (d) review the suitability of the operational noise mitigation measures identified in the documents listed in Condition A1 and, where necessary, investigate and identify additional noise and vibration mitigation measures required to achieve the noise criteria outlined in the NSW Road Noise Policy (DECCW, 2011) including the timing of implementation; (e) detail the measures to seek feedback on the noise and vibration mitigation measures and the process as to how changes requested from directly affected landowners would be responded to; and (f) procedures for the management of operational noise and vibration complaints. <p>The ONVR is to be verified by a suitably qualified and experienced noise and vibration expert. The ONVR is to be undertaken at the Proponent's expense and submitted to the Planning Secretary for approval before the implementation of mitigation measures.</p> <p>The Proponent must implement the identified noise and vibration control measures prior to commencement of operation unless otherwise approved by the Planning Secretary.</p> <p>The Proponent must make the ONVR publicly available.</p>
E32	<p>Operational noise mitigation measures for residences identified:</p> <ul style="list-style-type: none"> (a) as eligible for consideration of additional mitigation in the Sydney Gateway Road Project Response to Submissions Report Appendix B - Memo Sydney

TfNSW Specification	Clause
	<p>Gateway Road Project Submissions Report Revised Operational Modelling Figure 6 Receivers Eligible for Consideration of Additional Mitigation; and (b) as likely to exceed the noise management level in Condition E23(a);</p> <p>must be implemented within six (6) months of the commencement of construction at and in the vicinity of the impacted residences(s) to minimise construction noise impacts, and detailed in the Noise and Vibration CEMP Sub-plan for the CSSI, unless otherwise approved by the Planning Secretary in accordance with Condition E33. Additional mitigation must be prioritised so that those receivers with the largest likely exceedance of the noise management level receive the mitigation first.</p>
E33	<p>Where the implementation of operational noise mitigation measures required by Condition E32 would not be implemented, the Proponent must submit to the Planning Secretary a report to justify this position. The report must detail the temporary measures that would be implemented to reduce construction noise impacts, until such time that the operational noise mitigation measures are implemented. The report must be endorsed by the ER and submitted to the Planning Secretary prior to the commencement of Work which would affect the identified residences.</p> <p>Note: Not having finalised detailed design is not sufficient justification for not implementing the proposed mitigation measures.</p>
E34	<p>Landowners of residences that are eligible for consideration of at-property treatments must be provided with a copy of all guidelines and procedures that will be used to determine at-property treatment at their residence.</p>
E35	<p>Within 12 months of the commencement of operation of the CSSI the Proponent must undertake monitoring of operational noise to compare actual noise performance of the CSSI against the noise performance predicted in the review of noise mitigation measures required by Condition E31.</p>
E36	<p>The Proponent must prepare an Operational Noise Compliance Report to document this monitoring. The Report must include, but not necessarily be limited to:</p> <ul style="list-style-type: none"> (a) noise monitoring to assess compliance with the operational noise levels predicted in the review of operational noise mitigation measures required under Condition E31; (b) a review of the operational noise levels in terms of criteria and noise goals established in the NSW Road Noise Policy 2011; (c) methodology, location and frequency of noise monitoring undertaken, including monitoring sites at which CSSI noise levels are ascertained, with specific reference to locations indicative of impacts on receivers; (d) details of any complaints and enquiries received in relation to operational noise generated by the CSSI between the date of commencement of operation and the date the report was prepared; (e) any required recalibrations of the noise model taking into consideration factors such as noise monitoring and actual traffic numbers and proportions; (f) an assessment of the performance and effectiveness of applied noise mitigation measures together with a review and if necessary, reassessment of mitigation measures; and (g) identification of additional measures to those identified in the review of noise mitigation measures required by Condition E31, that are to be implemented with the objective of meeting the criteria outlined in the NSW Road Noise Policy (EPA, 2011), when these measures are to be implemented and how their effectiveness is to be measured and reported to the Planning Secretary and the EPA. The measures must be implemented within the stated timeframes.

TfNSW Specification	Clause
	The Operational Noise Report must be submitted to the Planning Secretary and the EPA within 60 days of completing the operational noise monitoring.
E37	<p>The CSSI must not preclude both a future rail turn-out facility at Cooks River intermodal Terminal and ramps between the CSSI and Canal Road. A statement, including relevant details and diagrams, must be provided to the Planning Secretary prior to construction commencing in the vicinity demonstrating that this infrastructure has not been precluded.</p> <p>Note: Any Rail turn-out facility or ramp would require further assessment and approval under the relevant State or Commonwealth planning legislation.</p>
E38	The Proponent must identify the utilities and services (hereafter "services") potentially affected by Work to determine requirements for diversion, protection and/or support. Alterations to services must be determined by negotiation between the Proponent and the service providers. The Proponent in consultation with service providers must ensure that disruption to services resulting from the Work are avoided where possible and where unavoidable customers are advised in accordance with the Communication Strategy required under Condition B1.
E39	The Proponent must offer pre-construction surveys to the owners of surface and sub-surface structures and other relevant assets identified at risk of damage from vibration. Where the offer is accepted, the survey must be undertaken by a suitably qualified and experienced engineer prior to the commencement of vibration-generating works that could impact on the structure. The results of each survey must be documented in a Pre-construction Condition Survey Report and the report must be provided to the owner of the structure or other relevant asset for review one month prior to the commencement of potentially impacting works.
E40	Where pre-construction surveys have been undertaken in accordance with Condition E39, subsequent post-construction surveys must be undertaken by a suitably qualified and experienced engineer to assess damage to the surface and subsurface structures that may have resulted from construction. The results of the post-construction surveys must be documented in Post-construction Condition Survey Reports for each surface and sub-surface structure surveyed. The Post-construction Condition Survey Reports must be provided to the owner of the structure(s) surveyed no later than four (4) months following the completion of construction activities that have the potential to impact on the subject surface/ subsurface structure.
E41	Where damage has been determined to occur as a result of the CSSI, the Proponent must carry out rectification at its expense and to the reasonable requirements of the surface and sub-surface structure owner(s) within nine (9) months of completion of construction unless another timeframe is agreed with the owner of the affected surface or sub-surface structure.
E42	A temporary off-leash dog exercise facility with the same functionality as the existing dog park, must be maintained within Tempe Reserve in consultation with Inner West Council to offset the loss of the existing Tempe Lands dog park. The dog park must be provided prior to the closure of the existing dog park and remain functional until such time that a permanent dog park is provided within Tempe Lands. Access to the temporary park must be maintained throughout the construction period.

TfNSW Specification	Clause
E43	All reasonably practicable erosion and sediment controls must be installed and appropriately maintained to minimise water pollution. When implementing such controls, any relevant guidance in the Managing Urban Stormwater: Soils and Construction series must be considered.
E44	<p>Prior to the commencement of any works that would result in the disturbance of potential or contaminated soils, materials, groundwater or sediments, a Contaminated Sites Investigation Report must be prepared, or reviewed and approved, by consultants certified under either the Environment Institute of Australia and New Zealand's Certified Environmental Practitioner (Site Contamination) scheme (CEnvP(SC)) or the Soil Science Australia Certified Professional Soil Scientist Contaminated Site Assessment and Management (CPSS CSAM) scheme. The site investigations must be undertaken in accordance with guidelines made or approved under section 105 of the Contaminated Land Management Act 1997.</p> <p>Note: Where Stage 1 and Stage 2 contamination assessments have already been undertaken for contaminated soils, materials, groundwater or sediments they do not need to be undertaken again for the purposes of this condition.</p>
E45	<p>The Contaminated Sites Investigation Report must document the outcomes of the detailed site investigation and any site-specific risk assessments of land upon which the CSSI is to be carried out, that is suspected, or known, to be contaminated. The report must identify the nature and extent of the contamination and any existing remediation (such as impervious surface capping, liners or barriers). The Contamination Site Investigation Report must detail, where relevant, whether the land is suitable (for the intended final land use) or can be made suitable through remediation and outline the potential contamination risks from the CSSI to human health and the environment.</p> <p>Nothing in this condition prevents the Proponent from preparing individual Contaminated Sites Investigation Reports for separate sites</p>
E46	<p>Should remediation be required to make land suitable for the final intended land use, or if the current leachate management system for Tempe Landfill is to be modified or breached, a Remediation Action Plan must be prepared. Prior to commencing with the remediation, the Proponent must submit to the Planning Secretary for information, the Remediation Action Plan and an Interim Audit Advice or a Section B Site Audit Statement from a NSW EPA accredited Site Auditor that certifies that the Remediation Action Plan is appropriate and that the site can be made suitable for the proposed use. The Remediation Action Plan must be developed in accordance with the objectives of the existing Voluntary Remediation Proposal (Ref. 26050) approved by the EPA.</p> <p>The Remediation Action Plan must be implemented and any changes to the Remediation Action Plan must be approved in writing by the EPA-accredited Site Auditor.</p> <p>Notes: The leachate management system (as defined by the Voluntary Remediation Proposal Ref. 26050) consists of a cut-off wall, leachate drain, rising main and pump wells.</p> <p>It is strongly recommended that a site auditor is engaged as early in the assessment and remediation process as possible, as early communication between parties improves the efficiency of the audit.</p>

TfNSW Specification	Clause
E47	<p>A Section A Site Audit Statement and its accompanying Section A Site Audit Report, which state that the contaminated land disturbed by the works has been made suitable for the intended land use, must be submitted to the Planning Secretary and relevant council after remediation and no later than one (1) month before the commencement of operation. Contaminated land must not be used for the purpose approved under the terms of this approval until a Section A Site Audit Statement is obtained which states that the land is suitable for that purpose and any conditions on the Section A Site Audit Statement have been complied with.</p> <p>Nothing in the conditions prevents the Proponent from obtaining Section A Site Audit Statements for individual parcels of remediated land.</p>
E48	<p>An Unexpected Contaminated Land and Asbestos Finds Procedure must be prepared before the commencement of Work and must be followed should unexpected contaminated land or asbestos (or suspected contaminated land or asbestos) be excavated or otherwise discovered during construction.</p>
E49	<p>The Unexpected Contaminated Land and Asbestos Finds Procedure must be implemented throughout the duration of Work.</p>
E50	<p>A Sustainability Strategy must be prepared to achieve a minimum 'excellent' 'Design' and 'As built' rating under the Infrastructure Sustainability Council of Australia infrastructure rating tool.</p>
E51	<p>The Sustainability Strategy must be submitted to the Planning Secretary for information one: (1) month before the commencement of construction and must be implemented throughout construction and operation.</p>
E52	<p>Heavy vehicles used for spoil haulage and concrete deliveries associated with the CSSI are not permitted to use local roads within one (1) kilometre of works and construction ancillary facilities, unless approved by the Planning Secretary. This includes movements associated with waiting to access construction ancillary facilities and work areas. All local roads approved for use by the Planning Secretary must be identified in the Traffic and Transport CEMP Sub-plan.</p>
E53	<p>All requests to the Planning Secretary for the approval of spoil haulage and concrete delivery vehicles to use local roads must include:</p> <ul style="list-style-type: none"> (a) a swept path analysis; (b) demonstrate that the use of local roads will not compromise the safety of pedestrians and cyclists and have minimal amenity impacts on residents residing along the local road(s); (c) provide details as to the date of completion of the road dilapidation surveys for the subject local roads; and (d) describe the measures that will be implemented to avoid where practicable the use of local roads past schools, aged care facilities and childcare facilities during their peak times of operation.
E54	<p>Before any local road is used by a heavy vehicle for the purposes of construction of the CSSI, a Road Dilapidation Report must be prepared for the road. A copy of the Road Dilapidation Report must be provided to the relevant council within three weeks of completion of the survey and at least two weeks before the road is used by heavy vehicles associated with the construction of the CSSI.</p>
E55	<p>If damage to roads occurs as a result of the construction of the CSSI, the Proponent must either (at the relevant road authority's discretion):</p> <ul style="list-style-type: none"> (a) compensate the relevant road authority for the damage so caused; or (b) rectify the damage to restore the road to at least the condition it was in pre-construction,

TfNSW Specification	Clause
	within three months of the subject road no longer being used in association with the construction of the CSSI, unless an alternative timeframe is agreed to by the relevant road authority.
E56	Construction vehicles (including staff vehicles) associated with the CSSI must be managed to minimise parking, idling and queuing on public roads.
E57	<p>A Construction Parking and Access Strategy must be prepared to identify and mitigate impacts resulting from on- and off-street parking changes during construction. The Strategy must include, but not necessarily be limited to:</p> <ul style="list-style-type: none"> (a) confirmation and timing of the removal of on- and off-street parking associated with construction; (b) parking accumulation surveys (consistent with Austroads requirements) of parking spaces to be removed to determine current demand during peak, off-peak and weekend periods; (c) consultation with relevant councils, affected stakeholders, including property occupants with driveway access, utilising existing on- and off-street parking stock which will be impacted as a result of construction; (d) assessment of the impacts of changes to on- and off-street parking stock taking into consideration outcomes of consultation with affected stakeholders; (e) identification of mitigation measures to manage impacts to stakeholders as a result of on and off-street parking changes including, but not necessarily limited to, staged removal and replacement of parking and provision of alternative parking arrangements; (f) strategies to address shortfalls in car parking spaces at individual construction ancillary facilities and disincentivising construction personnel from parking at Tempe Recreation Reserve and on the street near work sites, including managed staff parking arrangements and working with relevant council(s) to introduce parking restrictions; (g) measures to encourage workers to use alternate transport arrangements, such as public transport; (h) details of shuttle bus service(s) to transport workers to construction sites from public transport hubs and off-site car parking facilities (where these are provided) and between construction sites; (i) mechanisms for monitoring, over appropriate intervals, to determine the effectiveness of implemented mitigation measures; (j) provision of contingency measures should the results of mitigation monitoring indicate implemented measures are ineffective; and {k} provision of reporting of monitoring results to the Planning Secretary and relevant council(s) at three (3) monthly intervals. <p>The Construction Parking and Access Strategy must be approved by the Planning Secretary prior to the commencement of any Work that impacts on-street parking. The approved Strategy must be implemented before impacting on on-street parking.</p>

TfNSW Specification	Clause
E58	During construction, all reasonably practicable measures must be implemented to maintain pedestrian and vehicular access to, and parking in the vicinity of, businesses and affected properties. Disruptions are to be avoided, and where avoidance is not possible, minimised. Where disruption cannot be minimised, alternative pedestrian and vehicular access, and parking arrangements must be developed in consultation with affected businesses and implemented before the disruption. Adequate signage and directions to businesses must be provided before, and for the duration of, any disruption.
E59	The CSSI (including new or modified local roads, parking, pedestrian and cycle infrastructure) must be designed to meet relevant design, engineering and safety guidelines, including the Austroads Guide to Traffic Management.
E60	<p>Independent Safety Audit(s) are to be undertaken by an appropriately qualified and experienced person during design development (audit of the plans) and prior to opening (pre-opening audit) to assess the safety performance of new or modified roads (road safety audit), parking, and pedestrian and cycle infrastructure provided as part of the CSSI (including operational ancillary facilities) to ensure that they meet the requirements of relevant design, engineering and safety guidelines, including Austroads Guide to Traffic Management.</p> <p>The audit findings and recommendations of the detailed design plans (audit of the plans) must be actioned prior to construction of the relevant infrastructure. The pre-opening audit findings and recommendations must be actioned prior to the relevant infrastructure being made available for use.</p>
E61	Safe pedestrian and cyclist access must be maintained around work sites during construction. In circumstances where pedestrian and cyclist access is restricted or removed due to construction activities, an alternate route which is consistent with the Guide to Road Design Part 6A: Paths for Walking and Cycling {Austroads, 2017) must be provided and signposted unless otherwise agreed by the Planning Secretary.
E62	Prior to the closure of the Airport Drive active transport link (along Alexandra Canal) the Proponent must provide an alternate path within the construction footprint. This path is not required if the active transport link on the western side of Alexandra Canal is used.
E63	<p>The Proponent must prepare an Operational Road Network Performance Review, within 12 months and again within five (5) years after the commencement of operation of the CSSI. The Review must address road network performance and review the performance of the CSSI on the adjoining road network.</p> <p>The Reviews must be undertaken in consultation with the relevant council(s) and be completed within six (6) months of each review timeframe. Each review must be provided to the Planning Secretary within 60 days of its completion.</p> <p>Further mitigation measures, if required, must be detailed in the Reviews along with the timeframes in which they will be implemented. The measures must be implemented by the Proponent within the timeframes detailed in the Reviews.</p> <p>Note: Identified mitigation measures may need to be further assessed under the EP&A Act. Work will need to meet relevant design standards and be subject to independent road safety audits.</p>
E64	The CSSI must be constructed in a manner that minimises visual impacts of construction sites,

TfNSW Specification	Clause
E65	The CSSI must be constructed and operated with the objective of minimising light spillage to surrounding properties and potential distraction for pilots. All lighting associated with the construction and operation of the CSSI must be consistent with the requirements of ASINZS 4282:2019 Control of the obtrusive effects of outdoor lighting, relevant Australian Standards in the series ASINZS 1158 - Lighting for Roads and Public Spaces and NASF Guideline E: Managing the Risk of Distractions to Pilots from Lighting in the Vicinity of Airports. Additionally, the Proponent must provide mitigation measures to manage any residual night lighting impacts to protect properties adjoining or adjacent to the CSSI, in consultation with affected landowners.
E66	The place making, design and landscape outcomes of the CSSI must be informed by and be consistent with the Urban Design and Place Making Concept (Chapter 6 Sydney Gateway Road Project - Technical Working Paper 13 and as amended by Appendix A of the Response to Submissions Report), including but not limited to the objectives and design principles, approaches, recommendations and consultations.
E67	<p>Place making, design and landscape outcomes must be informed by input and review by independent and qualified practitioners in the following fields (practitioners may cover more than one field if suitably qualified):</p> <ul style="list-style-type: none"> (a) public art I cultural interpretation public art; (b) Aboriginal cultural heritage; (c) European cultural heritage; (d) open space design and landscape architecture; and (e) active transport <p>These practitioners must be approved by the Planning Secretary at least one (1) month prior to construction and must hold current membership of a relevant professional body, unless otherwise approved by the Planning Secretary. These practitioners must be involved through participation in the Urban Design Review Panel committed to by the Proponent in the documents listed in Condition A1 and the development and review of the Place, Design and Landscape Plan (PDLP) required by Condition E75,</p> <p>Advice and recommendations made by the practitioners must be provided to the Planning Secretary when submitting the PDLP to the Planning Secretary for approval.</p> <p>Note: The considerations that the Department will take into account when deciding to approve a practitioner are set out in 'Seeking Approval from the Department for the appointment of independent experts, Post approval guidance for Infrastructure Projects'.</p>
E68	The Proponent's Urban Design Review Panel must be established during detailed design and before construction commencing. The process for the operation of the Panel, including the Panel's Terms of Reference and frequency of meetings, must be agreed to with the panel members representing the Government Architect and Sydney Airport Corporation. The Panel must at a minimum meet at the inception of the project and at critical hold points throughout the project
E69	The CSSI must result in an increase in publicly accessible and useable open space.
E70	Active transport facilities must be designed, constructed and/or rectified in accordance with the Guide to Road Design Part 6A: Paths for Walking and Cycling (Austroads, 2017) and relevant Australian Standards (AS) such as AS 1428.1-2009 Design for access and mobility. The active transport links must also incorporate relevant Crime Prevention Through Environmental Design (CPTED) principles and comply with the relevant National Airports Safeguarding Framework (NASF) Guidelines (Department of Infrastructure, Transport, Regional Development and Communications, 2019).

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E71	An audit must be undertaken of the existing Alexandra Canal and Coward Street active transport links (between the Alexandra Canal and O'Riordan Street) and proposed active transport facilities to determine compliance with the requirements of Condition E70.
E72	Should the audit required by Condition E71 reveal that full compliance cannot be achieved with the guidelines and standards listed in Condition E70, the Proponent must document in a report why compliance cannot be achieved and how pedestrian, cyclist access and safety would be improved. The proposed improvements must be developed in consultation with relevant councils and Bicycle NSW. The Proponent must implement the improvement measures prior to the operation of the CSSI, unless otherwise agreed by the Planning Secretary. A final report on measures implemented must be provided to the relevant Council for information.
E73	An active Transport Link must be provided between International Terminal 1 and Domestic Terminals 2 and 3. The link must be constructed prior to operation of the CSSI, unless otherwise agreed by the Planning Secretary.
E74	All active transport links identified in Conditions E71 and E73 must be delivered in consultation with relevant councils, Bicycle NSW and Sydney Airport Corporation (where relevant).
E75	A Place, Design and Landscape Plan (PDLP) must be prepared to inform the final design of the CSSI and to give effect to the outcomes informed by Condition E66 and design review.
E76	<p>The PDLP must be prepared by a suitably qualified and experienced person in consultation with the Heritage Council of NSW, relevant council(s), EESG, La Perouse Local Aboriginal Land Council (LALC), the Metropolitan LALC, the Registered Aboriginal Parties, the community and affected landowners and businesses. The PDLP must include (but not be limited to):</p> <ul style="list-style-type: none"> (a) the design of the CSSI elements including their form, materials and detail, with a focus on high quality bridge design, public space, and integrated art; (b) measures to minimise heritage impacts and to enhance heritage interpretation, in particular Alexandra Canal, taking into consideration the Alexandra Canal Conservation Management Plan (Government Architect's Office NSW Department of Commerce, 2004); (c) measures to maximise canopy cover where possible and vegetation growth beneath bridge structures; (d) the design of useable open space, with a focus on land within Tempe; (e) the design of the project landform and earthworks; (f) a north south green link corridor, linking Cooks River, Tempe Wetlands, Tempe, St Peters and Sydney Park with consideration of the NASF Guideline C: Managing the risk of wildlife strikes in the vicinity of airports in consultation with the Airport Operator; (g) areas of vegetation to be retained and proposed planting and seeding details, including the use of local indigenous and endemic species for revegetation activities, with consideration of the management of urban weeds and the NASF Guideline C: Managing the risk of wildlife strikes in the vicinity of airports in consultation with the Airport Operator; (h) proposed revegetation of the riparian corridor along Alexandra Canal within the project footprint with local indigenous and endemic species; (i) visual screening requirements; (j) developed visuals, cross sections, illustrated details and plans showing the proposed design outcome; and (k) details of strategies to rehabilitate, regenerate or revegetate disturbed areas with a diversity of appropriate local native species and successfully establish and maintain the resulting new landscape.
E77	The PDLP must incorporate the following elements in the final design:

TfNSW Specification	Clause
	<p>(a) site-specific public art and interpretation including consideration of the use of Aboriginal designs, patterns and motifs;</p> <p>(b) a lighting system that complies with the requirements of NASF Guideline E: Managing the Risk of Distractions to Pilots from Lighting in the Vicinity of Airports; and</p> <p>(c) integration of headlight barriers into throw screens.</p>
E78	The PDLP is to be submitted to the Planning Secretary for approval no later than one (1) month before the construction of permanent works that are the subject of the PDLP.
E79	Construction of permanent built works or landscaping that are the subject of the PDLP must not be commenced until the PDLP has been approved by the Planning Secretary, after considering advice received from the independent practitioners identified in Condition E67.
E80	The PDLP, as approved by the Planning Secretary, must be implemented during construction and operation.
E81	Notwithstanding Condition E79, designs and delivery of open space and facilities associated with the Tempe lands and subject to Inner West Council master planning may be deferred, subject to the approval of the Planning Secretary.
E82	The CSSI must be designed to retain as many existing trees as possible. Replacement trees and plantings must deliver a net increase in trees and tree canopy and aim to enhance the relevant council's position in respect of the Sydney Green Grid.
E83	<p>Replacement trees must:</p> <p>(a) be located on public land and prioritised within 500 metres of the Construction Boundary in consultation with the relevant council and the Airport Operator;</p> <p>(b) comply with the National Airports Safeguarding Framework Guideline C: Managing the Risk of Wildlife Strikes in the Vicinity of Airports;</p> <p>(c) meet the requirements for quality tree stock specified in the AS2303:2018 Tree Stock for Landscape Use;</p> <p>(d) be provided no later than six (6) months following the commencement of operation; and</p> <p>(e) have a minimum pot size of 100 litres or 150 litres for safe clear trunk views at road verges unless a different pot size is specified in the relevant council's plans / programs / strategies for vegetation management, street planting, or open space landscaping, or as agreed by the relevant council(s) and Airport Operator.</p>
E84	A Landscape Strategy Report must be submitted to the Planning Secretary which details the type, size, number and location of replacement trees. The report must demonstrate how any replacement plantings are consistent with the requirements of Condition E83. The report must be submitted to the Planning Secretary for information no later than nine months following the commencement of operation.
E85	The Proponent must consult with local community restoration/rehabilitation groups, Landcare groups, EESG, Sydney Water, and relevant councils prior to removing any native trees not to be reused by the CSSI, to determine if there is an interest for the reuse of suitable timber and root balls in habitat enhancement and rehabilitation work. If there is an interest, native trees that are removed for the construction of the CSSI and that are greater than 25-30 centimetres in diameter and three metres in length are to be salvaged and provided to the group(s) and/or relevant councils or agencies referred to in this condition as agreed.
E86	The ongoing maintenance and operation costs of urban design, open space, landscaping and recreational items and works implemented as part of this approval remain the Proponent's responsibility until satisfactory arrangements have been put in place for the transfer of the asset to the relevant authority. Before the transfer of assets, the Proponent must maintain items and works to at least the design standards established in the PDLP required by Condition E75.

TfNSW Specification	Clause
E87	<p>Waste generated during construction and operation must be dealt with in accordance with the following priorities:</p> <ul style="list-style-type: none"> (a) waste generation must be avoided and where avoidance is not reasonably practicable, waste generation must be reduced; (b) where avoiding or reducing waste is not possible, waste must be re-used, recycled, or recovered; and (c) where re-using, recycling or recovering waste is not possible, waste must be treated or disposed of.
E88	<p>The importation of waste and the storage, treatment, processing, reprocessing or disposal of such waste must comply with the conditions of an EPL applying to the CSSI, or be done in accordance with a Resource Recovery Exemption or Order issued under the Protection of the Environment Operations (Waste) Regulation 2014, as the case may be.</p>
E89	<p>Waste must only be exported to a site licensed by the EPA for the storage, treatment, processing, . reprocessing or disposal of the subject waste, or in accordance with a Resource Recovery Exemption or Order issued under the Protection of the Environment Operations (Waste) Regulation 2014, or to any other place that can lawfully accept such waste.</p>
E90	<p>All waste generated during construction and operation must be classified in accordance with the EPA's Waste Classification Guidelines, with appropriate records and disposal dockets retained for audit purposes.</p>
E91	<p>The Proponent must develop and implement a waste tracking register that details:</p> <ul style="list-style-type: none"> (a) the quantity of each type of waste generated, its classification and source location (recorded using latitude and longitude coordinates); (b) the destination location(s) for all wastes generated during construction; (c) the quantities of any waste types imported onto the CSSI site, including their classification and emplacement location (recorded using latitude and longitude coordinates); (d) the quantities and types of wastes that are subject to a Resource Recovery Order and/or Exemption; and (e) disposal records demonstrating that receiving facilities have lawfully accepted the waste type.
E92	<p>Groundwater generated from the dewatering of excavations and leachate from Tempe Landfill cannot be directly discharged to surface waters unless an EPL is in force in regard to the discharge which permits the discharge.</p>
E93	<p>Unless an EPL is in force in respect to the CSSI and that licence specifies alternative criteria, discharges from construction water treatment plants to surface waters must not exceed:</p> <ul style="list-style-type: none"> (a) the Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2018 (AWQG) default guideline values for toxicants at the 90 per cent species protection level; (b) for physical and chemical stressors, the guideline values set out in Tables 3.3.2 and 3.3.3 of the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC/ARMCANZ, 2000); and (c) for bioaccumulative and persistent toxicants, the AQWG guidelines values at a minimum of 95 per cent species protection level. <p>Where the AWQG (2018) does not provide a default guideline value for a particular pollutant, the approaches set out in the AWQG (2018) for deriving guideline values, using interim guideline values and/or using other lines of evidence such as international scientific literature or water quality guidelines from other countries, must be used.</p>
E94	<p>Drainage feature crossings (permanent and temporary watercourse crossings and stream diversions) and drainage swales and depressions must be carried out in accordance with relevant guidelines and designed by a suitably qualified and experienced person. Where these features are adjacent to or impact on Alexandra Canal, the works must be undertaken in consultation with the NSW Heritage Council and Sydney Water.</p>

TfNSW Specification	Clause
E95	Work on waterfront land must be carried out in accordance with controlled activity guidelines,
E96	<p>The Proponent must undertake further hydrological and hydraulic modelling based on the detailed design of the CSSI to determine the ability of the receiving drainage systems to effectively convey pavement drainage from the CSSI. The modelling must be undertaken in consultation with the relevant council(s) and Sydney Water and the outcomes documented in a Stormwater Drainage Report,</p> <p>The Stormwater Drainage Report must be prepared and provided to the relevant council(s) and Sydney Water at least one (1) month prior to the commencement of any new drainage works, modifications or connections to existing drainage works, or construction of hard surfaces that are associated with the operation of the CSSI and would result in runoff to existing stormwater drainage systems.</p>
E97	<p>All new or modified drainage systems associated with the CSSI must be designed to:</p> <ul style="list-style-type: none"> (a) meet the capacity constraints of any council's drainage system to receive and convey the proposed flows from the CSSI, or otherwise upgrade council's drainage system at the Proponent's expense, in consultation with the relevant council(s); (b) minimise impacts on the receiving environment at the final outflow point resulting from any additional flow volume (including, but not limited to scour, flooding, water quality impacts, and impacts on riparian vegetation, aquatic ecology and property); and (c) ensure mitigation measures are implemented where increased flows through cross drainage systems adversely impact on council or Sydney Water drainage infrastructure and the receiving environment
E98	New or modified drainage outlets to Alexandra Canal must be designed, in consultation with Sydney Water, to minimise the potential for scour and mobilisation of bed sediments in accordance with the requirements of Remediation Order (Ref 23004),

Table 4-5: Updated Management Measures

Condition Number	Aspect	Condition
NV1	Noise & Vibration	An operational noise mitigation strategy will be developed and implemented as part of the design, including investigating the need for low noise pavements, noise barriers and at-property mitigation.
NV2	Noise & Vibration	Investigate reasonable and feasible options to reduce the propagation of noise from ground-based airport activities following removal of buildings as part of the project. This will include options to retain screening provided by existing buildings.
NV3	Noise & Vibration	Operational noise and vibration mitigation measures will be identified during detailed design. Requirements for at-property noise treatments in properties identified as 'eligible' in the noise and vibration assessment will be reviewed. The implementation of treatments will be undertaken in accordance with the At- Receiver Noise Treatment Guideline (TfNSW (formerly Roads and Maritime), 2017b).
NV4	Noise & Vibration	Reasonable and feasible noise mitigation for receivers affected by operational noise from both the Botany Rail Duplication and the Sydney Gateway road project would be considered in consultation with ARTC.
AS1	Airport Operations	The road infrastructure and final landforms (including the emplacement mounds) will be reviewed and refined during detailed design to:
		■ Address aviation matters
		■ Minimise the volume of material excavated from the former Tempe landfill
		■ Maximise open space and community use opportunities
		■ Avoid disturbance outside the project boundary.
		Any changes to road infrastructure and final landforms will reviewed with consideration of the <i>National Airports Safeguarding Framework (Guideline B)</i>, and in consultation with Sydney Airport Corporation and relevant aviation regulatory agencies.
		To achieve the above requirements, alternative mound locations, heights and shapes will be considered. With respect to aviation, Any changes to road infrastructure and final landforms will be assessed in relevant wind directions, in accordance with the <i>National Airports Safeguarding Framework (Guideline B)</i>, to identify an optimal design.
AS2	Airport Operations	The optimisation process will address Sydney Airport operational requirements, and will occur in consultation with Sydney Airport Corporation, aviation stakeholders, and Australian, NSW and local government agencies.
AS2	Airport Operations	A risk assessment in accordance with the principle of 'as low as reasonably practicable' (ALARP) will be undertaken to confirm the risk associated with operating the project within the public safety area to the north of the main north-south runway. The assessment will include consideration of the <i>National Airports Safeguarding Framework (Guideline I)</i> . The results of the assessment will inform the design of the project.
AS3	Airport Operations	The project will continue to be designed to avoid intrusions of Sydney Airport's prescribed airspace by permanent project infrastructure.
AS4	Airport Operations	All drainage and flood management infrastructure (including the flood mitigation basin) will be designed in accordance with Sydney Airport's Wildlife Management Plan to minimise the risk of attracting wildlife. Appropriate measures will be developed and implemented, including designing the infrastructure to ensure that water does not pond for more than five days (unless other suitable measures to minimise a the risk of attracting wildlife are in place).
AS5	Airport Operations	The urban design and landscape plan for the project will include consideration of appropriate landscape designs and species lists to minimise opportunities to attract wildlife at levels likely to present a hazard to aviation operations.
		The plan will have regard to relevant requirements and species lists under Sydney Airport's Wildlife Management Plan and other relevant guidelines, including the National Airports Safeguarding Framework (Guideline C) and Recommended Practices No. 1 – Standards for Aerodrome Bird/Wildlife Control (International Birdstrike Committee, 2006).
AS6	Airport Operations	Lighting will continue to be designed in accordance with AS/NZS 1158.1.1:2005 Lighting for roads and public spaces Part 1.1: Vehicular traffic (Category V) lighting – Performance and design requirements.

Condition Number	Aspect	Condition
AS7	Airport Operations	The project will continue to be designed to minimise the risk of headlight glare and pilot distraction. This will include providing glare screens in those locations where there is an unacceptable risk of pilot distraction.
AS8	Airport Operations	The detailed design will be referred to Airservices Australia to confirm that there will be no impacts to navigations aids, communications or surveillance equipment.
AS9	Airport Operations	The utilities contingency management plan (measure HS2) will include measures to respond to any unplanned outages of services to critical Sydney Airport infrastructure, including navigations aids, communications and surveillance equipment.
AQ1	Air Quality	<p>The detailed design of the project will seek to minimise the need to expose waste at the former Tempe landfill in order to eliminate potential odour issues during construction.</p> <p>n the need to expose waste, and/or the area exposed at any one time.</p> <p>n Where there is the potential to generate odour, managing this in accordance with the odour management strategy.</p>
CS1	Contamination	<p>Additional soil and groundwater investigations will be undertaken to inform detailed design, construction planning, and preparation of remediation action plan(s) (RAP(s)). The investigations will include:</p> <p>n Further characterising the existing contamination status of the project site, including the potential for unidentified asbestos containing materials</p> <p>n Groundwater investigations for all assessment areas and any indirectly affected areas</p> <p>n Soil and groundwater testing to address data gaps for land north of the rail corridor and Sydney Airport land.</p>
CS2	Contamination	<p>Soil salinity will be considered in the design of subsurface structures.</p>
CS3	Contamination	<p>Where the project has the potential to affect the remediation systems in the former Tempe landfill and Sydney Airport northern lands car park, the controls and protocols outlined in the existing EMP will be implemented such that the systems continue to operate effectively during operation.</p> <p>A RAP (or multiple RAPs) will be prepared (as required) to describe the remediation strategy to be implemented to ensure that existing contamination does not pose a future risk to human health or the environment during operation. The RAP(s) will be prepared by a suitably qualified and experienced consultant, as defined in Schedule B9 of the National Environment Protection (Assessment of Site Contamination) Measure 1999.</p> <p>The RAP(s) will be prepared and implemented in accordance with the following requirements:</p> <p>n The objectives of the voluntary remediation proposal and EMP and any RAPs in place for the former Tempe landfill</p> <p>n The requirements of the existing Sydney Airport RAP and EMP (if applicable)</p> <p>n National Environment Protection (Assessment of Site Contamination) Measure 1999</p> <p>n Airports (Environment Protection) Regulations 1997 (for Sydney Airport land)</p> <p>n Environmental Guidelines: Solid waste landfills (NSW EPA, 2016a) (for reinstatement of the capping layer and/or design of the new capping layer and final road pavement at the former Tempe landfill)</p> <p>n Contaminated Land Guidelines: Assessment and management of hazardous ground gases (NSW EPA, 2019).</p> <p>The RAP(s) will be:</p>



Condition Number	Aspect	Condition
		<p>n Prepared in consultation with the Airport Environmental Officer (in relation to the airport site) and Inner West Council and NSW EPA (as relevant in relation to the former Tempe landfill)</p> <p>n For works on land subject to the EP&A Act – approved by a n NSW EPA accredited independent site auditor accredited under the site auditor scheme under the CLM Act</p> <p>n For works on Sydney Airport land – approved by Sydney Airport Corporation and endorsed by the Airport Environment Officer. If Sydney Airport Corporation and/or the Airport Environment Officer consider a site assessor is required, the site assessor will be nominated by the Secretary (as defined by Regulation 6.10 of the Airports (Environment Protection) Regulations 1997) and will endorse the RAP(s).</p>
CS4	Contamination	<p>An assessment will be undertaken of the potential hazards associated with landfill gas during construction and operation. The assessment will consider the potential for ingress and build-up of gases that may pose a risk to safety.</p> <p>Where the need for measures to manage landfill gases post- construction is identified, such measures will be described in the RAP(s) (measure CS3) which will be developed in accordance with the Contaminated Land Guidelines: Assessment and Management of Hazardous Ground Gases (NSW EPA, 2019). Measures could include the design and installation of a landfill gas management system to provide a preferential flow path for landfill gas below the road infrastructure and emplacement mounds.</p>
CS5	Contamination	<p>A settlement and slope stability analysis will be undertaken to ensure that the emplacement mounds are designed to suitable engineering standards such that the long-term stability of the capping layer is maintained.</p> <p>The design and construction of the emplacement mounds will be described in the RAP(s) (measure CS3) and will be in accordance with Environmental Guidelines: Solid waste landfills (NSW EPA, 2016a). The design will be prepared in consultation with a the NSW EPA accredited site auditor.</p>
CS6	Contamination	<p>The location of all existing landfill management infrastructure, including the bentonite wall, leachate collection system and passive gas collection system, will be confirmed and (if required) the design will be further refined to avoid impacts on this infrastructure.</p> <p>Measures will be developed, and included in the RAP (if required) to protect the landfill management infrastructure during construction, or reinstate the infrastructure such that it continues to operate effectively after construction is finished.</p>
CS7	Contamination	<p>A geotechnical assessment will be undertaken to determine the loading that the active transport link has on the Sydney desalination pipeline and the walls of Alexandra Canal. Appropriate mitigation will be implemented for any identified impacts.</p>
HF1	Flooding	<p>A flood mitigation strategy will be prepared and relevant measures will be implemented as part of the design and during construction. The strategy will include undertaking additional flood modelling taking into account detailed design and proposed construction planning and methodologies.</p> <p>The flood mitigation strategy will be prepared in consultation with Sydney Airport Corporation, Sydney Water, NSW State Emergency Services and relevant councils.</p>
HF2	Flooding	<p>Hydrologic and hydraulic assessments will be carried out for all temporary and permanent project components (including ancillary facilities) that have the potential to affect flood levels in the vicinity of the project.</p> <p>The results of the assessment will inform the preparation of the flood mitigation strategy (measure HF1) as well as the design of temporary construction facilities and design development.</p>
HF3	Flooding	<p>Where flood levels in the one per cent AEP event are predicted to increase at any residential, commercial and/or industrial buildings as a result of construction or operation of the project, a floor level survey will be carried out.</p> <p>If the survey indicates existing buildings would experience above floor inundation during a one per cent AEP event as a result of the project, further refinements will be made (as required) to the design of temporary and permanent project components to minimise the potential for impacts.</p>
HF4	Flooding	<p>Further modelling will be undertaken based on the detailed design to determine the ability of the receiving drainage systems to effectively convey drainage discharges from the project once operational. The modelling will be undertaken in consultation with Sydney Airport Corporation and relevant council(s). It will include, but not be limited to:</p> <ul style="list-style-type: none"> ■ Confirming the location, size and capacity of all receiving drainage systems affected by operation

Condition Number	Aspect	Condition
		<ul style="list-style-type: none"> Assessing the potential impacts of drainage discharges from the project drainage systems on the receiving drainage systems Identifying all feasible and reasonable mitigation measures to be implemented where drainage from the project is predicted to adversely impact on the receiving drainage systems.
HF5	Flooding	The potential impacts of climate change on flooding behaviour will be considered during further modelling, in accordance with the procedures set out in Floodplain Risk Management Guideline: Practical Considerations of Climate Change (DECC, 2007) and Australian Rainfall and Runoff (Geoscience Australia, 2019) and in consultation with the directly affected landowners. An approach to integrating the identified effects into the design and operation of the infrastructure will be determined and implemented.
GW1	Groundwater	<p>Detailed design and construction planning will seek to minimise impacts on groundwater by:</p> <ul style="list-style-type: none"> Avoiding the need to extract groundwater Minimising groundwater inflows and volumes into excavations.
GW2	Groundwater	Modelling of settlement induced by groundwater drawdown will be undertaken in accordance with relevant guidelines, based on detailed geotechnical information obtained from the site investigations and the proposed construction approach. Should modelling identify any settlement issues, measures to reduce settlement will be confirmed.
GW3	Groundwater	A survey of GW024036 will be undertaken to confirm the use of this bore. If this bore is in use, alternative water sources will be considered to ensure ongoing water supply as required.
SW1	Surface Water	The potential for scour at bridge abutments will be considered for flow events up to and including the one per cent annual exceedance probability event. Scour protection will be included in the detailed design as required.
SW2	Surface Water	Discharge outlets will be designed with appropriate energy dissipation and scour protection measures to minimise the potential for scour. Scour protection will be developed in consultation with relevant stakeholders, including Sydney Water.
SW3	Surface Water	Appropriate treatment measures, including water sensitive urban design, will be considered in the detailed design with the aim of improving water quality within Alexandra Canal and/or achieving the targets outlined in the <i>Botany Bay and Catchment Water Quality Improvement Plan</i> (Sydney Metropolitan Catchment Management Authority, 2011).
SW4	Surface Water	Surface water drains and associated infrastructure will be designed to prevent scour of soil, erosion and associated sedimentation impacts.
NAH1	Non-Aboriginal Heritage	The design will avoid impacts on non-Aboriginal heritage items, significant heritage fabric, locally and State significant archaeological remains and landscapes (including mature trees) as far as reasonably practicable. This includes significant fabric associated with Alexandra Canal and the Sydney (Kingsford Smith) Airport Group.
NAH2	Non-Aboriginal Heritage	<p>The design will be prepared in accordance with the urban design and landscape plan and Statement of Heritage Impact for the project.</p> <p>The design will minimise the potential for visual impacts on heritage items by incorporating sympathetic fabric, colour and form in the design.</p>
NAH3	Non-Aboriginal Heritage	<p>The bridges over Alexandra Canal will be designed to:</p> <ul style="list-style-type: none"> Be sympathetic to the heritage sensitivity and industrial landscape of the canal Minimise physical impacts on the canal Incorporate a high quality architectural design using suitable material and forms Integrate with the bridges for the New M5



Condition Number	Aspect	Condition
		<ul style="list-style-type: none"> ■ Retain the open character of the canal as far as possible
		<ul style="list-style-type: none"> ■ Have regard to the Alexandra Canal Conservation Management Plan.
		<p>Appropriately qualified and experienced heritage design professionals will be involved in the development of the designs for the bridges over Alexandra Canal. The proposed designs, including the elements of heritage interpretation incorporated into the designs, will be presented to the Heritage Council of NSW and Sydney Water. Feedback from the Heritage Council of NSW and Sydney Water will be considered and adopted in the designs where reasonable and feasible.</p>
		<p>An appropriately qualified and experienced heritage architect or engineer will provide independent review of the designs, and the Heritage Council of NSW and Sydney Water will be consulted.</p>
NAH4	Non-Aboriginal Heritage	<p>The drainage outlets at Alexandra Canal will be designed to:</p>
		<ul style="list-style-type: none"> ■ Minimise impacts on significant original fabric and highly visible areas
		<ul style="list-style-type: none"> ■ Be sympathetic to the industrial landscape of the canal and its existing fabric
		<ul style="list-style-type: none"> ■ Use suitable material and forms
		<ul style="list-style-type: none"> ■ Have regard to the Alexandra Canal Conservation Management Plan.
		<p>An appropriately qualified and experienced heritage architect or engineer will provide independent review of the designs, and the Heritage Council of NSW and Sydney Water will be consulted.</p>
NAH5	Non-Aboriginal Heritage	<p>Where significant fabric is to be removed, consideration will be given to reusing the fabric for interpretation or repair and maintenance of other sections of the canal, in consultation with Sydney Water.</p>
NAH6	Non-Aboriginal Heritage	<p>Appropriate heritage interpretation will be incorporated into the design in accordance with the NSW Heritage Manual (NSW Heritage Office and Department of Urban Affairs and Planning, 1996), Interpreting Heritage Places and Items: Guidelines (NSW Heritage Office, 2005), and the NSW Heritage Council's Heritage Interpretation Policy.</p>
		<p>This will focus on recognising the historical significance of the following items:</p>
		<ul style="list-style-type: none"> ■ Alexandra Canal
		<ul style="list-style-type: none"> ■ Sydney (Kingsford Smith) Airport Group
		<ul style="list-style-type: none"> ■ Cooks River Container Terminal
		<ul style="list-style-type: none"> ■ Mascot (Shea's Ck) Underbridge
		<ul style="list-style-type: none"> ■ Botany Rail Line.
		<p>Elements of heritage interpretation that will be incorporated into the design will be described in the urban design and landscape plan.</p>
AH1	Aboriginal Heritage	<p>Detailed design and construction planning will avoid direct impacts on Investigation Area 1 and Investigation Area 2 where practicable.</p>
AH2	Aboriginal Heritage	<p>An Aboriginal heritage interpretation strategy will be developed in consultation with registered Aboriginal parties and other relevant stakeholders. The interpretation strategy</p>

Condition Number	Aspect	Condition
		will have regard to <i>Sydney Airport Master Plan 2039</i> and the Sydney Airport Heritage Management Plan.
		Appropriate Aboriginal heritage interpretation will be incorporated into the project design in accordance with the interpretation strategy.
LU1	Land use and property	The design will continue to be refined to minimise land requirements and potential impacts on existing land uses and properties as far as possible.
		Consultation with landholders will be ongoing to identify opportunities to minimise impacts on onsite operations where practicable.
LU2	Land use and property	The approach to mitigating impacts on advertising structures (including adjusting, relocating or providing new structures at locations along project infrastructure) will be confirmed during detailed design.
LU3	Land use and property	Transport Roads and Maritime will continue to consult with Inner West Council regarding the future use of residual land in the Tempe Lands and adjoining area. This will include opportunities for open space and recreation uses, and provision for a new off-leash dog exercise area and council depot.
		Transport Roads and Maritime will support and assist Inner West Council with the master planning process for these areas as appropriate, and will ensure that the urban design and landscape plan for the project is consistent with the outcomes of this process.
LU4	Land use and property	The location of all utilities, services and other infrastructure will be identified prior to construction to determine requirements for access to, diversion, protection and/or support. This will include (as required), undertaking utilities investigations, including intrusive investigations, and consultation and agreement with service providers.
SE1	Socio-economic	Transport Roads and Maritime will continue to consult with Inner West Council to ensure:
		■ Impacts on open space and recreational facilities in Tempe Lands will be offset
		■ Consistency between the project's urban design and landscape plan and Council's master plan for Tempe Lands.
SE2	Socio-economic	Temporary and operational active transport links will be designed to ensure the safety of the users in accordance with crime prevention through environmental design principles.
LV1	Landscape character and visual amenity	An urban design and landscape plan will be prepared to provide a consistent approach to project design and landscaping.
LV2	Landscape character and visual amenity	Further design refinements of structures including bridges and the Terminals 2/3 access viaduct will be undertaken to minimise visual impacts as far as possible.
LV3	Landscape character and visual amenity	The Director for the Centre for Urban Design at Transport will convene and facilitate an urban design review panel. The panel will comprise the Government Architect, Director Bridges Technical Services (Transport), and an urban design-qualified representative from Sydney Airport Corporation.
LV4	Landscape character and visual amenity	The need to remove trees within the project site will be avoided where practicable. For those trees that cannot be reasonably avoided, a tree management strategy will be developed, including measures to offset the loss of trees and achieve a net increase in tree canopy. The final location of replacement trees will be confirmed in consultation with Inner West Council and Sydney Airport Corporation.
		The strategy will also include on-site processes and protective measures to ensure trees identified for retention are appropriately protected during construction.
LV5	Landscape character and visual amenity	Where feasible and reasonable, the proposed noise barrier in the Tempe Lands will be designed to provide new active transport connectivity across the Terminal 1 connection and between the western and eastern portions of open space, and maximise passive surveillance of open space from the road.
LV6	Landscape character and visual amenity	Noise barriers will be designed to minimise their visual prominence as much as possible.



Condition Number	Aspect	Condition
LV7	Landscape character and visual amenity	Lighting for the project will be designed in accordance with AS 4282 <i>Control of the Obtrusive Effects of Outdoor Lighting</i> .
		Lighting will be designed to minimise glare and light spill into adjoining areas.
BD1	Biodiversity	Detailed design will avoid or minimise the need to remove and/or disturb native vegetation and fauna habitat, including impacts on mapped areas of mangrove forest and Tempe Wetlands.
BD2	Biodiversity	Vegetation clearing will be limited to the minimum necessary to construct the project. Micro-siting of infrastructure will be undertaken during detailed design to further minimise or avoid impacts on native vegetation where practicable. Exclusion areas will be established and maintained around any native vegetation adjoining the project site to be retained in close proximity to work locations to be retained.
WM1	Waste management	Detailed design will include measures to minimise excess spoil generation. This will include a focus on optimising the design to minimise spoil volumes, and the reuse of material on site.
SU1	Sustainability	A sustainability management plan will be developed to ensure that sustainability considerations are implemented during the detailed design, construction and operation phases of the project.
		The plan will include project-specific sustainability initiatives and implementation protocols to support achievement of the project's target excellent 'Design' and 'As Built' rating under the Infrastructure Sustainability rating tool (v1.2) and to ensure ongoing consistency with the <i>Environmental Sustainability Strategy 2019–2023</i> (TfNSW (formerly Roads and Maritime), 2019b).
CC1	Climate change and greenhouse gas	A detailed climate change risk assessment, considering both direct and indirect risks, will be undertaken during detailed design in accordance with AS 5334-2013 <i>Climate change adaptation for settlements and infrastructure – A risk based approach</i> and the draft <i>Technical Guide: Climate Change Adaptation for the Road Network</i> (TfNSW (formerly Roads and Maritime), 2015c).
		Adaptation measures will be confirmed and actions implemented to address extreme and high risks where reasonable and feasible. Adaptation measures for medium risks will be considered and implemented where reasonable and feasible.
		Progress against implementation of confirmed adaptation measures and actions will be tracked.
		The assessment will include further modelling to optimise the design and reduce the impacts of climate change scenarios.
CC2	Climate change and greenhouse gas	The flood mitigation strategy (measure HF1) will include consideration of future climate change related flood risks, the potential impacts of future climate change on flooding, and adaptive measures for implementation.
CC3	Climate change and greenhouse gas	The urban design and landscape plan for the project will include consideration of appropriate landscape designs and species to reduce the impacts of urban heat island effect.
		Other measures to mitigate the impacts of the urban heat island effect will be investigated during detailed design and included in the urban design and landscape plan. Measures could include using light coloured pavements and shading structures for public spaces.
GHG1	Climate change and greenhouse gas	The sustainability management plan (measure SU1) will include measures and targets to reduce greenhouse gas emissions during construction and operation.
		The plan will include targets to reduce the project's carbon footprint during construction and operation considering scope 1, scope 2 and scope 3 emissions.
GHG2	Climate change and greenhouse gas	The final design will incorporate LED lighting in preference to fluorescent fittings or high-pressure sodium lights where fit for purpose, feasible and cost-effective.
GHG3	Climate change and greenhouse gas	The surface road network will be designed for long term performance and durability of materials, increasing asset design lives and reducing the frequency of maintenance activities.

Condition Number	Aspect	Condition
EM1	Environmental management	A CEMP will be prepared to detail the approach to environmental management during construction, as described in section 27.2.1 and in accordance with the conditions of approval.
TT1	Traffic, transport and access	A Construction Traffic and Access Management Plan will be prepared prior to construction and implemented as part of the CEMP. The plan will detail processes and responsibilities to minimise traffic and access delays and disruptions, and identify and respond to changes in road safety during construction.
TT2	Traffic, transport and access	The Construction Traffic and Access Management Plan will include proposed road staging of construction works along Airport Drive, Qantas Drive and key accesses to Sydney Airport's terminals to ensure these key roads maintain satisfactory capacity and minimum levels of service. The proposed road staging plans and mitigation measures will be developed in conjunction with Transport for NSW (various divisions), ARTC, the Transport Management Centre, Sydney Coordination Office, Sydney Airport Corporation, emergency services, and any contractors working in the vicinity of the airport.
TT3	Traffic, transport and access	The communications strategy (measure SE3) will include a mechanism to inform the community of the dates and durations of specific phases within the project, including information about specific lane and road closures and the times of day and night when works will be carried out.
TT4	Traffic, transport and access	A travel demand management strategy will be prepared to provide: n A comprehensive set of travel mode options to minimise use of roads affected by construction n Communication strategies to reduce the number of people using the road network in the project study area during construction, where practicable.
TT5	Traffic, transport and access	Construction staging and temporary work plans will be prepared to: n Ensure access to Sydney Airport is maintained at all times during operational hours n Stage the construction works on key parts of the network, such as Qantas Drive, Airport Drive and access to Sydney Airport terminals, to enable these roads to continue to function with as minimal impact as possible n Minimise conflict with the existing road network n Maximise spatial separation between work areas and travel lanes. The proposed road staging plans and mitigation measures will be developed in consultation with the Airport Precinct Infrastructure Coordination Operations Group and the Traffic and Transport Liaison Group comprising representatives from Transport for NSW (various divisions), ARTC, the Transport Management Centre, Sydney Coordination Office, Sydney Airport Corporation, emergency services, and any contractors working in the vicinity of the airport.
TT6	Traffic, transport and access	Further consideration of the construction phase road geometry and construction area operations will be undertaken with the aim of optimising road performance during construction. This will include the following considerations: ■ Maintain a posted speed of 50 to 60 km/h along the construction zones ■ Maintain three lanes in each direction at the Airport Drive and Link Road intersection ■ Provide three lanes into Terminals 2/3 at Sir Reginald Ansett Drive through to Keith Smith Avenue.

Condition Number	Aspect	Condition
TT7	Traffic, transport and access	Where reasonable and feasible, work areas, activities and construction access arrangements will be modified to address any traffic flow issues identified by key stakeholders, including the Sydney Coordination Office, Sydney Airport Corporation and the Transport Management Centre.
TT8	Traffic, transport and access	A mechanism will be provided for the community to report incidents and delays, such as a project phone number. The contact mechanism will be communicated in accordance with the project's communication strategy (measure SE3).
TT9	Traffic, transport and access	Further traffic management in the vicinity of the Qantas Drive/Seventh Street/Robey Street intersection will be planned and undertaken with consideration of the following potential re-routing options:
		<ul style="list-style-type: none"> ■ Divert westbound traffic from General Holmes Drive (via Joyce Drive) onto Robey Street (via the new Wentworth Avenue link provided by the Airport East Upgrade project) and Botany Road instead of using the right turn from Qantas Drive to Robey Street
		<ul style="list-style-type: none"> ■ Consolidate and support the function of the left turn from Qantas Drive onto Robey Street and traffic out of Seventh Street through the re-allocation of signal green time taken away from the diverted or banned right turn movement (from Qantas Drive to Robey Street) during peak periods or potentially ban the right turn movement in the peak periods
		<ul style="list-style-type: none"> ■ Introduce an additional left turn lane into Robey Street from Qantas Drive to improve traffic flows based on traffic modelling analyses.
TT10	Traffic, transport and access	Access to Sydney Airport will be maintained at all times during the airport's operational hours. Any temporary changes in access arrangements will be developed, communicated and implemented in consultation with Sydney Airport Corporation.
TT11	Traffic, transport and access	Access to properties, including residences, businesses and community infrastructure, will be maintained. Where disruption to access cannot be avoided, consultation will be undertaken with the owners and occupants of affected properties, to confirm their access requirements and to determine alternative arrangements.
TT12	Traffic, transport and access	Safe pedestrian and cyclist access will be maintained around or through work areas. Where disruption to access cannot be avoided, alternative routes that comply with relevant accessibility standards and guidelines will be provided, signposted and communicated.
TT13	Traffic, transport and access	A worker parking strategy will be developed to identify measures to minimise worker parking on local streets. Measures to be implemented during construction will include provision of designated parking areas within the project site, encourage use of public transport and implement shuttle bus arrangements.
TT14	Traffic, transport and access	Where required, changes to existing bus stops and/or changes to bus service patterns will be undertaken in accordance with the following requirements:
		<ul style="list-style-type: none"> ■ Changes will be designed and implemented in consultation with Transport for NSW and bus operators
		<ul style="list-style-type: none"> ■ The community will be informed in advance of changes.
TT15	Traffic, transport and access	Construction haulage vehicles will be managed to:
		n Adhere to the nominated haulage routes and speeds identified in the Construction Traffic and Access Management Plan and posted speed limits
		<ul style="list-style-type: none"> ■ Minimise idling and queuing on public roads
		<ul style="list-style-type: none"> ■ Minimise movement of vehicles during peak periods.
TT16	Traffic, transport and access	The potential for cumulative construction traffic impacts will be reviewed and coordinated with other projects, in consultation with the Airport Precinct Infrastructure Coordination Operations Group and the Traffic and Transport Liaison Group . The review will include:
		<ul style="list-style-type: none"> ■ Considering other projects with the potential to affect access and capacity, particularly in the vicinity of Terminals 2/3



Condition Number	Aspect	Condition
		<ul style="list-style-type: none"> ■ Detailed reviews of programs for traffic staging, lane and road closures for all projects ■ Coordinating works and identifying efficient re-routing options during periods of road and lane closures.
NV5	Noise & Vibration	A Construction Noise and Vibration Management Plan will be prepared as part of the CEMP and implemented during construction. The plan will detail processes, responsibilities and measures to manage noise and vibration and minimise the potential for impacts during construction, consistent with the management approach and mitigation measures in the TfNSW (formerly Roads and Maritime's) Construction Noise and Vibration Guideline (Roads and Maritime, 2016).
NV6	Noise & Vibration	<p>Location and activity specific noise and vibration impact assessments will be undertaken prior to those works (as a minimum):</p> <ul style="list-style-type: none"> - With the potential to result in noise levels above 75 dBA at any receiver - That need to occur outside standard construction hours and are likely to result in noise levels greater than the relevant noise management levels - With the potential to exceed relevant performance criteria for vibration. <p>The assessments will confirm predicted impacts at relevant receivers in the vicinity of the activities to assist with the selection of appropriate management measures.</p> <p>Monitoring will be carried out at the start of new noise and vibration intensive activities to confirm that actual levels are consistent with the predictions.</p> <ul style="list-style-type: none"> ■ With the potential to result in noise levels above 75 dBA at any receiver ■ That need to occur outside standard construction hours and are likely to result in noise levels greater than the relevant noise management levels ■ With the potential to exceed relevant performance criteria for vibration. <p>The assessments will confirm predicted impacts at relevant receivers in the vicinity of the activities to assist with the selection of appropriate management measures.</p> <p>Monitoring will be carried out at the start of new noise and vibration intensive activities to confirm that actual levels are consistent with the predictions.</p>
NV7	Noise & Vibration	<p>The facades of hotels likely to be affected by construction will be assessed to confirm existing façade performance (external to internal noise transmission) in consultation with the hotel operators.</p> <p>Location and activity-specific noise and vibration impact assessments undertaken for works in the vicinity of hotels will adopt the results of the assessment for each affected hotel to assess potential internal noise levels within the hotel rooms more accurately (see Technical Working Paper 2).</p>
NV8	Noise & Vibration	<p>The potential for impacts on the existing Flight Training Centre will be managed in accordance with the acoustic framework that has been agreed with Qantas.</p> <p>A similar acoustic framework will be developed for the new Qantas Flight Training Centre and implemented (once constructed) to minimise potential impacts during construction. The framework will be developed in consultation with Qantas and will include:</p> <ul style="list-style-type: none"> ■ Confirmation of building and simulator cabin acoustic performance and external to internal transfer functions for noise and vibration ■ A process for setting external triggers levels for monitoring that are protective of the internal facility training functions from an acoustic perspective ■ Monitoring requirements ■ Communication protocols. <p>A construction strategy will be developed in consultation with Qantas to minimise potential impacts on training operations at the Qantas Flight Training Centre in its current location. It will include:</p>



Condition Number	Aspect	Condition
		<ul style="list-style-type: none"> ■ Confirming appropriate internal noise criteria for sensitive areas in the facility ■ Confirming building and simulator cabin acoustic performance ■ External criteria for noise and vibration ■ Working distances for noise and vibration intensive plant and activities ■ Alternative work methods that generate less noise and vibration and minimise vibration transmission ■ Real time monitoring requirements.
NV9	Noise & Vibration	Investigate and implement alternative methods of demolition to avoid hydraulic/pneumatic hammering where high noise impacts are anticipated. Alternative methods could include shears, pulveriser or ripper attachments fitted onto the excavators.
NV10	Noise & Vibration	<p>Noisy work and vibration intensive activities (those activities that exceed the vibration criteria) will be scheduled during standard construction hours as far as possible. Works or activities that cannot be undertaken during standard construction hours will be scheduled as early as possible during the evening and/or night-time periods. Respite measures will be implemented for noisy work and vibration intensive activities in a manner consistent with the TfNSW (formerly Roads and Maritime's) Construction Noise and Vibration Guideline (Roads and Maritime, 2016).</p> <p>Respite measures will be implemented for noisy work and vibration intensive activities in a manner consistent with the Roads and Maritime's <i>Construction Noise and Vibration Guideline</i> (Roads and Maritime, 2016).</p>
NV11	Noise & Vibration	Hoarding, or other shielding structures, will be used for construction compounds and where receivers are impacted near fixed works areas where construction noise would exceed relevant noise management levels at nearby sensitive receivers . The barriers should be of solid construction with minimal gaps.
NV12	Noise & Vibration	<p>Vibration generating activities will be managed to minimise the potential for impacts on structures and sensitive receivers, including maximising minimum working distances where practicable, or alternate methods to minimise vibration where minimum working distances cannot be achieved.</p> <p>Prior to the commencement of vibration-intensive works within the minimum working distances for cosmetic damage, the potential for damage will be assessed. Where there is potential for damage, alternative methods that generate less vibration will be investigated and substituted where practicable.</p> <p>Where residual risks remain, condition surveys will be carried out and vibration monitoring will be undertaken. Vibration monitors will provide real-time notification of exceedances of levels approaching cosmetic damage and human comfort criteria. Any identified vibration-related damage to the items will be rectified.</p> <p>Where alternatives cannot be implemented, vibration monitoring will be undertaken and receptors notified in advance of works. Vibration monitors will provide real time notification of exceedances of levels approaching cosmetic damage and human comfort criteria.</p>
NV13	Noise & Vibration	<p>Prior to vibration intensive works in the vicinity of pipelines, the owners of each potentially affected pipeline will be consulted to confirm the potential for impacts from vibration and any appropriate criteria.</p> <p>Management protocols to protect the integrity of each affected pipeline, including monitoring requirements, will be developed in consultation with each asset owner as required, and implemented for all vibration intensive works in the vicinity of pipelines.</p>
NV14	Noise & Vibration	Building condition surveys will be completed before and after construction works where buildings or structures are within the minimum vibration working distances for cosmetic damage.
-	Noise & Vibration	Prior to the commencement of vibration-intensive works within the minimum working distances for cosmetic damage, for heritage items, the potential for damage to the item will be assessed. Where there is potential for damage, alternative methods that generate less vibration will be investigated and substituted where practicable.

Condition Number	Aspect	Condition
		Where residual cosmetic damage risks remain, condition surveys will be carried out and vibration monitoring with real time notification of exceedance will occur during the activity. Site activities will be modified where practicable to avoid exceeding the cosmetic damage criteria. Any identified vibration related damage to the items will be rectified.
NV15	Noise & Vibration	The likelihood of cumulative and consecutive construction noise impacts, particularly when undertaken outside standard construction hours, will be reviewed prior to construction and coordinated with other nearby projects to minimise impacts, where possible.
AS10	Airport operations	Drainage and flood management infrastructure will be managed during construction to minimise the risk of attracting wildlife.
AS11	Airport operations	Construction lighting will be selected and located to meet Sydney Airport's restricted lighting zone requirements. For locations where it is not possible to achieve the required intensity levels, works requiring lighting will be undertaken in accordance with the requirements of Sydney Airport Corporation, which may involve restricting the timing of works to outside Sydney Airport's operational hours.
		Construction lighting will comply with section 9.21 of the Manual of Standards (CASA 2017) and the National Airports Safeguarding Framework (Guideline E).
AS12	Airport operations	Construction planning will ensure that intrusions of Sydney Airport's prescribed airspace are minimised as far as practicable.
		Where temporary intrusions of the prescribed airspace cannot be avoided, works likely to result in intrusions will be undertaken in accordance with the requirements of Sydney Airport Corporation (for short-term works less than three months) or the Department of Infrastructure, Transport, Cities and Regional Development and Communications for long-term works (more than three months) and any controlled activity approvals for these works.
		This will include timing works to avoid intrusions during Sydney Airport's operational hours.
AQ2	Air quality	A Construction Air Quality Management Plan will be prepared as part of the CEMP and implemented during construction. The plan will detail processes, responsibilities and measures to manage air quality, odour and landfill gas and minimise the potential for impacts during construction.
		The plan will include an air quality, odour and landfill gas monitoring program, and will detail the measures that will be implemented to compare the actual performance of construction against the predicted performance. Monitoring will be undertaken for the duration of construction.
AQ3	Air quality	Odour impacts at the former Tempe landfill will be minimised as far as possible by:
		■ Construction planning to minimise the need to expose waste, and/or the area exposed at any one time and to minimise contact between surface water and exposed waste
		■ Where there is the potential to generate odour, implementing this will be managed in accordance with the odour management strategy (measure AQ4).
		Further modelling will be carried out to demonstrate that the proposed excavation methodology for the former Tempe Landfill can comply with the 2 OU criterion. This will be informed by sampling of the waste to determine the actual waste odour emission rates likely to occur.
AQ4	Air quality	An odour management strategy will be developed prior to construction and implemented for the duration of works involving ground disturbance at the former Tempe landfill. The strategy will include:
		■ Proposed work methods and mitigation measures that aim to limit odour at sensitive receptors to no more than the 2 OU criterion
		■ Routine observation of weather conditions
		■ Regular odour surveys at receptor locations by appropriately qualified professionals (see AQ5)

Condition Number	Aspect	Condition
		<ul style="list-style-type: none"> Measures to minimise the generation of odour at the end of each work day/shift Mechanisms for investigating odour complaints, including conduct of additional odour surveys Contingency and rectification measures (e.g. use of deodorisers, aeration of leachate storage(s)) should significant odour issues occur at sensitive receivers in the vicinity of the project site.
AQ5	Air quality	<p>Odour surveys will be undertaken at downwind receptors for the duration of works involving ground disturbance at the former Tempe landfill generally in accordance with <i>Determination of odorants in ambient air by field inspection</i> (VDI 3940, 1993).</p> <p>The odour surveys will be undertaken:</p> <ul style="list-style-type: none"> Daily, for one hour when works commence, and prior to works completing If wind conditions drop below three metres per second If an odour complaint is received Downwind of leachate storage(s). <p>If significant odour issues are observed in the vicinity of sensitive receptors or from leachate storage(s), the contingency and rectification measures defined by the odour management strategy will be implemented (see AQ4).</p>
AQ6	Air quality	<p>If significant odour issues are observed in the vicinity of sensitive receptors or from leachate storage(s), the contingency and rectification measures defined by the odour management strategy will be implemented (see AQ4).</p>
AQ7	Air quality	<p>The detailed construction program will be developed in consultation with the contractors constructing the Botany Rail Duplication project. Consultation will be maintained over the duration of both projects to plan activities in a manner that reduces the potential for air quality- related impacts.</p> <p>Where practicable, activities with a high potential to generate dust will be programmed so that they do not occur at the same time.</p>
CS8	Contamination	<p>Hazardous materials surveys will be undertaken to inform construction planning, including demolition activities and utility adjustments.</p>
CS9	Contamination	<p>A Construction Soil and Water Management Plan will be prepared as part of the CEMP and implemented during construction. The plan will detail processes, responsibilities and measures to manage potential soil and water quality impacts during construction, including potential impacts associated with the presence of existing contamination, stockpile management, saline soils and acid sulfate soils.</p> <p>The Construction Soil and Water Management Plan will be prepared in accordance with relevant guidelines and standards, including Managing Urban Stormwater – Soils and Construction, Volume 1 (Landcom, 2004) Volume 2B Waste landfills (DECC, 2008a) and Volume 2D (DECC, 2008b) (the Blue Book).</p>
CS10	Contamination	<p>An Acid Sulfate Soils Management Plan will be prepared as part of the Construction Soil and Water Management Plan in accordance with the Acid Sulfate Soils Assessment Guidelines (ASSMAC, 1998).</p> <p>The plan will define the process and measures to manage actual and potential acid sulfate soil and sediment disturbed during construction. The plan will include a summary of available acid sulfate soil information relevant to the project site and identify any further soil/water analysis required as a precursor to implementing the management plan.</p> <p>Acid sulfate soils will be disposed off site (where required) in accordance with the <i>Waste Classification Guidelines - Part 1 and Part 4: Acid sulfate soils</i> (NSW EPA, 2014).</p>
CS11	Contamination	<p>A plan of management will be developed in accordance with the remediation order and implemented to manage work within Alexandra Canal and minimise the disturbance and migration of contaminated sediments. The plan will identify specific methodologies to minimise disturbance and dispersion of potentially contaminated sediments.</p>

Condition Number	Aspect	Condition
		The plan will be prepared in consultation with Sydney Water Corporation and submitted for the NSW EPA's approval in accordance with the remediation order requirements.
CS12	Contamination	The potential for settlement will be considered as part of the siting and layout of construction compounds and work areas in the former Tempe landfill. Where required, ground treatment (eg foundation layers or sheet piling) will be provided to minimise this risk.
CS13	Contamination	Landfill material excavated during the project will be appropriately handled and stockpiled, to ensure minimal impact to the surrounding community, on-site workers and the environment.
		n - Managed in accordance with the requirements of <i>Environmental Guidelines: Solid waste landfills</i> (NSW EPA, 2016a).
		Excavated landfill waste to be disposed of will be classified in accordance with the <i>Waste Classification Guidelines Part 1: Classifying waste</i> (NSW EPA, 2014) before being disposed of at an appropriately licensed waste facility.
CS14	Contamination	Protocols to address and manage landfill gases within the construction footprint in the former Tempe landfill and Sydney Airport northern lands car park will be developed and implemented during construction. The protocols will consider confined and/or enclosed spaces and appropriate controls as required (eg forced ventilation), and will include appropriate occupational monitoring.
CS15	Contamination	Hot works within the former Tempe landfill and Sydney Airport northern lands car park will be restricted where there is a potential for fire or explosion. Monitoring for potentially flammable gases will occur during all hot works.
CS16	Contamination	Any material imported and used within Sydney Airport land will be tested prior to use to ensure it does not exceed the acceptable limits in the PFAS National Environmental Management Plan (HEPA, 2018) and Schedule 3 of the <i>Airports (Environment Protection) Regulations 1997</i> .
CS17	Contamination	Storage and containment systems for the stockpiling of contaminated material during construction will be designed to be impervious to the materials stored, resistant to fire (where required), covered to prevent contact with rainfall, and managed and maintained to prevent any release of liquids and contaminated run-off to stormwater drains, waters and land.
CS18	Contamination	The discovery of previously unidentified contaminated material will be managed in accordance with an unexpected contaminated finds procedure, as outlined in the Guideline for the Management of Contamination (Roads and Maritime, 2013b) and detailed in the CEMP.
		Awareness training will be provided for all on-site staff to assist in the identification of potentially contaminated material as per the unexpected contaminated finds procedure.
		In the event that unexpected indicators of contamination are encountered during construction (such as odours or visually contaminated materials), work in the area will cease, and the finds will be managed in accordance with the unexpected contaminated finds procedure.
CS19	Contamination	PFAS contaminated materials will be managed in accordance with the risk-based framework presented in the PFAS National Environmental Management Plan (HEPA, 2018).
		If soil and/or water containing PFAS is proposed for reuse, the proposed reuse must not result in an unacceptable or increased risk to human health and/or the environment. A health and environmental risk assessment and consultation with the NSW EPA (and the Airport Environment Officer where the works are on Sydney Airport land) will be required before any reuse of PFAS contaminated soil and/or water.
CS20	Contamination	Validation of remediation will be undertaken during construction and a validation report prepared by a suitably qualified environmental consultant as defined in Schedule B9 of the NEPM to confirm the requirements of the RAP(s) have been met.
		For works on land subject to the EP&A Act, the validation report will be reviewed by a NSW EPA accredited site auditor accredited in accordance with the site auditor scheme under the CLM Act.
		For works on Sydney Airport land, Sydney Airport Corporation and the Airport Environmental Officer will review the report.
CS21	Contamination	A rehabilitation strategy will be prepared to guide the approach to rehabilitation of disturbed areas following the completion of construction.



Condition Number	Aspect	Condition
CS22	Contamination	A condition assessment of the integrity of the landfill cap will be carried out by a suitably qualified specialist prior to any works with the potential to affect the cap. In areas where the landfill cap is retained, visual inspections and rectification measures will be implemented as needed during construction.
		A final condition assessment will be carried out at the completion of construction detailing recommendations for any additional rectification required.
HF6	Flooding	A flood mitigation strategy will be prepared and relevant measures will be implemented as part of the design and during construction. The strategy will include undertaking additional flood modelling taking into account detailed design and proposed construction planning and methodologies.
HF7	Flooding	Hydrologic and hydraulic assessments will be carried out for all temporary and permanent project components (including ancillary facilities) that have the potential to affect flood levels in the vicinity of the project.
		The results of the assessment will inform the preparation of the Flood Mitigation Strategy (measure HF1) as well as the design of temporary construction facilities and design development.
HF8	Flooding	As a minimum, site facilities will be located outside high flood hazard areas based on a one per cent AEP flood. For site facilities located within the floodplain, the flood mitigation strategy will identify how risks to personal safety and damage to construction facilities and equipment will be managed.
GW4	Groundwater	A dewatering management strategy will be developed to confirm the approach to managing dewatering of excavations during construction. The strategy will:
		n Outline measures to minimise groundwater inflow
		n Describe likely groundwater quality based on sampling data
		n Estimate potential groundwater inflow rates and volumes for proposed excavations
		n Identify proposed methods for managing extracted water, which could include reuse, infiltration, reinjection, discharge to stormwater, disposal to the wastewater system, and collection for off-site disposal
		n Include a feasibility assessment of each proposed management option for extracted groundwater
		n Identify any groundwater treatment requirements and methods for any of the proposed management options
		n Describe any applicable monitoring requirements.
GW5	Groundwater	A leachate management strategy will be developed to manage leachate at the former Tempe landfill during construction and ensure that the objectives of the site's voluntary remediation agreement continue to be met. The strategy will:
		n Identify predicted changes in leachate volumes due to the project, based on the detailed construction methodology
		n Identify any required changes to the existing leachate management system due to predicted changes in leachate volume and concentration and any other changes due to the project
		n Describe a framework for monitoring leachate levels and water quality to ensure that no leachate migrates into Alexandra Canal as a result of the project.
		The strategy will be developed in consultation with relevant stakeholders, including Inner West Council, Sydney Water and the NSW EPA.
GW6	Groundwater	The existing groundwater monitoring program will continue during construction, and will be supplemented as required, to:
		n Confirm groundwater quality to inform the selection management options for extracted groundwater, including treatment requirements for discharge



Condition Number	Aspect	Condition
		<p>n Monitor potential migration of contaminants due to groundwater extraction (if it is a credible risk)</p> <p>n Confirm if acidification of groundwater is occurring due to exposure of acid sulfate soils</p> <p>n Confirm local groundwater levels to inform estimation of potential inflows and dewatering rates</p> <p>n Monitor drawdown levels and radii of influence as well as extraction rates to allow comparison against predictions.</p> <p>■ Confirm any changes to groundwater levels due to the cumulative impacts of other projects.</p>
GW7	Groundwater	<p>A condition assessment of the leachate collection, monitoring and treatment system will be carried out by a suitably qualified specialist prior to project activities that could affect leachate generate and management.</p> <p>A final condition assessment will be carried out at the completion of construction to ensure the leachate collection, monitoring and treatment system is returned to council with the same functionality and condition, subject to fair wear and tear.</p>
SW5	Surface water	All works within or adjacent to Alexandra Canal will be managed in accordance with the principles outlined in Guidelines for Controlled Activities on Waterfront Land – Riparian corridors (Department of Industry, 2018).
SW6	Surface water	<p>A water quality monitoring program will be developed and implemented as part of the Construction Soil and Water Management Plan to monitor potential surface water quality impacts. The program will define:</p> <p>■ Monitoring parameters</p> <p>■ Monitoring locations</p> <p>■ Frequency and duration of monitoring.</p> <p>The monitoring program will include ongoing baseline monitoring to determine the water quality of potential receiving waters prior to commencement of construction. Proposed discharge will be updated as required prior to construction based on the baseline data at the time.</p> <p>Water quality monitoring will continue for a minimum of 12 months following the completion of construction, or until affected watercourses are certified by a suitably qualified and experienced independent expert as being returned rehabilitated to an acceptable condition (or as otherwise required by any project conditions of approval).</p> <p>All surface water data related to Alexandra Canal will be provided to Sydney Water for the duration of the monitoring program.</p>
SW7	Surface water	The performance of treatment systems required to treat construction water before discharge will be verified in relation to the established discharge criteria.
SW8	Surface water	The discharge criteria specified in Appendix E would be met for any extracted groundwater or surface water that has come into contact with excavated waste materials prior to discharge into Alexandra Canal and connected stormwater systems.
SW9	Surface water	Options to reuse construction water, such as for dust suppression and irrigation of rehabilitated and landscaped areas, would be investigated and adopted where practicable to minimise the volumes requiring discharge or disposal.
SW10	Surface water	Construction planning will ensure that operation of the sluice gate at the northern ponds outlet to Alexandra Canal is not affected by the works.
SW11	Surface water	<p>The management of surface water runoff for works within the former Tempe landfill will adopt the following principles:</p> <p>■ Isolate exposed waste from surface water runoff from other areas</p>



Condition Number	Aspect	Condition
		<ul style="list-style-type: none"> ■ Minimise contact between rainfall and surface water runoff and exposed waste ■ Capture and store (temporarily) surface water runoff from areas of exposed waste (leachate) ■ Size leachate storage(s) based on updated water balance modelling to reflect the proposed construction methodology and to minimise the risk of the capacity being exceeded.
NAH7	Non-Aboriginal heritage	A Heritage Management Plan will be prepared prior to construction and implemented as part of the CEMP. It will include measures to manage non-Aboriginal heritage and minimise the potential for impacts during construction. The plan will take into account relevant conservation and heritage management policies in the Alexandra Canal Conservation Management Plan and the Sydney Airport Heritage Management Plan.
NAH8	Non-Aboriginal heritage	<p>A Historical Archaeological Assessment and Research Design and Excavation Methodology will be prepared for, and implemented at, the following locations within the project site:</p> <ul style="list-style-type: none"> ■ Intact sections of Alexandra Canal along the western bank of the canal on either side of the existing pedestrian and rail bridges ■ Vacant land at 30 Canal Road (Lot 4 DP 555771 and Lot 3 DP 825649) ■ Land located north of Canal Road that is currently used for the construction (stockpiling) of the New M5 (Lot A DP 391775, Lot B DP 394647 and Lot 2 DP1168612) ■ Sydney Airport land considered to contain low or moderate archaeological potential ■ Land along Qantas Drive considered to contain low or moderate archaeological potential ■ Sydney Airport land located east of Sydney Airport northern lands car park and west of Botany Rail Line (Lot 1 DP 826101) ■ Land to the west of Boral's St Peters facility and east of the Botany Rail Line. <p>The Historical Archaeological Assessment and Research Design and Excavation Methodology will identify the specific features of archaeological significance that could be present at these locations, provide a scope for further investigations to confirm and specify appropriate archaeological management for any remains identified.</p>
NAH9	Non-Aboriginal heritage	<p>Photographic archival recording will be carried out for affected sections of the following items:</p> <ul style="list-style-type: none"> ■ Alexandra Canal ■ Sydney (Kingsford Smith) Airport Group ■ Cooks River Container Terminal Mascot (Shea's Ck) Underbridge ■ Botany Rail Line. <p>Photographic archival recording will be carried out prior to works commencing in the vicinity of the item, and in accordance with How to Prepare Archival Records of Heritage Items (NSW Heritage Office, 1998) and Photographic Recording of Heritage Items Using Film or Digital Capture (Heritage Office, 2006b).</p> <p>Once complete, a report will be prepared detailing the history and significance of the item, relevant findings from the archival recording and an overview of the project. This</p>

Condition Number	Aspect	Condition
		document would subsequently be held by the appropriate local council(s), local library, local historical society and the owner of the asset.
NAH10	Non-Aboriginal heritage	Heritage items and landscaping located outside the project site and associated with the following items will be marked on site plans contained within the CEMP as areas to be avoided during construction, where works are proposed within 10 metres of:
		■ Alexandra Canal (significant fabric and gazetted curtilage as detailed in the conservation management plan for Alexandra Canal)
		■ Sydney (Kingsford Smith) Airport Group – fabric of high significance (as identified in the Sydney Airport Heritage Management Plan), trees and plantings
		■ Cooks River Container Terminal – fabric of high significance, trees and plantings
		■ Mascot (Shea's Ck) Underbridge – fabric associated with the bridge.
		Protective barriers will be established prior to works at these locations.
NAH11	Non-Aboriginal heritage	Potential vibration impacts on features of heritage significance will be managed in accordance with the Construction Noise and Vibration Management Plan (measure NV5) and noise and vibration mitigation measure NV12.
NAH12	Non-Aboriginal heritage	Any items of potential heritage conservation significance or human remains discovered during construction will be managed in accordance with the Standard Management Procedure Unexpected Heritage Items (Roads and Maritime, 2015e).
AH3	Aboriginal heritage	Archaeological salvage excavation will be undertaken prior to construction within those parts of Investigation Area 1 and Investigation Area 2 where deep sediments would be directly impacted by the project.
		Archaeological salvage excavation (including post-excavation analysis and reporting) will be completed prior to any activities that may result in harm to Aboriginal objects in these areas.
AH4	Aboriginal heritage	An Aboriginal Heritage Management Plan will be prepared prior to construction and implemented as part of the CEMP. The plan will include measures to manage Aboriginal heritage and minimise the potential for impacts during construction. It will include the proposed salvage methodology, unexpected find procedure (see measure AH6) and process for additional consultation with Aboriginal stakeholders.
AH5	Aboriginal heritage	Aboriginal stakeholder consultation will continue to be undertaken in accordance with the Procedure for Aboriginal cultural heritage consultation and investigation (Roads and Maritime, 2011b) and Aboriginal cultural heritage consultation requirements for proponents 2010 (DECCW, 2010c).
AH6	Aboriginal heritage	If suspected Aboriginal heritage items or human remains are uncovered during construction, they will be managed in accordance with the Standard Management Procedure: Unexpected Heritage Items (Roads and Maritime Services, 2015e).
LU5	Land use and property	Acquisition will be undertaken in accordance with:
		■ The Land Acquisition (Just Terms Compensation) Act 1991
		(NSW)
		■ Determination of compensation following the acquisition of a business (NSW Government, undated).
LU6	Land use and property	Sydney Airport, as the leaseholder of the land, will notify tenants that their sub-lease agreements will be concluded. Termination of leases will be undertaken in accordance with the contract terms with Sydney Airport Corporation and the tenant.
		Sydney Airport will provide support to manage the return of lands and handover to Transport Roads and Maritime .
LU7	Land use and property	Consultation with Qantas will occur throughout construction planning and construction to minimise impacts on the:



Condition Number	Aspect	Condition
		<ul style="list-style-type: none"> ■ Existing Qantas Flight Training Centre until the relocation process is complete ■ New Flight Training Centre once it is operational.
LU8	Land use and property	<p>Condition surveys for structures and infrastructure at potential risk of damage due to construction of the project will be undertaken prior to commencement of the proposed activity. Rectification measures will be implemented during construction to address any damage caused by the project. A final condition assessment will be carried out at the completion of construction detailing recommendations for any additional rectification required.</p>
SE3	Socio-economic	<p>A communications strategy will be prepared to detail the process of communicating and engaging with the community and stakeholders in the lead up to, and during, construction. It will ensure that:</p> <ul style="list-style-type: none"> ■ The community and stakeholders have a high level of awareness and forewarning of all processes and activities ■ Accurate and accessible information is made available ■ A timely response is given to issues and concerns raised by the community ■ Feedback from the community is encouraged ■ Opportunities for input are provided. <p>In relation to the potential for socio-economic impacts, the strategy will include:</p> <ul style="list-style-type: none"> ■ Communication with potentially affected residents, other community members, businesses and other key stakeholders to provide information about the project, and the likely nature, extent and duration of amenity and access changes during construction ■ Protocols to identify and engage with vulnerable persons that might be affected by construction ■ Protocols for communicating information about potential access delays in and around Sydney Airport and other relevant project information.
SE4	Socio-economic	<p>Business management plans will be prepared and implemented for businesses affected by the project. The plans will be developed on a case by case basis and will detail specific measures, developed in consultation with the business operator. These will include:</p> <ul style="list-style-type: none"> ■ Protocols to identify, in consultation with each affected business, feasible and reasonable measures to maintain vehicular and pedestrian access during business hours, and visibility of the business to potential customers during construction, including alternative arrangements for times when access and visibility cannot be maintained ■ Measures to respond to identified impacts as far as possible.
SE5	Socio-economic	<p>A temporary off-leash dog exercise area will be provided. Access to this area will be maintained throughout construction, and temporary parking spaces will be provided. The location of the off-leash dog exercise area and the number of temporary parking spaces will be confirmed in consultation with Council. The condition of the temporary off-leash dog exercise area will be regularly monitored and maintained. Transport will continue to consult with Inner West Council to provide a temporary off-leash dog exercise area in the vicinity of the project during construction.</p>
SE6	Socio-economic	<p>Access to community facilities and infrastructure will be maintained during construction. Where alternative access arrangements need to be made, these will be developed in consultation with relevant service providers and communicated to users.</p> <p>Any changes to access arrangements will be managed in accordance with the Construction Traffic and Access Management Plan.</p>

Condition Number	Aspect	Condition
LV8	Landscape character and visual amenity	The design and maintenance of construction compound hoardings will aim to minimise visual amenity and landscape character impacts.
LV9	Landscape character and visual amenity	The selection of materials and colours for hoardings will aim to minimise their visual prominence.
LV10	Landscape character and visual amenity	Lighting of work areas, compounds, and work sites will be oriented to minimise glare and light spill impact on adjacent receivers.
LV11	Landscape character and visual amenity	Trees to be retained will be protected prior to the commencement of construction in accordance with AS4970-2009 Protection of trees on development sites and the project's tree management strategy.
		Any tree pruning will be undertaken in accordance with the project's tree management strategy and carried out guided by a tree report prepared by a qualified arborist.
LV12	Landscape character and visual amenity	Following completion of construction, site restoration will be undertaken in accordance with the rehabilitation strategy (measure CS23). Temporary impacts on public open space will be rehabilitated in consultation with the relevant local council and/or landowner.
BD3	Biodiversity	A Construction Biodiversity Management Plan will be prepared prior to construction and implemented as part of the CEMP. It will include measures to manage biodiversity and minimise the potential for impacts during construction. The plan will be prepared in accordance with relevant legislation, guidelines and standards.
HS1	Health, safety and hazards	A spill response procedure will be developed as part of the project's incident management protocols. The procedure and incident management protocols will detail processes, responsibilities and measures to manage hazardous substances and dangerous goods, including storage, handling and spill response, in accordance with legislative requirements.
HS2	Health, safety and hazards	A utilities contingency management plan will be prepared and will include measures to manage any utility service disruptions during construction. This will include procedures to respond to and any unplanned outages of services, particularly for critical Sydney Airport infrastructure.
HS3	Health, safety and hazards	A safety management study will be prepared for any proposed alterations to the ethylene pipeline in accordance with AS 2885 Pipelines – Gas and liquid petroleum. The outcomes of the safety management study will be incorporated in construction planning.
HS4	Health, safety and hazards	An emergency response plan will be prepared and will include measures to manage emergency situations during construction, including those associated with fires, flooding or other threats to public safety.
HS5	Health, safety and hazards	All works involving potential ignition sources within the former Tempe landfill will be subject to a risk assessment or ban on total fire ban days.
HS6	Health, safety and hazards	The transport of dangerous goods will be undertaken in accordance with the Dangerous Goods (Road and Rail Transport) Regulation 2009 and the <i>Australian Code for the Transport of Dangerous Goods by Road & Rail</i> (National Transport Commission, 2017).
WM2	Waste management	A Construction Waste Management Plan will be prepared as part of the CEMP and implemented during construction. The plan will adopt the waste hierarchy principles contained in the <i>Waste Avoidance and Resource Recovery Act 2001</i> and will detail processes, responsibilities and measures to manage waste and minimise the potential for impacts during construction.
WM3	Waste management	Construction waste will be minimised by accurately calculating materials brought to the site and limiting materials packaging where possible.
WM4	Waste management	All waste disposal will be in accordance with the <i>Waste Classification Guidelines</i> (NSW EPA, 2014).
WM5	Waste management	The following measures would be implemented during works at the former Tempe landfill to avoid attracting wildlife:
		■ Staging the excavation to minimise the amount of exposed waste at any one time
		■ Minimising the size and area of exposed stockpiles



Condition Number	Aspect	Condition
		■ Ensuring material that has been disturbed, uncapped, or temporarily stockpiled is suitably covered at the end of each day.
WM6	Waste management	Suitable areas will be identified to allow for contingency management of unexpected waste materials, including contaminated materials. Areas will be hardstand or lined areas that are appropriately stabilised and bunded, with sufficient space for stockpile storage.
GHG4	Climate change and greenhouse gas	A minimum of 20 per cent An appropriate portion of construction phase electricity electricity energy will be purchased from an accredited GreenPower product.
GHG4	Climate change and greenhouse gas	A minimum of 20 per cent An appropriate portion of construction phase electricity electricity energy will be purchased from an accredited GreenPower product.

Appendix A2. Environmental aspects and impacts

1 Overview

This Environmental Aspects and Impacts Register has been prepared by JHSWJV, to supplement the Environmental Risk Analysis conducted as part of the Environment Impact Statement risk assessment (Section 3.2.1). A risk workshop was completed prior to the commencement of construction to review this planning phase risk assessment. Representatives from JHSWJV, TfNSW, local councils, Sydney Airport, EPA Accredited Site Auditor, and the ER were in attendance.

The identification of significant construction activities and associated impacts that could eventuate during construction of the Project is central to the selection of appropriate environmental safeguards. The activity specific site controls outlined in the environmental management plans have been developed to comply with the requirements from the TfNSW Environmental Specifications, State Conditions of Approval (CoA) and Updated Environmental Management Measures (UMMs). Management measures may include physical controls, procedures, forms, checklists, monitoring requirements, permits, etc.

The risk management process involved an assessment of all specific project activities/aspects in or near environmentally sensitive areas and resulted in the development of a list of environmental risks (effects and impacts) and a corresponding risk mitigation strategy and risk ranking. Each environmental risk was categorised, based on the following:

- The environmental aspect
- Relative scale of the potential impact
- Type of potential impact
- Likelihood of occurrence.

The identification of risks included a review of the proposed works, the CoA, UMMs, and review of the environmental risks identified by the EIA and subsequent Submissions Report. A revised risk rating, assuming the controls nominated within the environmental management plans are implemented, is also included in the table. The risk rating is based on the likelihood and the consequence of the event occurring as detailed in Table 8 to Table 12 below.

Table 8: Likelihood criteria

Likelihood Rating	Probability	Qualitative Assessment	Recurrence Timeframe
ALMOST CERTAIN	≥ 90%	Almost certain to occur during the Project / contract life	Less than "Monthly"
LIKELY	51% to 89%	Considered likely to occur during the Project / contract life	"Monthly" to "Yearly"
POSSIBLE	30% to 50%	Considered a possible occurrence during the Project / contract life	Between 2 and 5 years
UNLIKELY	5% to 29%	Considered unlikely to occur during the Project / contract life	Between 5 and 20 years
RARE/REMOTE	< 5%	Considered a rare occurrence to happen during the Project / contract life	Greater than every 20 years

Table 9: Consequence risk criteria

Consequence Risk					
Rating	1	2	3	4	5
Workplace Health and Safety	* First aid injury, and/or * Minor safe working issues	* Medical treatment, and/or * Moderate safe working breach likely to impact on operations	* Serious medical / hospital treatment resulting in need alternate working or resulting in lost time injury, and/or * Significant safe working breach with actual impact on operations	* Serious or permanent Injury, and/or * Significant safe working beach with immediate impact on operations on one or more worksites	* 1 or more fatalities, and/or * Major breach of safe working with immediate and extensive impact on one or more worksites
Budget (\$AUD)	<\$<enter> (<1%) over Project budget	\$<enter> to \$<enter> (1% to 5%) over Project budget	\$<enter> to \$<enter> (3% to 5%) over Project budget	\$<enter> to \$<enter> (5% to 10%) over Project budget	>\$ <enter> (>10%) over Project budget
Time Schedule (Target Program)	< <enter> days / weeks / months (<1% of program) over the critical path program	<enter> to <enter> days / weeks / months (1% to 2% of program) over the critical path program	<enter> to <enter> days / weeks / months (2% to 3% of program) over the critical path program	<enter> to <enter> days / weeks / months (3% to 5% of program) over the critical path program	><enter> days / weeks / months (>5% program) over the critical path program
Environment & Natural Resources	* Low severity environmental impact(s) or impact on natural resources availability that are promptly reversible and affected area is within the site boundary	* Nuisance or low severity environmental impact(s) or impact on natural resources availability that are promptly reversible and affected area is outside the site boundary	* Moderate severity environmental impact(s) or impact on natural resources availability where the affected area is within the site boundary	Moderate severity environmental impact(s) or impact on natural resources availability where the affected area is outside the site boundary	High severity environmental impact(s) or impact on natural resources availability at local scale significance
Quality	* Rework Costs less than or equal to 20K	* Rework Costs less than or equal to 100K but greater than 20K	* Rework Costs less than or equal to 250K but greater than 100K	* Rework Costs less than or equal to 5% contract value but greater than 250K	Rework Costs greater than 5% of contract value
Reputation / Community / Media	* Public concern restricted to local complaints * Lack of contribution to the community	* Minor, adverse local public or media attention and complaints * Employees warned only * Minor change in community amenity values	* Attention from media and/ or heightened concern by local community * Stakeholder action will disrupt planned Project activities * Disciplinary action may be taken * Temporary reduced community access to	* Significant adverse national media / public / NGO attention * Considerable and prolonged adverse community impact and dissatisfaction publicity expressed * Stakeholder action will delay achievement of	* Serious public or media outcry with international coverage * Significant adverse community impact & condemnation * Stakeholder action will prevent achievement of the Project objectives



Consequence Risk					
			services or employment	major elements of the Project * Permanently reduced community access to services or employment	* Reduced cohesion of community
Governance / Legal / Regulatory	* Very minor technical breach of regulation or policy or code of ethics. No fine / penalty	* Minor legal issues, non-compliances and breaches of regulation, policy or code of ethics * Enforceable Undertaking	* Moderate breach of regulation, policy or code with investigation or report to authority * Moderate legal proceedings initiated * Several Improvement Notices	* Significant breach of regulation, policy or code with fine or other regulatory action. Significant litigation / legal action * Shut down of part of a Project due to regulatory breach * Prohibition Notice	* Major breach of regulation, policy or code with fine * Major litigation * Major investigation by regulatory body * Prosecution / Accreditation loss
Management Impact	* Impact of event absorbed through normal activity	* Will require some local management attention over several days	* Significant event that can be managed with careful attention, will take some Project managers much time for several weeks * Local operation of contingency plan	* Major event that requires the implementation of crisis and contingency plans at a Project level, regional area or support function (DRP) * Will require the involvement of senior managers and will take up the time of Project managers for several weeks	* Critical event or disaster with significant impact on John Holland that requires considerable senior management time to handle over several months * Full implementation of a John Holland's crisis management plan for days to weeks

Table 10: Overall risk rating

LIKELIHOOD	RATING	CONSEQUENCE				
		1	2	3	4	5
	ALMOST CERTAIN	D	C	B	A	A
	LIKELY	D	D	C	B	A
	POSSIBLE	E	D	C	C	B
	UNLIKELY	E	E	D	C	B
	RARE/REMOTE	E	E	D	D	C

Table 11: Risk rating definition

Risk Abbreviation	Risk Rating
A	Catastrophic
B	Critical
C	Moderate
D	Minor
E	Marginal/Negligible

Table 12 Environmental Risk Assessment

		Ranking Matrix					Residual Ranking Matrix			
Risk No.	Risk Description	Initial Likelihood	Initial Consequence	Risk Matrix	Potential Consequence	Mitigation Strategy	Likelihood	Consequence	Residual Risk	Comments/ Responsibility
Approvals										
1	Proposed works not consistent with EIS, CoA or Deed requirements	possible	3	C	Delays through consistency reviews, minor variation or modification required	Env Check List and/or Consistency assessment completed, project to identify changes early, Compliance register, clear process to avoid additional impact to sensitive areas, variation to approvals as required	unlikely	3	D	Environmental Approvals Manager Design Lead
2	Non-compliance with Environmental Approvals (EIS,CoA,MDP,EPL, CLM Act approval, Tempe Lands Site Environmental Management Plan, etc.)	likely	4	B	Breach of Legislation,	Compliance Tracking, adequate resourcing, project induction, staff training, auditing, carry out works in accordance with CEMP, relevant approvals, licenses and permits (including EPL, Sydney Water Trade Waste Agreement), measures detailed in plan and Specs Development and implementation of: - Site Establishment Management Plan - Construction Environment Management Plan - Traffic and Transport Management Plan - Noise and Vibration Management Plan - Soil and Water Management Plan - Contaminated aquatic sediments in Alexandria Canal - Heritage Management Plan - Landfill Leachate, Gas and Odour Management Plan - Groundwater Management Plan - Flora and Fauna Management Plan - Emergency Response Plan – Tempe Lands Site Environmental Management Plan	unlikely	4	C	Project Director Environmental Team
3	Application of approvals in wrong jurisdiction (Sate/Federal)	likely	4	B	Breach of Legislation,	Project induction includes map of state and federal areas, project signage, authority to commence works requires approvals sign off.	unlikely	4	C	Environmental Team
4	Non-compliance with CEMP and /or failure to follow Sub Plans legislative requirements	likely	3	C	delays, fines, prosecutions, environmental harm	CEMP, EPL and all relevant approval requirements to be on boarding to be implemented for staff on the Project, awareness of subcontractor/JH team. Use ERG to raise CEMP issues from agencies.	unlikely	3	D	Environmental Team Project Director Engineering Team Superintendent
5	Failure to obtain third party approvals and handover of conditions to operators e.g. EPL, Trade Waste Agreement	likely	3	C	Delay in application	Early engagement with key stakeholders, Approvals strategy, planning meetings. Consultation with TfNSW, JHSW, Council and any other relevant stakeholders to have agreement of operational conditions and responsible entity.	unlikely	3	D	Environmental Team Interface Managers

Risk No.	Risk Description	Ranking Matrix			Potential Consequence	Mitigation Strategy	Residual Ranking Matrix			Comments/ Responsibility/
		Initial Likelihood	Initial Consequence	Risk Matrix			Likelihood	Consequence	Residual Risk	
6	Construction footprint cannot be achieved	likely	3	C	additional approvals required, costs, alternative techniques required	Construction methodology developed early confirm space checking with plant and equipment.	possible	3	C	Superintendent Engineering Team
8	Change of legislative / regulatory requirements	possible	3	C	Breach of Legislation, additional approvals, costs	Compile and maintain a legislation register. Identify and review new legislation. Subscribe to EnviroLaw. Compliance tracking, auditing, inspections, training. Change management processes	possible	3	C	Environmental Approvals Manager
Traffic Transport and Access										
9	Changes to intersection and traffic performance due to heavy vehicle movements, narrowing of lanes, speed restrictions and temporary lane closures	Almost certain	3	B	Traffic delays, complaints	Traffic and Access M.P Active Transport Strategy Travel Demand Management Strategy Worker Parking Strategy Maintaining minimum number of lanes on Airport and Qantas drives, No heavy vehicles on local roads, Communications Strategy	possible	3	C	Traffic Management Team
10	Disruptions and delays to public transport operations, particularly buses	likely	3	C	Traffic delays, complaints	Traffic and Access M.P Active Transport Strategy. Communication Strategy Changes will be designed and implemented in consultation with Transport NSW and bus operators .The community will be informed in advance of changes. (EIS 27.26) Travel Demand Management Strategy Worker Parking Strategy	unlikely	3	D	Traffic Management Team
11	Impacts on the availability of on street parking on local streets surrounding construction work areas	likely	3	C	Community amenity impacted, public complaints	Traffic and Access M.P Travel Demand Management Strategy Worker Parking Strategy Induction and training	unlikely	3	D	Traffic Management Team
Noise and Vibration										
12	Elevated noise and vibration levels around construction sites, compounds, site accesses and haul routes affects amenity for sensitive receivers	Almost certain	4	A	Possible breach in approvals, Community complaints, construction fatigue, property damage, need to re-establish baseline conditions, impacts to sensitive receivers e.g. sleep disturbance, daytime noise/vibration disturbance, potential impacts on landlords from noise/vibration impacts.	EPL Noise and Vibration Management Plan Communication Strategy Out of hours approval/agreements Traffic and Access M.P Induction ,Toolbox and Training Monitoring, validation and Real-Time Modelling Specialist consultants Alternate construction methods i.e. shears vs hammering Respite periods Hoarding/ Site design Minimise idling, shouting and staff gathering near sensitive area ONVR	possible	3	C	Environment Team Comms Team Interface Manager Design and Construction Teams
14	Noise impacts on sensitive receivers (including residents, employees, hotel	Almost certain	4	A	Community complaints, regulator involvement impacts to sensitive receivers e.g. sleep	EPL Noise and Vibration Management Plan Specific noise and vibration assessments at the hotels to include facade assessment Communication Strategy	possible	3	C	Environment Team Comms Team Interface Manager

Risk No.	Risk Description	Ranking Matrix			Potential Consequence		Mitigation Strategy	Residual Ranking Matrix			Comments/ Responsibility/
		Initial Likelihood	Initial Consequence	Risk Matrix				Likelihood	Consequence	Residual Risk	
	guests and recreation facility users) for work undertaken outside of standard working hours (such as works the potential to intrude Sydney Airport's prescribed airspace)				disturbance, daytime noise/vibration disturbance, potential impacts on landlords from noise/vibration impacts.		Out of hours permits Real-Time Monitoring Validation monitoring Induction, training and Toolboxes Specialist consultants Qantas Flight Centre Acoustic Framework ONVR				Design and Construction Teams
15	Cumulative noise impacts with the Botany Rail Duplication and other projects	likely	2	D	Community complaints, regulator involvement impacts to sensitive receivers e.g. sleep disturbance, daytime noise/vibration disturbance		Noise and Vibration Management Plan Communication Strategy Monitoring and validation	possible	2	D	Environment Team Comms Team Interface Manager Design and Construction Teams
16	Vibration impacts on heritage and other structures causing structural damage	possible	4	C	Property damage, environmental impact on heritage item		Noise and Vibration MP Heritage MP Alternate methods as necessary refer to dynamic compaction requirements for testing prior; trailing levels Exclusion Zones Monitoring and Modelling Building Conditions Surveys	unlikely	2	E	Environment Team Comms Team Interface Manager Design and Construction Teams
17	Construction Fatigue in community causing increased complaints and complaint escalation	likely	3		Negative media impact, community complaints, reduced approvals for out-of-hours etc., impacts to sensitive receivers e.g. sleep disturbance, daytime noise/vibration disturbance, , potential impacts on landlords from noise/vibration impacts.		Communications Strategy Respite Noise and Vibration Management Plan Out of hours procedures and planning Staged Construction retain screening as practicable Monitoring and validation ONVR	unlikely	3	D	Environment Team Comms Team Interface Manager Design and Construction Teams
18	Vibration impacts on sensitive equipment	possible	4	C	Damage complaints, delays		Noise and Vibration MP refer to dynamic compaction requirements for testing prior; trailing levels Exclusion Zones Monitoring and Modelling	unlikely	3	D	Environment Team Comms Team Interface Manager Design and Construction Teams
Air Quality and Odour											

		Ranking Matrix					Residual Ranking Matrix			
Risk No.	Risk Description	Initial Likelihood	Initial Consequence	Risk Matrix	Potential Consequence	Mitigation Strategy	Likelihood	Consequence	Residual Risk	Comments/ Responsibility/
19	Impacts on air quality as a result of dust generation during construction (from earthworks, ground disturbance, vegetation removal, exposed soil/stockpiles, excavation and vehicle movements)	likely	4	B	community concerns and potential for human health impact, regulator involvement, fines, impacts flora fauna, pollution	Air Quality MP Soil and Water MP Rehabilitation Strategy Acid Sulphate Soil MP Air Quality, Odour and Landfill gas monitoring program Complaint management processes Use of water as suppression as required Minimise exposed surfaces and stage works to minimise disturbed areas. Restrict dust and odour generating activities in strong wind conditions. Materials to and from site to be covered. Stockpile sites chosen as far as reasonably practical from sensitive receivers. Stabilised Access tracks local roads Hygienist	unlikely	4	C	Environment Team CPESC / Ecologist Comms Team Interface Manager Design and Construction Teams
20	Impacts on air quality from decommissioning and demolition activities, specifically Hazardous Materials	possible	4	C	community concerns and potential for human health impact, regulator involvement, fines, impacts flora fauna, pollution	Air Quality MP Soil and Water MP Demolition Licence Specialist hygienist/Asbestos removal/Water Misting Air Quality, Odour and Landfill gas monitoring program Hazardous Materials Surveys	unlikely	4	C	Environment Team CPESC / Ecologist Comms Team Interface Manager Design and Construction Teams Hygienist
21	Impacts on air quality as a result of emissions from vehicles or plant during construction	likely	2	D	community concerns, pollution	Sustainability MP Air quality MP Construction Staging and Temporary Work Plans Travel Demand management strategy/ Worker Parking Strategy Plant pre acceptance and maintenance records Maintenance schedules, plant pre-starts and pre-acceptance. qualified mechanics	unlikely	2	E	Sustainability Manager CPESC / Ecologist Comms Team Interface Manager Design and Construction Teams
22	Impacts to air quality as a result of odours/emissions from disturbance of waste materials at the former Tempe Tip site	Almost certain	4	A	community concerns and potential for human health impact, pollution, fines, redirecting odours to offsite sensitive receivers	Landfill Leachate, Gas and Odour Management Plan Odour Management Strategy Soil and Water Management Plan Air Quality, Odour and Landfill gas monitoring program Waste Management Plan Contamination Remediation Action Plan(s) Further modelling to comply with the 2 OU criterion Complaint management processes Deodorisers Downwind Odour Surveys	possible	4	C	Environment Team Contamination Specialists Auditor Design and Construction Teams
Contamination										

		Ranking Matrix					Residual Ranking Matrix			
Risk No.	Risk Description	Initial Likelihood	Initial Consequence	Risk Matrix	Potential Consequence	Mitigation Strategy	Likelihood	Consequence	Residual Risk	Comments/ Responsibility/
23	Construction Works on/adjacent to Tempe Landfill damages collection systems or results in the infiltration of rainwater and the production of additional leachate that may not be managed by the existing leachate system	possible	4	C	Breach of EPL and trade waste agreement, pollution, breach of voluntary remediation agreement	Upgraded leachate treatment plant Landfill, leachate gas and odour Management Plan Soil and Water Management Plan Waste Management Plan Contamination Remediation Action Plan(s) Odour Management Strategy Specialist Contractor(s) including CPESC limit area of cap being opened at any one time and determine any site works in liaison with specialists and approval requirements Independent site auditor Leachate mgmt. strategy Monitoring programs Dial B4 you dig/ service search/Survey to confirm collection system infrastructure Refine design and construction method to avoid impact Independent site auditor Independent verifier	unlikely	4	C	Environment Team Construction Manager Contamination Specialists Auditor Design and Construction Engineering Team - nominated specialist
24	Disturbance / mobilisation of the landfilled materials, odours, gasses and contaminants at the Tempe Tip causing offsite impact	likely	4	B	pollution, odour complaints, potential biological health impact (ecosystem, human), breach of EPL, breach of voluntary remediation agreement, human health impact from dust, vapours or contaminated water	Landfill, leachate gas and odour Management Plan Soil and Water Management Plan Waste Management Plan Contamination Remediation Action Plan(s) Specialist Contractor(s) Auditor and independent verifier limit area of cap being opened at any one time and determine any site works in liaison with specialists and approval requirements detailed site investigation, validation plan and validation report.	unlikely	4	C	Environment Team Construction Manager Contamination Specialists Auditor Design and Construction Engineering Team
25	Disturbance / mobilisation of contaminated sediments in Alexandra Canal (as a result of construction in the banks of the canal)	Almost certain	3	B	Pollution, breach of legislation, fines, potential biological health impact including Tempe Wetlands (ecosystem, human), human health impact from dust, vapours or contaminated water	Contaminated Aquatic Sediments in Alexandra Canal Management Plan Soil and Water Management Plan Design that minimises need to impact canal floor or amended/minimised impact construction methods. Cofferdam install requires additional internal review. Approval from the EPA and Sydney Water to carry out the works. The independent site auditor will also need to review plan Specialist Contractor(s) Training inductions and Toolboxes Auditor and independent verifier	unlikely	3	D	Environment Team Construction Manager Contamination Specialists Auditor Design and Construction Engineering Team
26	Interaction with potentially contaminated soils and groundwater, including PFAS	Almost certain	3	B	Pollution, breach of legislation, fines, potential biological health impact (ecosystem, human)	Soil and Water Management Plan Dewatering Management Strategy Contamination Remediation Action Plan(s) Health and Environmental Risk Assessment amended methodology to minimise creation/encountering of contam groundwater	likely	3	C	Environment Team Construction Manager Contamination Specialists Auditor Design and Construction Engineering Team

Risk No.	Risk Description	Ranking Matrix			Potential Consequence	Mitigation Strategy	Residual Ranking Matrix			Comments/ Responsibility/
		Initial Likelihood	Initial Consequence	Risk Matrix			Likelihood	Consequence	Residual Risk	
27	Accidental discharge of potentially contaminated groundwater	likely	3	C	Pollution, breach of legislation, fines, potential biological health impact including Tempe Wetlands (ecosystem, human), human health impact from dust, vapours or contaminated water	Soil and Water Management Plan Dewatering Management Strategy Contamination Remediation Action Plan(s) Permits and Licencing amended methodology to minimise creation/encountering of contam groundwater	unlikely	3	D	Environment Team Construction Manager Contamination Specialists Auditor Design and Construction Engineering Team
28	Exposure/ Mistreatment of Acid Sulfate Soils causing pollution or impacting construction in ground	possible	3	C	Pollution, breach of legislation, fines, potential biological health impact including Tempe Wetlands (ecosystem, human), human health impact from dust, vapours or contaminated water	Contamination Remediation Action Plan(s) Soil and Water Management Plan Acid Sulfate Soil Management Plan Specialist Contractor(s) including CPESC	unlikely	3	D	Environment Team Construction Manager Contamination Specialists Auditor Design and Construction Engineering Team
29	Contamination of soils and groundwater due to spills or leaks of fuels, oil or other hazardous substances	unlikely	3	D	Pollution, soil contamination, breach of legislation, fines	Emergency MP Soil and Water MP Fuel tanks and associated pipe work to be located within bunds with 110% capacity. Spill kits to be made available on site to prevent material entering the watercourse or surface water drains. Tanks, bunds, plant and machinery to be regularly maintained. Training key personnel in emergency spill response. Daily prestart inspection for all hydraulic plant. Appropriate storage and management of chemicals. Refuelling and wash-down in designated areas only.	unlikely	3	D	Environment Team Construction Manager Contamination Specialists Auditor Design and Construction Engineering Team
30	Contaminated stockpile storage and containment inadequate in space or build causing overflow, mixing of stockpiles or increase in offsite disposal required	likely	3	C	Pollution, breach and legislation, fines	Soil and Water Management Plan Contamination Remediation Action Plan(s) Permits and Licencing Acid Sulfate Soil Management Plan Specialist Contractor(s) including CPESC EWMS/ERSED Plans Training toolbox and induction	unlikely	3	D	Environment Team Construction Manager Contamination Specialists Auditor Design and Construction Engineering Team
31	Not recognising/ improperly treating unexpected contamination finds	Almost certain	3	B	Pollution, breach improperly legislation, fines, incorrect waste disposal	Contamination Remediation Action Plan(s) Unexpected Finds protocol Soil and Water Management Plan Dewatering Management Strategy Permits and Licencing Acid Sulfate Soil Management Plan Specialist Contractor(s) including CPESC EWMS/ERSED Plans Training toolbox and induction	unlikely	3	D	Environment Team Construction Manager Contamination Specialists Auditor Design and Construction Engineering Team

		Ranking Matrix					Residual Ranking Matrix			
Risk No.	Risk Description	Initial Likelihood	Initial Consequence	Risk Matrix	Potential Consequence	Mitigation Strategy	Likelihood	Consequence	Residual Risk	Comments/ Responsibility/
32	Direct contact and or inhalation of contaminated soil / groundwater by community/visitor - non associated person	likely	2	D	Human health impacts, fines	Hygiene Protocols/ WH&S Plans Air Quality MP Soil and Water Management Plan Dewatering Management Strategy Contamination Remediation Action Plan(s)x Induction, Toolbox and Training Water Truck/Polymer	unlikely	2	E	Environment Team Construction Manager Contamination Specialists Auditor Design and Construction Engineering Team
33	Incorrect classification of waste	possible	4	C	Pollution, breach of legislation, fines	Soil and Water Management Plan Contamination Remediation Action Plan(s) Permits and Licencing Acid Sulfate Soil Management Plan Specialist Contractor(s) including CPESC, IV and auditor EWMS/ERSED Plans Training toolbox and induction Unexpected Finds protocol	unlikely	4	C	Environment Team Construction Manager Contamination Specialists Auditor Design and Construction Engineering Team
34	Bentonite wall damaged by works, or in unexpectedly worse state leading it to be more easily damaged/already failed	likely	4	B	Pollution, breach of legislation, fines, damage to the bentonite wall, pumps and pits, redirecting gas to offsite sensitive receivers	Undertaking pre works survey and assessment to determine condition so far as is practicable Minimising construction impacts on wall, i.e. limiting drainage pit depths Specialist Contractor(s) including CPESC, IV and auditor monitoring of wall during works to verify ongoing condition Odour monitoring in accordance with the CEMP and relevant subplans.	unlikely	4	C	Environment Team Construction Manager Contamination Specialists Auditor Design and Construction Engineering Team
35	Incorrect disposal of waste	Almost certain	4	A	Pollution, breach of legislation, fines	Waste Management Plan Waste disposal site approval process Waste tracking register Soil and Water Management Plan Dewatering Management Strategy Contamination Remediation Action Plan(s) Permits and Licencing Acid Sulfate Soil Management Plan Specialist Contractor(s) including CPESC EWMS/ERSED Plans Training toolbox and induction Unexpected Finds protocol	unlikely	4	C	Environment Team Construction Manager Contamination Specialists Auditor Design and Construction Engineering Team
Water Quality										

		Ranking Matrix					Residual Ranking Matrix			
Risk No.	Risk Description	Initial Likelihood	Initial Consequence	Risk Matrix	Potential Consequence	Mitigation Strategy	Likelihood	Consequence	Residual Risk	Comments/ Responsibility/
36	Sedimentation of local and downstream watercourses and water bodies, including Alexandra Canal, Tempe Wetlands, Cooks River, and Botany Bay	Almost certain	3	B	Pollution, breach of legislation, fines	Soil and Water Management Plan Dewatering Management Strategy Flood Mitigation Strategy Contamination Remediation Action Plan (s) Construction planning re sluice gate (SW8) Erosion and sediment control plan to be drawn and implemented prior to works commencing. Delineate areas to be retained or cleared. Stabilise exposed areas and stockpiles. Diversion of water to sediment basins (where applicable). Treat basins prior to discharge. Test and treat any water prior to offsite discharge.	unlikely	3	D	Environment Team Construction Manager Contamination Specialists Auditor Design and Construction Engineering Team CPESC
37	Impacts to water quality due to disturbance of actual or potential acid sulphate soils and / or acid drainage	likely	4	B	Pollution	Acid Sulfate Soil MP EWMS/ ERSED plans Installation and maintenance of controls	unlikely	4	C	Environment Team Construction Manager Contamination Specialists Auditor Design and Construction Engineering Team CPESC
38	Impacts on surface water from spills or leaks from construction plant and equipment.	Almost certain	2	C	Pollution, fines	Spill Kits/ training Plant Pre-Acceptance Maintenance Records Soil and Water MP	likely	2	D	Environment Team Construction Manager Contamination Specialists Auditor Design and Construction Engineering Team CPESC
Hydrology and Flooding										
39	Impairment or modification of existing drainage infrastructure	possible	3	C	Change in overland flow paths and flood regimes	Soil and Water Management Plan Dewatering Management Strategy Flood Mitigation Strategy and modelling Hydrologic and Hydraulic assessments Consultation with airport and Council re receiving drainage systems	unlikely	3	D	Environment Team Construction Manager Contamination Specialists Auditor Design and Construction Engineering Team Hydrologist/ Design specialists CPESC
40	Changes to impervious areas and/or the catchment area of existing drainage infrastructure,	Almost certain	2	C	reduction in floodplain storage, impacted water quality	Soil and Water Management Plan Flood Mitigation Strategy and modelling Hydrologic and Hydraulic assessments	unlikely	2	E	Environment Team Construction Manager Contamination Specialists Auditor Design and Construction Engineering Team Hydrologist/ Design specialists CPESC
Groundwater										

		Ranking Matrix					Residual Ranking Matrix			
Risk No.	Risk Description	Initial Likelihood	Initial Consequence	Risk Matrix	Potential Consequence	Mitigation Strategy	Likelihood	Consequence	Residual Risk	Comments/ Responsibility/
41	Dewatering activities resulting in drawdown of the groundwater table, impacts to subsurface flow and potential settlement/ stability of nearby structures. Impacts on existing groundwater well	possible	3	C	Drawdown of the groundwater table, impacts to subsurface flow and potential settlement/ stability of nearby structures. Impacts on existing groundwater well	Soil and Water Management Plan Leachate Management Plan/ Strategy Dewatering Management Strategy Acid Sulfate Soil MP Licencing and Permit processes Modelling Survey of GW024036 or consider alternate water supply if in use (Ongoing) GW Monitoring Plan Supplemented as required) Dilapidation/Condition surveys Repair and restoration	unlikely	3	D	Environment Team Construction Manager Contamination Specialists Auditor Design and Construction Engineering Team Hydrologist/ Design specialists CPESC
Non-Aboriginal heritage										
42	Direct physical impacts to items listed on the State Heritage Register (Alexandra Canal)	Almost certain	4	A	Delays in approval to recommence. Additional measures, archaeological salvage, OEH approvals, irreversible damage	Heritage MPs Historical Archaeological Assessment and research design and excavation methodology Review of construction methodology to minimise impact - i.e. alternate tools or equipment. EWMS/s Fencing and training Specialist consultant Sympathetic Design Sensitive Area Plans to include heritage sites and briefed to site teams. Unexpected finds to be followed should potential Heritage items be uncovered. Induction to cover heritage management plan requirements and training for artefact find.	unlikely	4	C	Environment Team Construction Manager Design and Construction Engineering Team Archaeologist/ Design specialists
43	Direct (physical) impacts on other heritage items	Almost certain	4	A	Prosecutions, infringements, Permanent damage/harm to items of significance	Heritage MPs Historical Archaeological Assessment and research design and excavation methodology Review of construction methodology to minimise impact - i.e. alternate tools or equipment. Delineation and fencing Sensitive Area Plans to include heritage sites and briefed to site teams. Unexpected finds to be followed should potential Heritage items be uncovered. Induction to cover heritage management plan requirements and training for artefact find. EWMS	unlikely	4	C	Environment Team Construction Manager Design and Construction Engineering Team Archaeologist/ Design specialists
Aboriginal heritage										

		Ranking Matrix					Residual Ranking Matrix			
Risk No.	Risk Description	Initial Likelihood	Initial Consequence	Risk Matrix	Potential Consequence	Mitigation Strategy	Likelihood	Consequence	Residual Risk	Comments/ Responsibility/
44	Impacts on the identified areas of archaeological potential	likely	3	C	Prosecutions, infringements, Permanent damage/harm to items of significance	Heritage MPs Aboriginal Heritage Interpretation Strategy Toolbox induction and training Fencing and signage Detailed design to consider avoiding areas as identified. Modelling and monitoring Stakeholder consultation as per Procedure for Aboriginal cultural heritage consultation and investigation (Roads and Maritime, 2011b) and Aboriginal cultural heritage consultation requirements for proponents 2010 (DECCW, 2010c	unlikely	3	D	Environment Team Construction Manager Contamination Specialists Auditor Design and Construction Engineering Team Archaeologist/ Design specialists
45	Disturbance of any previously undiscovered items of Aboriginal heritage significance	unlikely	2	E	Delays in approval to recommence. Additional measures, archaeological salvage, OEH approvals, irreversible damage	Heritage MPs Unexpected finds Toolbox induction and training	unlikely	2	E	Environment Team Construction Manager Design and Construction Engineering Team Archaeologist/ Design specialists
Biodiversity										
46	Reduced water quality downstream from clearing	unlikely	4	B	Injury to flora and fauna, Delays, OEH, DPIE investigation, fines, prosecutions	Flora Fauna Management Plan Tree management Strategy Soil and Water Management Plan EWMS/clearing permit ESCP	unlikely	4	C	Environment Team Construction Manager Design and Construction Engineering Team Ecologist
47	Direct impacts to species and habitats at Tempe Wetlands during earthworks	possible	2	D	injury to flora and fauna, Delays, OEH, DPIE investigation, fines, prosecutions, introduction of weeds	Flora and Fauna Management Plan Soil and Water Management Plan EWMS/ERSED Plans CPESC Specialist	unlikely	2	E	Environment Team Construction Manager Contamination Specialists Auditor Design and Construction Engineering Team Ecologist/ CPESC

		Ranking Matrix					Residual Ranking Matrix			
Risk No.	Risk Description	Initial Likelihood	Initial Consequence	Risk Matrix	Potential Consequence	Mitigation Strategy	Likelihood	Consequence	Residual Risk	Comments/ Responsibility/
48	Clearing greater than design allowances (although still approved project boundaries) Impacts to native vegetation from earthworks and clearing	possible	2	D	Prosecutions, fines, damage to flora communities and habitat for fauna	Tree management Strategy Delineation and Fencing - TPZ's Toolbox and Induction Pre-clearing surveys to be undertaken by an ecologist. Habitat areas to be protected to be clearly demarcated as no go zones with fencing. Clearing flagging to be maintained through to works completion Sensitive Area Plans and Environmental Work Method Statements to be briefed to site staff highlighting protected areas, clearing limits, habitat trees etc. Clearing permits to be issued prior to any clearing activity	unlikely	2	E	Environment Team Construction Manager Design and Construction Engineering Team Ecologist
49	Impacts to threatened flora species and/or communities	unlikely	3	D	Delays, OEH investigation, fines, prosecutions, physical loss of fauna species, light spill from construction impacting biodiversity	Habitat areas to be protected to be clearly demarcated as no go zones with fencing. Clearing flagging to be maintained through to works completion Sensitive Area Plans and Environmental Work Method Statements to be briefed to site staff highlighting protected areas, clearing limits, habitat trees etc. Preclearance/ Pre demolition fauna spotting and retrieval/exclusion Delineation and Fencing Toolbox and Induction Ensure light spill is managed in accordance with CEMP and sub-plans to minimise impact on biodiversity e.g. owls, bats.	unlikely	3	D	Environment Team Construction Manager Design and Construction Engineering Team Ecologist
50	Mortality of fauna during construction	possible	3	C	Delays, OEH investigation, fines, prosecutions, physical loss of fauna species	Flora Fauna Management Plan Preclearance/ Pre demolition fauna spotting and retrieval/exclusion Delineation and Fencing Toolbox and Induction Ecologist/ Animal Rescue protocols in place	unlikely	3	D	Environment Team Construction Manager Design and Construction Engineering Team Ecologist
51	Introduction and/or spread of weeds.	possible	3	C	clean up costs, changes to vegetation community composition, introduction of weeds to Tempe Wetlands.	Flora and Fauna Management Plan Wheel Wash ID and treatment of listed weeds Plant pre acceptance checklist	unlikely	3	D	Environment Team Construction Manager Design and Construction Engineering Team Ecologist

		Ranking Matrix					Residual Ranking Matrix			
Risk No.	Risk Description	Initial Likelihood	Initial Consequence	Risk Matrix	Potential Consequence	Mitigation Strategy	Likelihood	Consequence	Residual Risk	Comments/ Responsibility/
52	Unsuccessful rehabilitation of works	possible	3	C	Rework, delays in completion certificate	Urban Design and Landscape Plan Topsoil and mulch removed from clearing to be used in rehabilitation. Do not use contaminated soils in rehabilitation. Complete landscaping as per landscaping specification. Undertake progressive rehabilitation.	rare/remote	3	D	Environment Team Construction Manager Design and Construction Engineering Team Ecologist
Soils landform and geology										
53	Erosion of exposed soil and stockpiled materials	likely	3	C	Environmental harm, prosecution	Air Quality MP Soil and Water MP Settlement and slope stability analysis EWMS's/ ERSER Plans CPESC Specialist	likely	2	D	Environment Team Construction Manager Contamination Specialists Auditor Design and Construction Engineering Team
Resource and Waste										
54	Inappropriate management of waste generated during construction resulting in excessive waste being directed to landfill.	possible	3	C	Pollution, cost	Waste MP Sustainability MP Maximise reuse/recycle of waste. Consider use of recycled materials in construction process such as recycled concrete. Maximise reuse of waste on site and minimise waste to landfill Ensure all waste is considered and tabulated in a waste register and segregate waste wherever possible and removed to licensed waste contractor. Use licensed contractors to remove waste and investigate options for onsite reuse and recycling e.g. use of vegetation as mulch, reuse of spoil. Undertake site inspections to ensure that waste is disposed into correct skips and inspections of waste carriers to ensure that they are following their duty of care. No waste to leave site to a licenced facility or with an approved section 143.	unlikely	3	D	Environment Team Sustainability Manager Construction Manager Contamination Specialists Auditor Design and Construction Engineering Team
55	Inappropriate management of waste during construction and operation resulting in environmental, health and amenity impacts, including	possible	3	C	Pollution, breach of legislation, fines	Waste MP Sustainability MP Air Quality MP Designated space for unexpected waste stockpiling	unlikely	3	D	Environment Team Sustainability Manager Construction Manager Contamination Specialists Auditor Design and Construction Engineering Team

		Ranking Matrix					Residual Ranking Matrix			
Risk No.	Risk Description	Initial Likelihood	Initial Consequence	Risk Matrix	Potential Consequence	Mitigation Strategy	Likelihood	Consequence	Residual Risk	Comments/ Responsibility/
	contamination, water quality impacts, odour and dust.									
Climate change and GHG										
56	Greenhouse gas emissions from combustion of fuels by construction plant/vehicles	likely	2	D	Pollution	Sustainability MP Air quality MP Construction Staging and Temporary Work Plans Travel Demand management strategy/ Worker Parking Strategy Plant pre acceptance and maintenance records Climate Change Risk Ass as per AS 5334-2013 Green Power (appropriate portion") Shut down plant when not in use. Plant and equipment to be well maintained in accordance with manufacturers specifications. No materials or waste will be burnt on site.	unlikely	2	E	Environment Team Sustainability Manager Construction Manager Design and Construction Engineering Team
57	Potential impacts of climate change incl flooding, extreme weather causing road damage, and urban heat island effect	likely	2	D	Pollution	Flood Mitigation Strategy and modelling Hydrologic and Hydraulic assessments Consultation with airport and Council re receiving drainage systems Climate Change Risk Ass as per AS 5334-2013 Urban Design and Landscape Plan Use light coloured pavements and shading structures for public spaces. LED lighting where Reasonable and Feasible\ Approved Design	likely	2	D	Environment Team Sustainability Manager Construction Manager Design and Construction Engineering Team
58	Increased energy consumption associated with site compounds	likely	2	D	Pollution, cost	Sustainability MP Construction Staging and Temporary Work Plans Travel Demand management strategy/ Worker Parking Strategy	possible	2	D	Environment Team Sustainability Manager Construction Manager Design and Construction Engineering Team
Social and Business Impacts										
59	Impacts on some businesses as a result of the land requirements for the project (acquisition and lease cessation)	Almost certain	3	B	Community Compliant	Business Management Plans Traffic and Access MP Communication Strategy Construction Staging and Temporary Work Plans	likely	3	C	Community Team
60	Impacts on community infrastructure at Tempe Lands as a result of the temporary land requirements of the project	Almost certain	2	C	Community complaint	Business Management Plans Traffic and Access MP Communication Strategy Construction Staging and Temporary Work Plans Construction Traffic and Management Plan	likely	2	D	Community Team
61	Temporary access restrictions or changes resulting from construction sites and activities, which may affect how people access community infrastructure, and	possible	3	C	Community Complaint, airport impacts, inadvertent impact to vegetation (by redirecting access/paths through vegetated areas)	Traffic and Access MP Communication Strategy Construction Staging and Temporary Work Plans Construction Traffic and Management Plan Active Transport Strategy Travel Demand Management Strategy FFMP	possible	3	C	Community Team

		Ranking Matrix					Residual Ranking Matrix			
Risk No.	Risk Description	Initial Likelihood	Initial Consequence	Risk Matrix	Potential Consequence	Mitigation Strategy	Likelihood	Consequence	Residual Risk	Comments/ Responsibility/
	how they use the existing rail and road and bike infrastructure									
Urban Design and Visual										
62	Temporary visual impacts to sensitive visual receivers in the vicinity of the construction works and from areas with views of the project site	likely	3	C	complaint	Communication Strategy Urban Design and Landscape Plan Tree management Strategy/ Tree Report/ Qualified Arborist The selection of materials and colours for hoardings will aim to minimise their visual prominence. Clear signage, fencing, screens, visual barriers and ensure site looks professional. Ensure work sites are kept tidy and that public access is kept clear. Regular community updates on work activities. Works to be progressively completed	unlikely	3	D	Community Team
Other										
63	Light spill from construction site impacting residences/businesses - sleep disturbance etc	likely	4	B	Community complaints, regulator involvement	EWMS, Site layout Lighting Design as per AS 4282 Night works approvals and Assessments	possible	2	D	Environment Team Construction Manager Design and Construction Engineering Team

Appendix A3. Environmental policy



Environment Policy

John Holland Seymour Whyte (JHSWJV) is committed to value the natural environment and communities in which we work. Our goal across all business activities is to use resources efficiently, respond to climate change, prevent pollution, enhance and protect the environment and our heritage.

Environment Policy in Practice

- Driving a strong culture to respect the environment across the business in our offices, on-site and with our JV partners
- Prioritising the environment, the community, sustainable products, and resource efficiently in our decision making
- Providing best practice training and education to JHSWJV employees to build awareness and capability to protect the environment and respect the communities in which we work and live.
- Empowering JHSWJV employees, partners, and subcontractors to speak up about how we can better protect and enhance the environment
- Encourage participation and collaboration to achieve sound environmental performance and outcomes
- Driving accountability by ensuring responsibility for valuing and protecting the environment
- Focusing on continual learning and improvement by reviewing performance, capturing, and sharing lessons learnt and celebrating successes.
- Exploring and introducing new technologies and approaches that minimise impacts on the environment and provide cost effective solutions that are resource efficient.
- Having a transparent critical risk management process that helps us to continuously identify opportunities and improvements to our systems and processes.
- Exceeding our legislative, customer and other mandatory requirements.
- Establishing and maintaining an effective management system.
- Ensuring our work leaves a positive legacy for the communities we serve and the environments we operate in.

Ivan Karaban

Project Director

JHSWJV Sydney Gateway Project – January 2021

Appendix A4. Ancillary facilities assessment

Four ancillary facilities were identified and described in the Environmental Impact Statement (EIS) and Submissions Report (SPIR) as being required for the Project.

An ancillary facility is defined as: “A temporary facility for construction of the Project including an office and amenities compound, construction compound, material crushing and screening plant, materials storage compound, maintenance workshop, testing laboratory, material stockpile area, car parking compound and truck marshalling facility.”

Table 1 describes the ancillary facilities identified in the EIS and Submissions Report and their proposed uses. Due to the timing of the construction program and availability of site access, the project ancillary facilities will be established at different times during the Project.

Table 1 Ancillary facilities identified in the EIS/MDP.

Reference	Ancillary Facility	Primary use during construction
C1	St Peters interchange connection compound (Commonwealth land)	<p>The St Peters interchange connection compound (C1) will support construction within the St Peters interchange connection work area. It will be located within Sydney Airport land north of the rail corridor at the western end of Burrows Road South and will have an area of about 35,000 square metres. In addition to the facilities outlined above, the compound may also contain a crushing and grinding facility to process materials sourced from both with and outside the project site to ensure they are suitable for potential use. An indicative site layout is shown on Figure 8.14.</p> <p>Access to the compound will be provided via A1 at Canal Road and A3 at Burrows Road South. Access from Canal Road will be limited to left in/left out movements with vehicles required to access the compound via an access road located within the work area. Vehicles leaving the compound will exit via A1 (to Canal Road and the Princes Highway) or A3 to Canal Road towards either the Princes Highway or Gardeners Road.</p>
C2	Eastern bridges compound (Commonwealth land)	<p>The eastern bridges compound (C2) will support construction within the eastern bridges work area. It will be located within Sydney Airport land between the road to the east of the Sydney Airport employee car park and the rail corridor and will have an area of about 39,000 square metres. An indicative site layout is shown on Figure 8.15.</p> <p>Access to the compound will be generally via the Nigel Love bridge from Airport Drive and will share use of the Northern Precinct Road with traffic utilising the employee car park. Access will be available from both the eastbound and westbound directions along Airport Drive via existing turning facilities.</p> <p>Temporary access for vehicles will also be available from Bellevue Street (at access point A7) until the commencement of phase 2 as outlined in section 8.3.2. A temporary access route will be provided from A7 to the compound via the work area, as shown on Figure 8.3 and Figure 8.15.</p>

Reference	Ancillary Facility	Primary use during construction
C3	Western bridges compound (State land)	<p>The western bridges compound (C3) will support construction within the Terminal 1 connection and western bridges work area. It will be located within the Tempe Lands north of Alexandra Canal. The compound will have an area of about 17,000 square metres. An indicative site layout is shown on Figure 8.16.</p> <p>Access to the compound will primarily be through the Terminal 1 connection work area via an internal access road from access point A7 located on Bellevue Street (shown on Figure 8.3). Access via access A7 will be the primary access for both heavy and light vehicles. Light vehicle access will also be available via access point (A8) from the local road network (as shown in Figure 8.16). Heavy vehicles will also use access A8 occasionally.</p> <p>Temporary off-leash dog exercise area</p> <p>The compound includes land that is currently occupied by the off-leash dog exercise area. A temporary off-leash dog exercise area will be provided, in consultation with Inner West Council, as close as possible to the existing off-leash dog exercise area.</p>
C4	Qantas Drive compound (Commonwealth land)	<p>The Qantas Drive compound (C4) will support construction activities for the Qantas Drive upgrade and extension and the Terminals 2/3 access. It will be located within Sydney Airport land west of Qantas Drive within land currently occupied by part of the Sydney Airport Jet Base. The buildings that are currently in this location will be removed as part of the project. The compound will have an area of about 5,000 square metres. An indicative site layout is shown on Figure 8.17.</p> <p>Access to the compound will be via access point (A9) off Qantas Drive. All vehicles accessing this compound will be required to approach the compound from the east via the westbound carriageway of Qantas Drive. All vehicles leaving the compound will need to turn left onto Qantas Drive.</p>
C5	Ninth Street compound (Commonwealth land)	<p>The Ninth Street compound (C5) will mainly support construction within the Terminals 2/3 access work area. It will also provide support for works along Qantas Drive. The compound will be located within Sydney Airport land between Sir Reginald Ansett Drive and Ninth Street in an existing car park area. It will have an area of about 2,500 square metres. An indicative site layout is shown on Figure 8.18.</p> <p>Access to the compound will be via an access point (A10) on Ninth Street. Access to and from this compound via Ninth Street at Qantas Drive will be left-in and left-out movements (as shown on Figure 8.19).</p>

2 Ancillary facilities identified in the EIS/MDP

The State Conditions of Approval (CoA) approve the use of the 5 ancillary facilities described in the EIS/MDP for the construction of the Project: It should be noted that only compound C3 is located in NSW land and provisions under SSI 97-37 applies to this site only. Where applicable, State conditions may apply to aspects of the compound (such as use of local roads may apply).

Ancillary facilities established on State land (i.e. C3) prior to the approval of the Construction Environmental Management Plan (CEMP) are subject to a site establishment management plan (SEMP), which will be prepared and approved by the Secretary, and then implemented during the establishment of the ancillary facilities (refer to CoA A15). Ancillary facilities established following CEMP will be managed during the establishment phase by the CEMP and sub-plans, and

Minor changes to the use or layout of the ancillary facilities may be required to facilitate constructability, amenity or traffic staging. This may include:

- Interchangeable use of laydown/storage and car parking areas,
- Relocation of internal access roads to allow for efficiencies in heavy vehicle/light vehicle movements,
- Alteration to car parking/container and laydown areas for safe working distances,
- Movement of portable site accommodation, workshops and containers for construction staging,
- Management of environmental constraints and/or in response to community and agency feedback, and
- Demobilisation of the facilities as construction works progress and near completion.

Key structures are less likely to change unless their use to support specific site establishment works is no longer required.

Any changes to these ancillary facilities will be assessed against the CoA to determine compliance, and appropriate approval will be sought where required. Where the proposed change is considered to be minor, the ER would grant approval of these refinements.

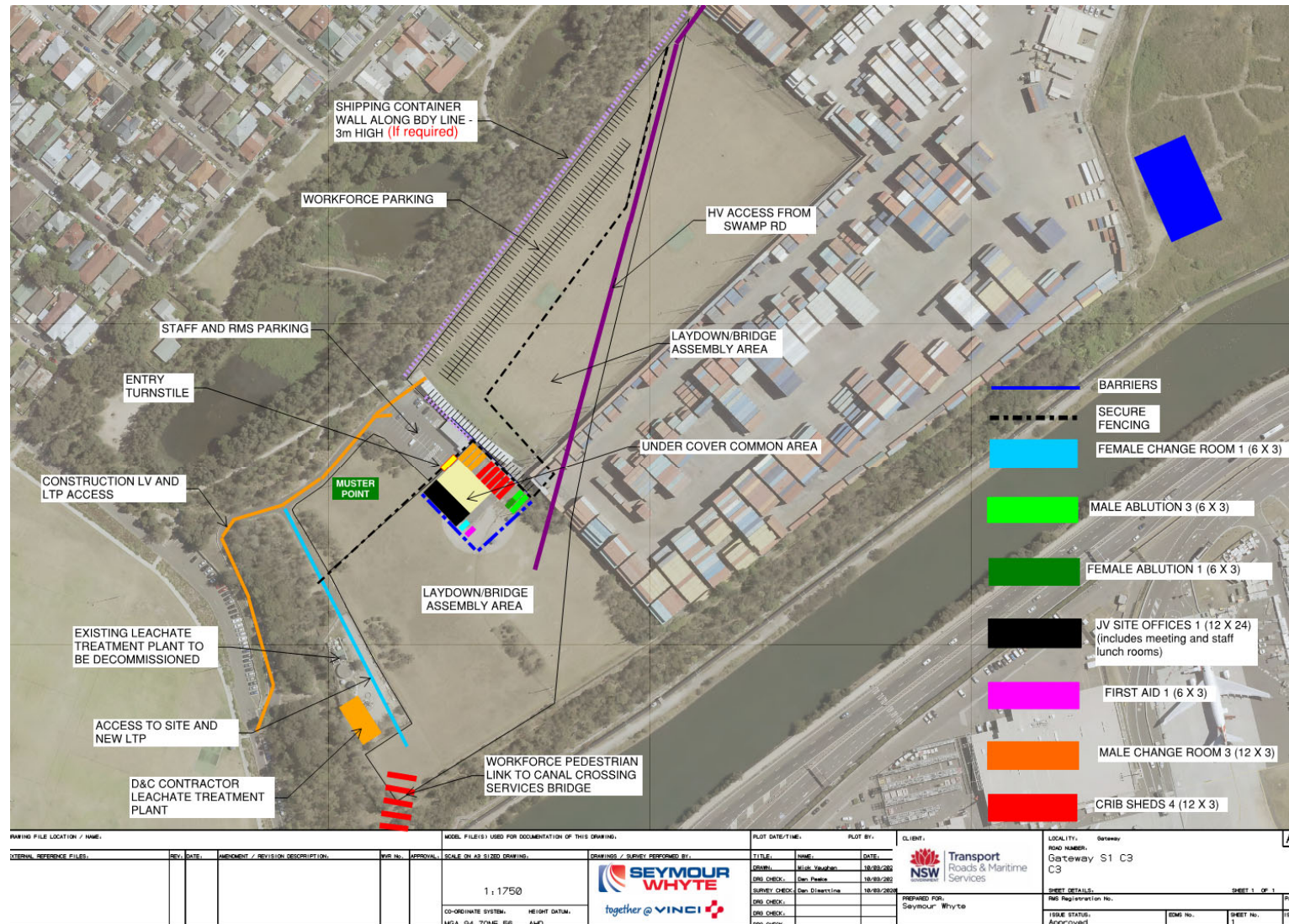
3 Minor construction ancillary facilities

Additional minor construction ancillary facilities (e.g. lunch sheds, office sheds and portable toilet facilities) can be established during construction so long as they (refer to CoA A14):

- (a) they are located within or immediately adjacent to the construction boundary; and
- (b) they are not located next to a sensitive receiver(s) (including where an access road is between the facility and the receiver), unless the sensitive receiver(s) (both the landowner(s) and occupier(s)) have given written acceptance to the carrying out of the relevant facility in the proposed location; and
- (c) they have no impacts on heritage items (including areas of archaeological sensitivity), threatened species, populations or ecological communities beyond the impacts approved under the terms of this approval; and
- (d) the establishment and use of the facility can be carried out and managed within the outcomes set out in the terms of this approval, including in relation to environmental, social and economic impacts.

The ER will review the proposed minor construction ancillary facilities against the above criteria and make an approval determination.

C3 - Former Tempe Tip site Swamp Road, Tempe

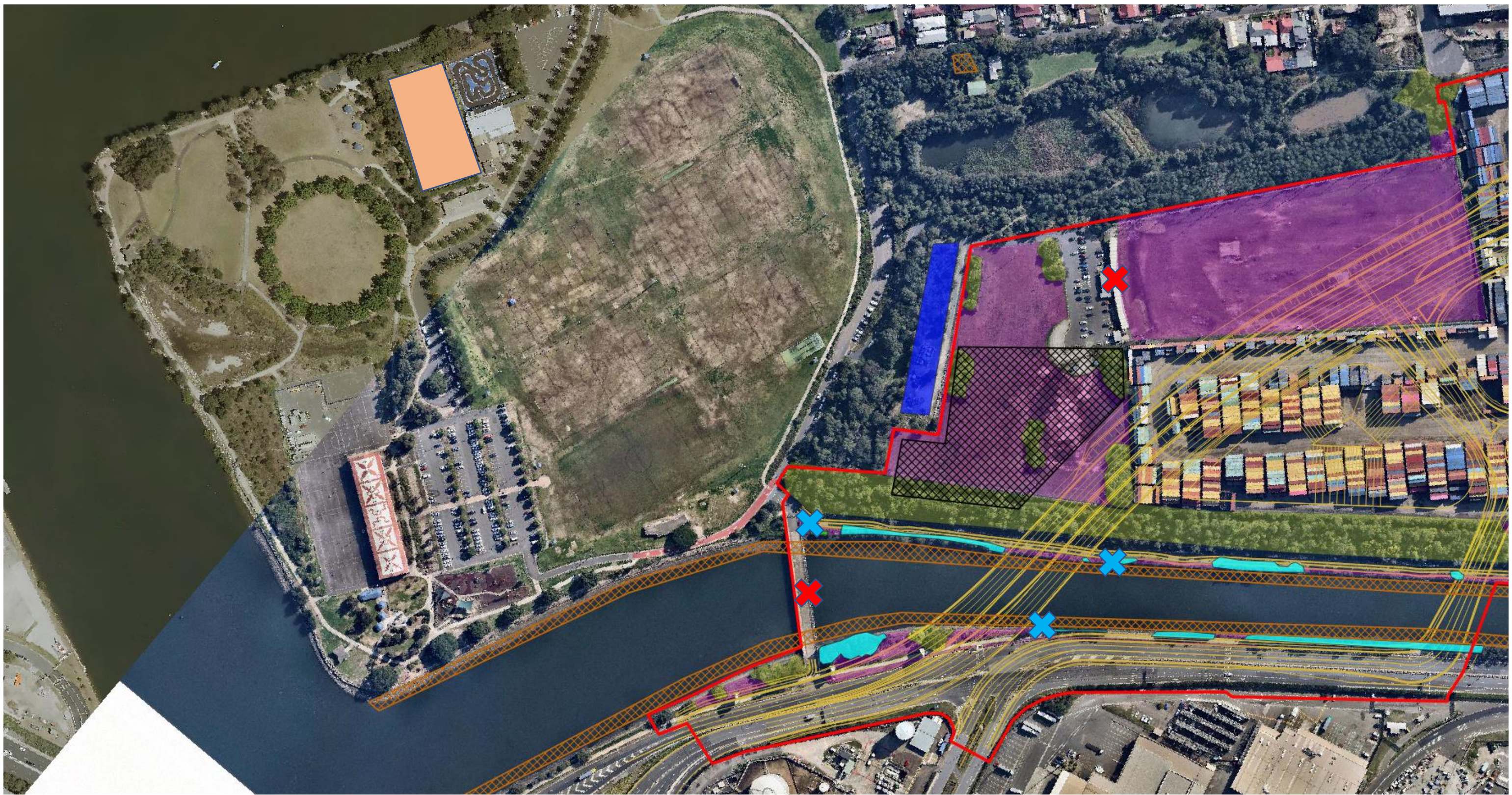


Appendix A5. Document register

Document name	Document number	Approval requirements
Waste and Resource Management Plan	SGWPW-JHSW-NWW-PM-PLN-000510	TfNSW approval required
Air Quality Management Plan	SGWPW-JHSW-NWW-PM-PLN-00051009	Issued to TfNSW
Flora and Fauna Management Plan	SGWPW-JHSW-NWW-PM-PLN-000514	Consultation with EESG DPIE approval required
Groundwater Management Plan	SGWPW-JHSW-NWW-PM-PLN-000519	Consultation with DPIE Water, Sydney Water DPIE approval required
Landfill Leachate, Gas and Odour Management Plan	SGWPW-JHSW-NWW-PM-PLN-000518	Consultation with Inner West Council and EPA Accredited Site Auditor DPIE approval required
Non-Aboriginal Heritage Management Plan	SGWPW-JHSW-NWW-PM-PLN-000517	Consultation with relevant Councils, Heritage Council and Sydney Water DPIE approval required
Aboriginal Heritage Management Plan	SGWPW-JHSW-NWW-PM-PLN-000513	DPIE approval required
Contaminated Aquatic Sediments in Alexandra Canal Sub-plan	SGWPW-JHSW-NWW-PM-PLN-000520	Consultation with Sydney Water, NSW EPA DPIE approval required
Construction Soil and Water Management Plan	SGWPW-JHSW-NWW-PM-PLN-000515	Consultation with DPIE Water, Sydney Water and relevant Councils DPIE approval required
Construction Noise and Vibration Management Plan	SGWPW-JHSW-NWW-PM-PLN-000516	Consultation with pipeline operators, Sydney Water and relevant Councils DPIE approval required
Traffic and Access Management Plan	SGWPW-JHSW-NWW-PM-PLN-000503	Consultation with relevant Councils DPIE approval required
Noise and Vibration Monitoring Program	included in Construction Noise and Vibration Management Plan (SGWPW-JHSW-NWW-PM-PLN-000516)	As per Plan above
Leachate, landfill gas and odour monitoring program	included in Landfill Leachate, Gas and Odour Management Plan (SGWPW-JHSW-NWW-PM-PLN-000518)	As per Plan above
Groundwater monitoring program	included in Groundwater Management Plan (SGWPW-JHSW-NWW-PM-PLN-000519)	As per Plan above

Document name	Document number	Approval requirements
Water quality monitoring program	included in Construction Soil and Water Management Plan (SGWPW-JHSW-NWW-PM-PLN-000515)	As per Plan above

Appendix A6. Sensitive area plans



- | | |
|---|---|
| Project Boundary | Dog Park |
| Design Footprint | Leachate Treatment Plant |
| Site Compound - Proposed | Vegetation Layers |
| Aboriginal Heritage | Urban exotic / native landscape plantings |
| Non-aboriginal Heritage | Highly disturbed areas with no or limited native vegetation |
| Potential Microbat Habitat - Culvert | PCT 1232 Swamp Oak Forest |
| Potential Microbat Habitat - Bridges and Structures | PCT 920 Mangrove Forests |

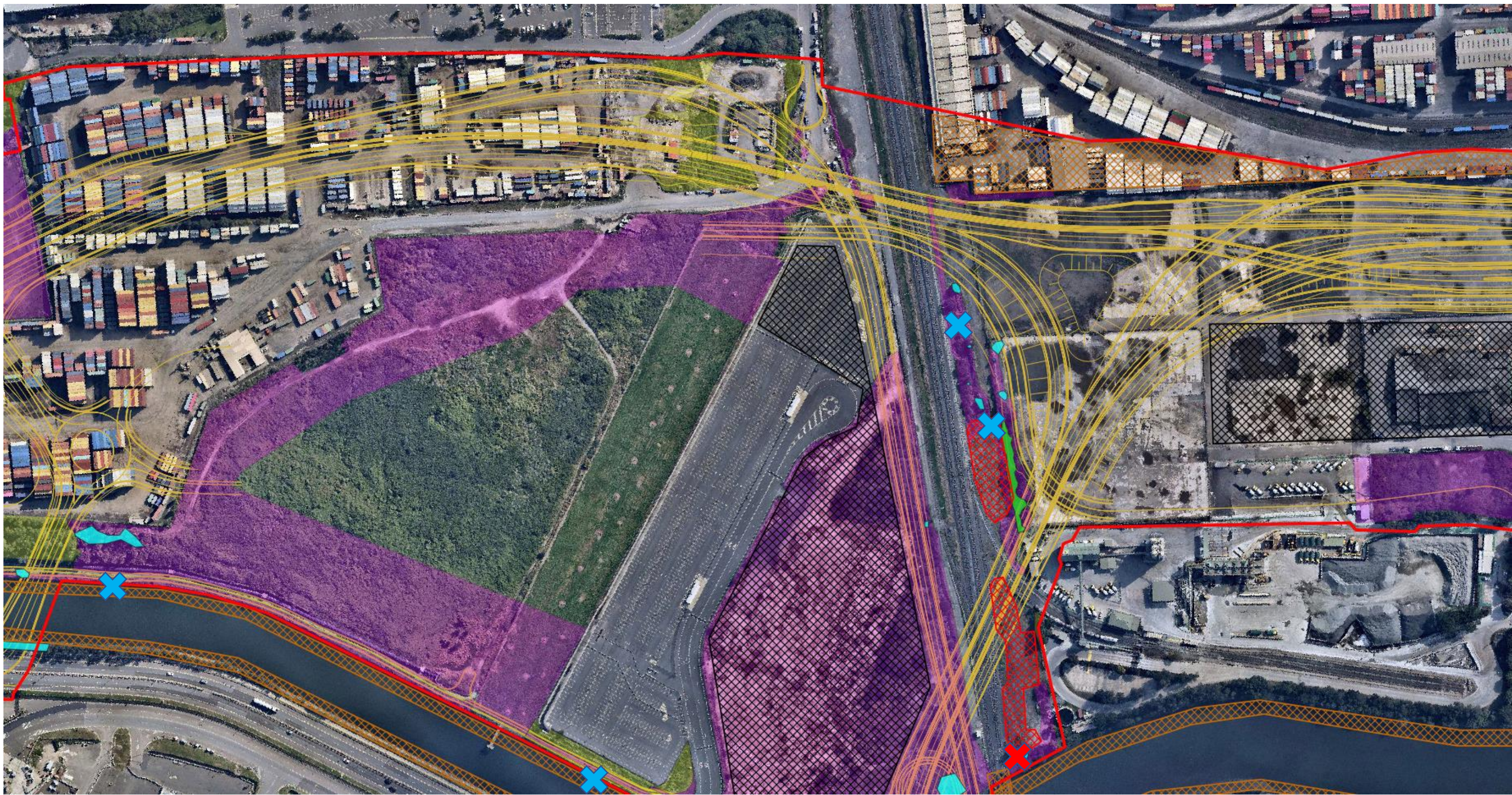


SYDNEY GATEWAY

A Joint Venture Project

**JOHN
HOLLAND**

**SEYMOUR
WHYTE**



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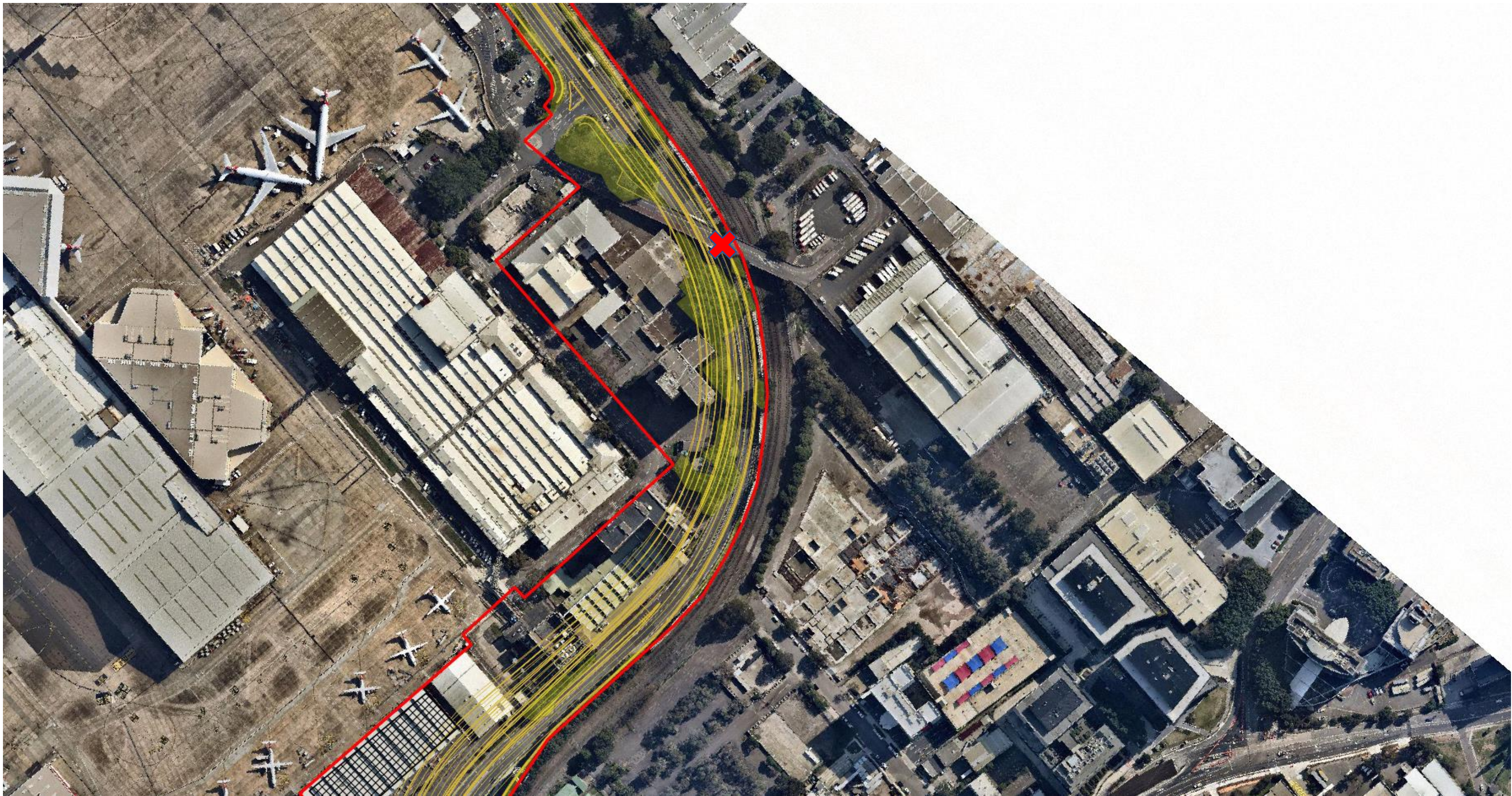


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|--|---|
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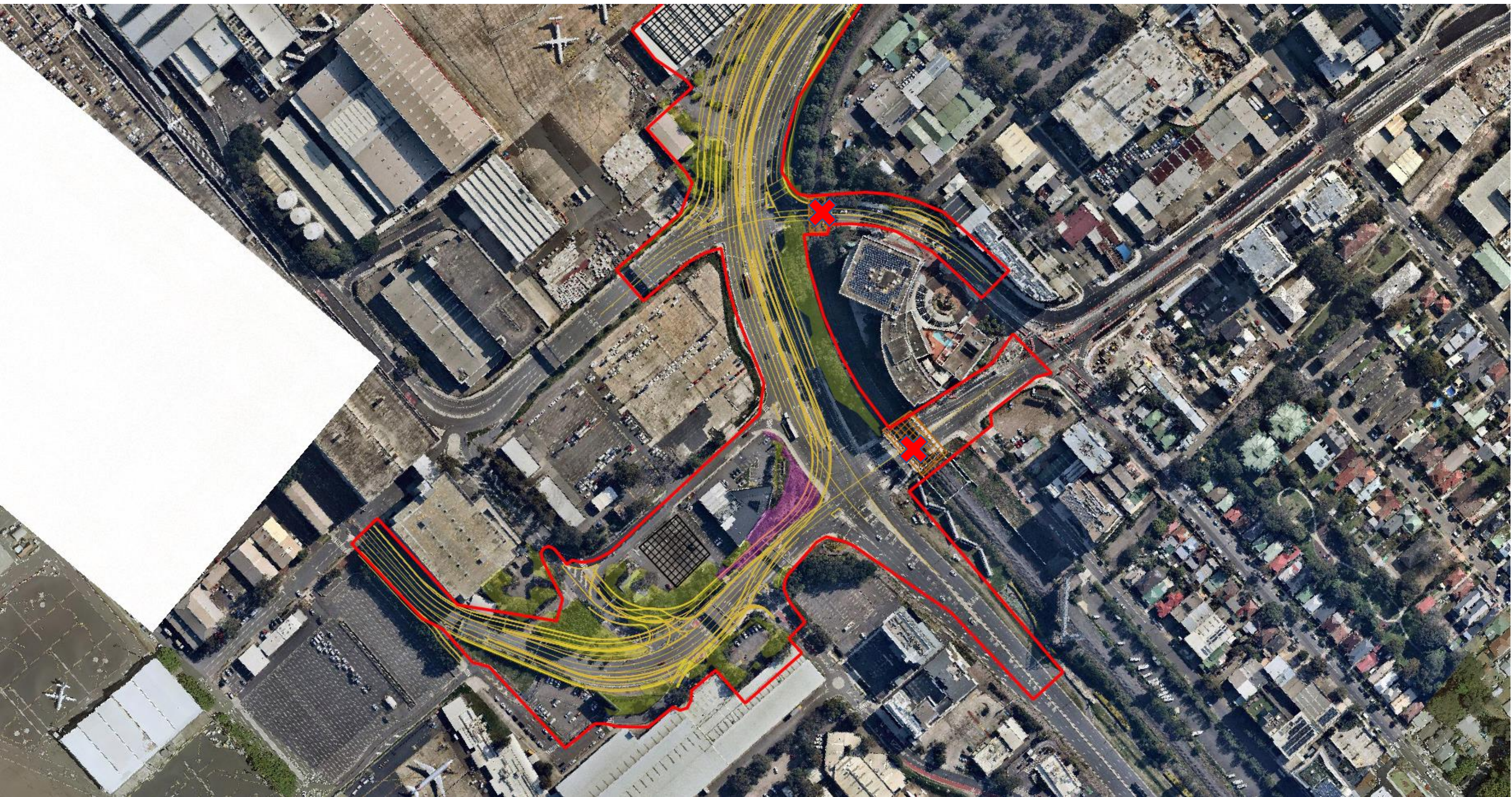


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- Project Boundary
- Design Footprint
- Site Compound - Proposed
- Aboriginal Heritage
- Non-aboriginal Heritage
- Potential Microbat Habitat - Culvert
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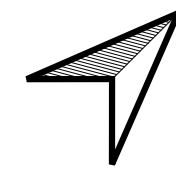
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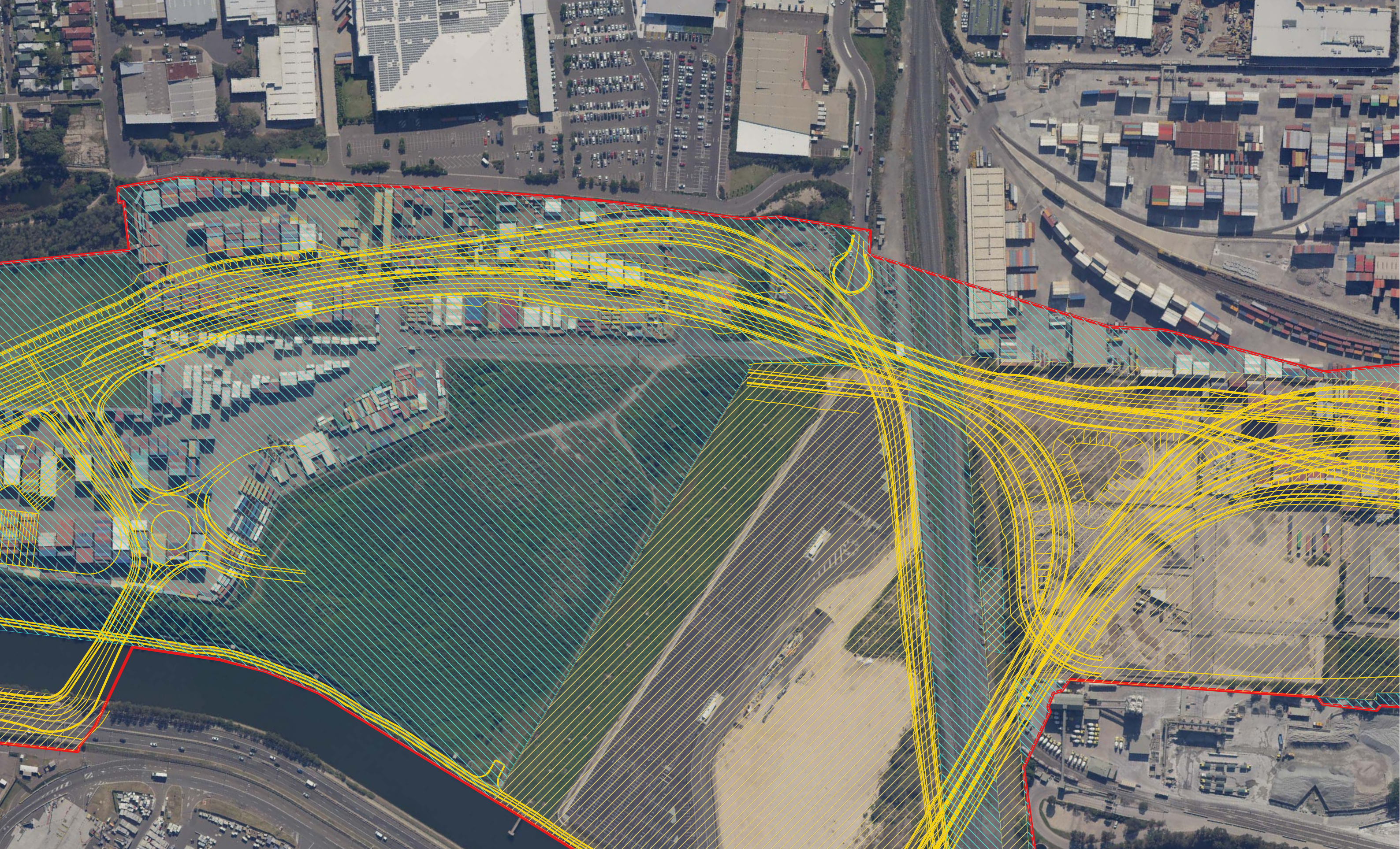
Sensitive Area Maps

 Project Boundary  Design Footprint  Commonwealth Lands  NSW Jurisdiction

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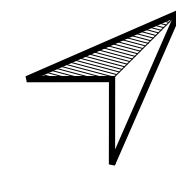
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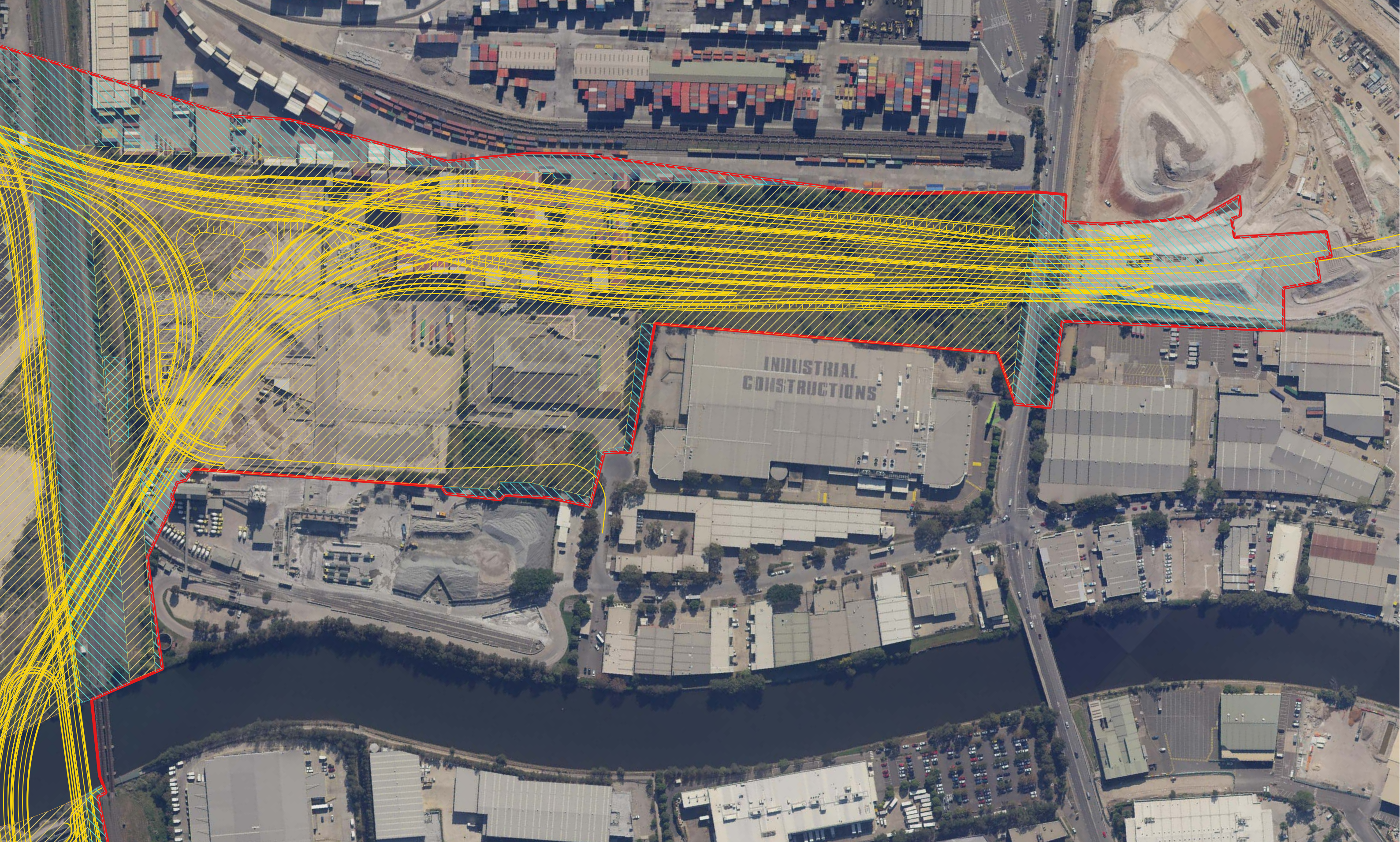
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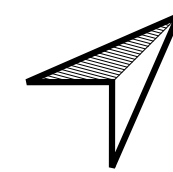
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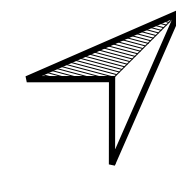
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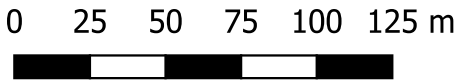
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 Project Boundary  Design Footprint  Commonwealth Lands  NSW Jurisdiction

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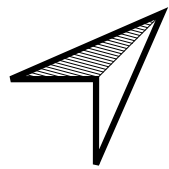


SYDNEY GATEWAY
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Sensitive Area
Maps

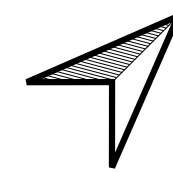
 Project Boundary  Design Footprint  Commonwealth Lands  NSW Jurisdiction



SYDNEY GATEWAY
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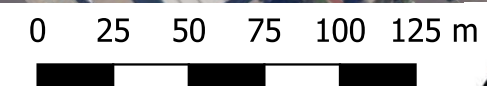
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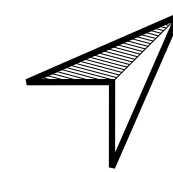
**Sensitive Area
Maps**

 Project Boundary  Design Footprint  Commonwealth Lands  NSW Jurisdiction



Sensitive Area Maps

 Project Boundary  Design Footprint  Commonwealth Lands  NSW Jurisdiction



SYDNEY GATEWAY
BUILT TO CONNECT

Appendix A7. Environmental incident classification and reporting

Environmental Incident Classification and Reporting Procedure

Roads and Maritime Services | November 2018

Document No. | RMS 17.374 | Version 5.1

About this release

Title	Environmental Incident Classification and Reporting Procedure
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Approval		
Prepared by	Environment Manager Performance Improvement	Scott Machar
Reviewed by	Director Environment Operations	Sally Durham
Approved by	Director Environment	Michael Crowley

Document Control			
Version	5.1	Release date	November 2018
Publication Number	RMS 17.374	ISBN	978-1-925659-57-3

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Acronyms and definitions

Acronym	Definition
DE	(Roads and Maritime Services) Director Environment
DES	(Roads and Maritime Services) Director Environment Sydney
DPE	Department of Planning and Environment
Environmental harm	Any act that degrades or pollutes the environment
EPA	NSW Environment Protection Authority
EP&A Act	<i>Environmental Planning and Assessment Act 1997</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
EPL	Environment Protection Licence
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
REF	Review of Environmental Factors
Roads and Maritime	NSW Roads and Maritime Services
SEQC	(Roads and Maritime Services) Safety Environment and Quality Co-ordinator
SEQO	(Roads and Maritime Services) Safety Environment and Quality Officer
WHS	Work Health and Safety

1. Introduction

1.1 Aim

The Environmental Incident Classification and Reporting Procedure (the Procedure) aims to ensure Roads and Maritime Services workers and contractors understand how to classify, respond to and report environmental incidents that occur as a result of Roads and Maritime managed activities.

1.2 Objectives

The objectives of the Procedure are to:

- Ensure all relevant Roads and Maritime workers, managers and contractors are made aware of environmental incidents promptly and can respond accordingly
- Ensure site workers understand the immediate environmental incident reporting requirements
- Ensure all workers understand reporting timeframes, including statutory requirements
- Ensure incidents are reported to enable monitoring, sharing of lessons learnt and response to emerging environmental incident trends
- Comply with statutory obligations to report certain environmental incidents to regulators and other relevant government agencies (see [section 5.1](#)).

1.3 Scope and coverage

This Procedure is applicable to all Roads and Maritime activities where environmental incidents may occur. This includes (but is not limited to):

- Temporary activities, such as preliminary investigations (e.g. geotechnical and environmental surveys) and the construction and maintenance of Roads and Maritime assets
- Activities at Roads and Maritime properties and facilities
- Vessels operated by Maritime division
- Activities undertaken by contractors on behalf of Roads and Maritime.

The requirements of this Procedure must be communicated to all Roads and Maritime workers and contractors (e.g. during inductions) who are undertaking activities where incidents may occur.

The Procedure is for internal reporting processes, except where incidents are identified that need to be notified to regulators, and other relevant authorities (see [section 5.1](#)).

The procedure does NOT cover environmental incidents caused by:

- Operational road and traffic activities of the general public (e.g. vehicle accidents, fires caused by discarded cigarette butts)
- Boating accidents (except those involving Roads and Maritime vessels)
- Dumping of materials by members of the public on Roads and Maritime roadsides or land (except where hazardous materials are unexpectedly found during road construction or maintenance activities). Illegal dumping should be reported to the [NSW Environment Protection Authority \(EPA\)](#)
- Marine oil and chemical spills covered by the [National Plan for Maritime Environmental Emergencies](#) (Australian Maritime Safety Authority, 2014).

2. Environmental incident classification

There are three categories of environmental incidents, as detailed in Table 2.

Table 2: Environmental incident classification			
Category	Description	Examples	
Category 1	<p>Potential breaches of legislation or failures of process that result in actual off-site environmental harm, or residual on-site environmental harm or</p> <p>Works undertaken outside approved areas, without required approval or without environmental assessment or</p> <p>Any Material Harm pollution incident as defined by <u>Part 5.7 of the <i>Protection of the Environment Operations Act 1997</i> (POEO Act)</u>.</p>	Pollution Incidents	Discharge of waters from site not in accordance with any approval requirements (e.g. discharge criteria in an Review of Environmental Factors (REF) safeguard or Environment Protection Licence (EPL) condition)
			Pollution, or potential pollution, of waters
			Unmanaged vehicle tracking of materials or emissions of dust, offensive odours or noise beyond the site boundary that are not managed in accordance with approval requirements and/or might impact on nearby land users
			Pollution incidents that threaten harm to the health or safety of people (e.g. uncontrolled releases of hazardous substances)
			Unauthorised or illegal disposal or transport of waste
			A spill or other incident that causes pollution to land
		Conservation Breaches	Unauthorised harm or damage to native flora and fauna (terrestrial or aquatic/marine)
			Unauthorised dredging or reclamation works within a watercourse
			A fire caused by Roads and Maritime activities that travels beyond the boundary causing or potentially causing harm to the environment or community
		Heritage Breaches	Unauthorised harm to Aboriginal objects and Aboriginal places
			Unauthorised damage to any State or locally significant relic or Heritage item, or item listed on the <u>Roads and Maritime Section 170 register</u>

Table 2: Environmental incident classification

Category	Description	Examples	
		Planning and compliance breaches	<p>Failure to comply with the requirements of:</p> <ul style="list-style-type: none"> • The <i>Environmental Planning and Assessment Act 1997</i> (EP&A Act), including exempt activities, Part 5 determinations and Part 5.1 approvals • An <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act) approval • An EPL • A CEMP or environmental work method statement • A permit from a regulator (e.g. under the <i>Fisheries Management Act 1994</i>)
Category 2	Failures of process or events that do not result in off-site environmental harm, or residual on-site environmental harm. These incidents may result in temporary on-site environmental harm that can be rectified to pre-existing conditions.	<p>A procedural, administrative or technical breach of environmental requirements, including:</p> <ul style="list-style-type: none"> • Failure to prepare or submit required documents, reports or other correspondence • Failure to comply with the requirements of: <ul style="list-style-type: none"> ○ The <i>Environmental Planning and Assessment Act 1997</i> (EP&A Act), including exempt activities, Part 5 determinations and Part 5.1 approvals ○ An <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act) approval ○ An EPL ○ A CEMP or environmental work method statement ○ A permit from a regulator (e.g. under the <i>Fisheries Management Act 1994</i>). 	
		Spills and discharges that do not leave a site boundary and are cleaned up without residual on-site environmental harm, and the area of temporary impact can be restored to pre-existing conditions	
		A fire that is contained on site and does not cause or potentially cause adverse impact to the environment or community	
Reportable Event	An event or unexpected find that occurs outside the scope of reasonable environmental controls and mitigation measures	<p>Sediment or site water travelling beyond a site boundary, and where it can be demonstrated that:</p> <ul style="list-style-type: none"> • Erosion and sediment controls were installed and maintained in accordance with an erosion and sediment control plan, and • The cause of the incident was reasonably unforeseen or the weather (rain, wind etc) event exceeded the design capacity of controls. 	

Table 2: Environmental incident classification

Category	Description	Examples
		Note these events are considered to have occurred (and the response should commence in accordance with Section 3) when sediment or site water first travels beyond the site boundary (e.g. when an appropriately sized and maintained sediment basin commences overtopping)
		An unexpected archaeological find that is being managed in accordance with the "Roads and Maritime Standard Management Procedure - Unexpected Archaeological Finds"
		An unexpected threatened species find that is being managed in accordance with the "Roads and Maritime Biodiversity Guidelines – unexpected threatened species finds procedure"
		An unexpected find of contaminated soils, asbestos or other potentially hazardous substances during construction or maintenance works. Note that once a particular contaminant is identified or found for the first time (either during project planning or construction phases) it is then reasonably expected to be found, so additional finds need not be reported in this category.
Regulatory Action	Formal regulatory action from an environmental regulator (that has not already been reported in conjunction with another incident)	<p>Formal regulatory action from an environmental regulator includes, but is not limited to:</p> <ul style="list-style-type: none"> • Penalty infringement notices (PINs) • Clean up notices • Prevention notices • Official cautions / warnings • EPA show cause notifications.

Note: For any incident where there is associated formal regulatory action from an environmental regulator, copies of this correspondence must be forwarded to envops@rms.nsw.gov.au in addition to the Environmental Incident Report (see [section 4](#)).

3. Environmental incident response

3.1 Considerations and steps for environmental incident response

The step-by-step response for Category 1 incidents, Category 2 incidents and Reportable Events is detailed in Table 3.1a (activities undertaken by contractors) and Table 3.1b (activities undertaken by Roads and Maritime Regional Maintenance). However, some key points apply throughout all stages of the response to any environmental incident:

- If in doubt, treat all incidents as Category 1 to ensure reporting timeframes can be met
- Project teams should also undertake the following notifications as appropriate:
 - Roads and Maritime Corporate Communications for any incidents that have potential for community or media attention (see [section 4.4](#))
 - Roads and Maritime Work Health and Safety (WHS) Branch for any incidents that involve actual or potential risks to worker health and safety (see [section 4.4](#)).
- The person responsible for operational management of the site/activity shall assume responsibility for the response to the incident and direct actions as necessary and in accordance with this Procedure
- The Director Environment Sydney (DES) may reclassify the category of an incident where appropriate, in consultation with the relevant Roads and Maritime Environment Manager.

Any Regulatory Action received (that has not already been reported in conjunction with another incident) should be immediately forwarded to the envops@rms.nsw.gov.au mailbox, and followed by an immediate phone call to the relevant Roads and Maritime Environment Manager, who will immediately advise the DES. Consideration should then be given as to whether an environmental incident has occurred (see [section 2](#)) that should be reported in accordance with this section.

Table 3.1a: Environmental incident response – activities undertaken by contractors

Step	Action	Responsibility for completing action	Timeframe	
			Category 1 Incidents	Category 2 Incidents / Reportable Events
1	Stop work in relevant area (if necessary) and take actions to prevent adverse impact to human health or the environment. Note human health and safety is the primary concern, and no action should be taken if it is not safe to do so - in these instances emergency services should be contacted (phone triple zero).	Person who identifies incident	Immediate	Immediate
2	Advise the contractor site management team (and Roads and Maritime Corporate Communications and/or WHS Branch as appropriate)	Person who identifies incident	Immediate	Immediate
3	Advise the Roads and Maritime project management team and the relevant Roads and Maritime Environment Manager.	Contractor	Immediate	Day of the incident
4	Consider if the incident is a pollution incident that constitutes Material Harm in accordance with Part 5.7 of the POEO Act. For Material Harm pollution incidents, notify relevant agencies (see section 5.2). Sites with an EPL should implement their Pollution Incident Response Management Plan.	Contractor	Immediate	Immediate
5	Advise DES by phone. The DES may request photographs and a brief summary of known information via email. The following Roads and Maritime managers should also be notified by phone as relevant: <ul style="list-style-type: none"> Director Environment (Regions) Director Environment (Motorways). 	Roads and Maritime Environment Manager	Immediately following advice of the incident	N/A
6	Where relevant, notify incident to appropriate regulatory agency (see section 5.1). Note this does not refer to the requirement to notify Material Harm pollutions incidents (see Step 4).	Contractor	As required by legislation	As required by legislation
7	Complete the incident report form (see section 4.2), including sign-off from Roads and Maritime Project Manager, and submit to Roads and Maritime Environment Manager* (see sections 4.3 and 4.4).	Contractor	Within 3 business days of the incident	Within 3 business days of the incident
8	Sign and submit incident report form to envops@rms.nsw.gov.au .	Roads and Maritime Environment Manager	On the day of receipt of the form	On the day of receipt of the form
9	For Material Harm pollution incidents, provide a written report to each relevant authority (see section 5.2).	Contractor	Within 7 days of the incident	N/A
10	Undertake incident investigation (level of investigation to be appropriate to the severity of the incident) to determine root cause and any necessary corrective actions. Summarise findings in 'Incident Lessons Learnt' template and submit to Environment Manager for review.	Contractor	Within 1 month of incident	N/A
11	Submit final Incident Lessons Learnt to envops@rms.nsw.gov.au .	Roads and Maritime Environment Manager	Within 1 week of receipt	N/A
12	Consider the need for any required corrective actions to be addressed through a management system (e.g. corrective action request), and any required updates to a risk register.	Roads and Maritime Environment Manager and project team	As appropriate	As appropriate

*Alternate workflow / signatory arrangements may be required for projects where a third party is involved (e.g. a delivery authority). These arrangements can be confirmed with the relevant Roads and Maritime Environment Manager.

Table 3.1b: Environmental incident response – activities undertaken by Regional Maintenance (including contractors or RMCC on behalf of Regional Maintenance)

Step	Action	Responsibility for completing action	Timeframe	
			Category 1 Incidents	Category 2 Incidents / Reportable Events
1	Stop work in relevant area (if necessary) and take actions to prevent adverse impact to human health or the environment. Note human health and safety is the primary concern, and no action should be taken if it is not safe to do so - in these instances emergency services should be contacted (phone triple zero).	Person who identifies incident	Immediate	Immediate
2	Advise the Roads and Maritime site management team and the relevant Roads and Maritime Environment Manager and Safety Environment Quality Officer (SEQO) / Safety Environment Quality Co-ordinator (SEQC) (and Corporate Communications and/or WHS Branch as appropriate)	Person who identifies incident	Immediate	Immediate
3	Advise DES by phone. The DES may request photographs and a brief summary of known information via email. The relevant Regional Maintenance Manager must also be notified.	Environment Manager	Immediate	N/A
4	Consider if the incident is a pollution incident that constitutes Material Harm in accordance with Part 5.7 of the POEO Act. For Material Harm pollution incidents, notify relevant agencies (see section 5.2). Sites with an EPL should implement their Pollution Incident Response Management Plan.	DES	Immediately following advice of the incident	N/A
5	Where relevant, notify incident to appropriate regulatory agency (see section 5.1). Note this does not refer to the requirement to notify Material Harm pollutions incidents (see Step 4).	Environment Manager	As required by legislation	As required by legislation
6	Complete the incident report form (see section 4.2), including sign-off from Roads and Maritime Project Manager, and submit to SEQC (see section 4.3).	Relevant Roads and Maritime site representative	Within 3 business days of the incident	Within 3 business days of the incident
7	SEQC to sign and submit incident report form to relevant Environment Manager (see section 4.4).	SEQC	On the day of receipt of the form	On the day of receipt of the form
8	Sign and submit incident report form to envops@rms.nsw.gov.au .	Environment Manager	On the day of receipt of the form	On the day of receipt of the form
9	For Material Harm pollution incidents, provide a written report to each relevant authority (see section 5.2).	DES	Within 7 days of the incident	N/A
10	Undertake incident investigation (level of investigation to be appropriate to the severity of the incident) to determine root cause and any necessary corrective actions. Summarise findings in 'Incident Lessons Learnt' template and submit both to Environment Manager for review. Consider the need for any required corrective actions to be addressed through a management system (e.g. corrective action request), , and any required updates to a risk register.	SEQC	Within 1 month of incident	N/A
11	Submit final Incident Lessons Learnt to envops@rms.nsw.gov.au .	Roads and Maritime Environment Manager	Within 1 week of receipt	N/A

Copies of formal regulatory action from an environmental regulator (that has not already been reported in conjunction with another incident) must be forwarded to the relevant Roads and Maritime Environment Manager (and SEQC/SEQO for Regional Maintenance projects) and envops@rms.nsw.gov.au immediately upon receipt.

3.2 Critical incidents

Some Category 1 incidents require escalation so relevant members of the Roads and Maritime Executive are aware of the incident and ready to respond as necessary. Category 1 incidents will be deemed 'Critical Incidents' for escalation to the Executive when they have the potential for:

- Regulatory action (e.g. EPA Penalty Infringement Notice) and/or
- Reputational damage (e.g. media coverage) and/or
- Significant environmental harm.

Guiding factors that will be considered when determining whether there has been 'significant' environmental harm include:

- When there has been actual or potential harm to the health or safety of people or to the environment that is not trivial
- Actions required to prevent, mitigate or make good the actual or potential environmental harm are likely to exceed \$10,000

When a potential 'Critical Incident' is reported, the DES will immediately brief the Director Environment (DE) who will make a determination on whether it will be considered a 'Critical Incident'. The DE will then brief the Roads and Maritime Chief Executive and relevant Executive Director, as well as any other members of the Executive as appropriate. When the DE cannot be contacted, the DES will make the determination and make the relevant Executive briefings.

4. Environmental incident reporting

4.1 Environmental incident report form

The Environmental Incident Report Form should be completed for Category 1 incidents, Category 2 incidents and Reportable Events, and is available on the [Roads and Maritime website](#).

4.2 Completing the incident report form

All parts of the Incident Report Form must be completed in accordance with this procedure and following the instructions within the form. The Form (and any subsequent reports) must only include factual information. Speculation about the causes and outcomes of incidents are not to be included.

The Form must be signed by the following:

Signatory	Reason
The person making the report	The person witnessed the incident or has the most knowledge of the incident, and can provide sufficient factual information.
The Roads and Maritime Project Manager	To ensure all relevant Roads and Maritime parties can be made aware of the incident, and appropriate resources can be allocated and/or approved to respond to the incident. This also ensures the project management team are aware of any environmental performance trends if multiple incidents occur.
Safety Environment and Quality Co-ordinator (Roads and Maritime Regional Maintenance only)	To ensure Regional Maintenance management system staff are aware of the incident, and any necessary management system changes can be made once corrective actions and lessons learnt are finalised.
The relevant Roads and Maritime Environment Manager	Concurrence that the incident is adequately described, and the immediate actions and corrective actions are appropriate.

As noted in [Table 3.1a](#), alternate signatory arrangements may be required for projects where a third party is involved (e.g. a delivery authority). These arrangements can be confirmed with the relevant Roads and Maritime Environment Manager.

4.3 Submitting the incident report form

All Incident Report Forms must be populated, signed and submitted electronically (never printed / signed / scanned etc.) to enable Roads and Maritime to electronically capture the information entered in the form.

Completed Incident Report Forms should be submitted by the Roads and Maritime Environment Manager to the Environment Operations mailbox:

- envops@rms.nsw.gov.au

It is essential that a clear and consistent subject line convention is used to allow tracking of correspondence about each incident. All emails about an incident between all parties should structure the subject line as follows:

- Category X - project name / incident location - date
- For example, Category 1 – Main Road Upgrade – dd/mm/yy.

Where information cannot be gathered within the timeframes set out in this Procedure, the incident form should be submitted to the mailbox as a 'draft', whether or not the information contained is fully completed.

- For example, Category 1 – Main Road Upgrade – dd/mm/yy (DRAFT).

The Environment Manager should then request further information from the person making the report, and the final report should be submitted within the next 24 hours.

4.4 Roads and Maritime contacts

The relevant Environment Manager for each region and Project Office is the first point of contact for enquiries relating to environmental incidents. Current contacts for all Roads and Maritime Environment Managers can be found on the [Roads and Maritime website](#).

Environment Managers can also provide contact details for other relevant contacts during an incident, such as Communications or Work, Health and Safety. Hazards and occurrences that occur during Roads and Maritime activities should be reported through the Roads and Maritime WHS reporting line on 1300 131 469.

The DES oversees the application of this Procedure, and can be contacted in the absence of the relevant Environment Manager for Category 1 incidents:

- Phone - (02) 0428 608 758

5. Regulatory agency notification

5.1 Notification of Material Harm pollution incidents

5.1.1 Definition of Material Harm pollution incidents

Under Part 5.7 of the POEO Act, there is a duty to immediately notify (i.e. promptly and without delay) each relevant authority (see [section 5.1.3](#)) of a pollution incident where material harm to the environment is caused or threatened.

The POEO Act states that a pollution incident should be considered Material Harm if:

“(i) it involves actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial, or

(ii) it results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding \$10,000”

Material Harm only relates to pollution incidents. Other environmental incidents, such as conservation, heritage and planning breaches, are not included in the definition of a pollution incident.

5.1.2 Determining if an incident should be considered Material Harm

As soon as a person becomes aware of a pollution incident that has the potential to cause Material Harm, the Category 1 incident response should be followed (see [Table 3.1a](#) and [Table 3.1b](#) above). The determination on whether a pollution incident should be considered Material Harm should be made in accordance with [Table 5.1.2](#).

Table 5.1.2: Determination of Material Harm pollution incidents

Project delivery	Material Harm determination
Activities undertaken by Regional Maintenance	<p>The DES should make the determination (and any associated notifications) on whether a pollution incident should be considered Material Harm.</p> <p>If the DES is not available, the relevant Environment Manager should seek advice from other Roads and Maritime Environment Branch Directors, or make the material harm determination themselves.</p> <p>If no assistance can be obtained and it is suspected that a pollution incident should be considered Material Harm, the project should notify the relevant authorities in accordance with Table 5.1.3a or Table 5.1.3b (as relevant).</p>
Activities undertaken by contractors	<p>The contractor project team should make the determination (and any associated notifications) on whether a pollution incident should be considered Material Harm.</p> <p>The relevant Roads and Maritime Environment Manager or Environment Branch Director may contact the DES to assist in making an assessment of the incident, to aid the contractor in determining if the pollution incident should be considered Material Harm.</p> <p>Where Roads and Maritime believes a pollution incident should be considered Material Harm but the contractor disagrees, Roads and Maritime is required by law to notify EPA and other relevant authorities. In this instance the DES or DE would make a determination on whether the incident should be notified by Roads and Maritime as Material Harm. Roads and Maritime would provide details of any notifications made to the contractor.</p>

Even if only limited information is available for a pollution incident being considered Material Harm, each relevant authority must be immediately notified with the information available and updates provided as soon as further relevant information becomes available.

In circumstances where there is doubt about the need to notify a pollution incident as Material Harm, Roads and Maritime and its contractors should always err on the side of notification.

When in doubt, communicate!

Note: Roads and Maritime is not responsible for notifying a Material Harm pollution incident caused by a traffic or vehicle accident where notification has already occurred by someone at the scene. However, if it is believed notification has not been undertaken, Roads and Maritime should undertake notification in accordance with [section 5.1.3](#). Environment Branch can provide advice in this instance (see [section 4.4](#)).

5.1.3 Relevant authorities to notify

The relevant authorities that must be notified for a Material Harm pollution incident are listed in tables [5.1.3a](#) and [5.1.3b](#) below. It is important to note the order of notification and phone numbers to use can vary depending on the nature of the pollution incident, as detailed in the two tables.

All of the authorities listed (whether considered relevant or not) must be contacted for each Material Harm pollution incident to satisfy POEO Act requirements. Serious penalties apply to both individuals and corporations for failing to notify Material Harm pollution incidents:

- Maximum penalty for individuals - \$500,000
- Maximum penalty for corporations - \$2,000,000.

Table 5.1.3a: Authorities to notify for Material Harm pollution incidents that present an immediate threat to human health or property

Order	Authority	Contact Number
1	Fire and Rescue NSW	000
2	NSW EPA environment line	131 555
3	Ministry of Health (via the local Public Health Unit)*	Contact 1300 066 055 to be directed to the local Public Health Unit, or visit the NSW Health Website
4	SafeWork NSW	131 050
5	The Appropriate Regulatory Authority*, being either: <ul style="list-style-type: none"> • Local council • Western Lands Commissioner for the Western Division (except any part of the Western Division within the area of a local council). 	Local council - contact Office of Local Government on 4428 4100, or visit the Office of Local Government website Western Lands Commissioner – phone 6883 5400

Table 5.1.3b: Authorities to notify for Material Harm pollution incidents that do NOT present an immediate threat to human health or property

Order	Authority	Contact Number
1	NSW EPA environment line	131 555
2	The Appropriate Regulatory Authority*, being either: <ul style="list-style-type: none"> • Local council • Western Lands Commissioner for the Western Division (except any part of the Western Division within the area of a local council). 	Local council - contact Office of Local Government on 4428 4100, or visit the Office of Local Government website Western Lands Commissioner – phone 6883 5400

3	Ministry of Health (via the local Public Health Unit)*	Contact 1300 066 055 to be directed to the local Public Health Unit, or visit the NSW Health Website
4	SafeWork NSW	131 050
5	Fire and Rescue NSW	1300 729 579

* The appropriate contact for the Appropriate Regulatory Authority and Public Health Unit will vary according to the geographic location of the activity. These contact numbers should be found in advance and stored for immediate access (e.g. in a project's Construction Environmental Management Plan and/or on site notice boards) should a pollution incident need to be notified.

5.1.4 The relevant information to provide

It is important to avoid speculation on origin, causes or outcomes of a pollution incident in discussions with the authorities. Section 150 of the POEO Act provides the information that needs to be notified, being:

- The time, date, nature, duration and location of the incident
- The location of the place where pollution is occurring or is likely to occur, the nature, the estimated quantity or volume and the concentration of any pollutants involved, if known
- The circumstances in which the incident occurred (including the cause of the incident, if known)
- The action taken or proposed to be taken to deal with the incident and any resulting pollution or threatened pollution, if known
- Other information prescribed by the regulations.

Only known information should be provided when notifying of a Material Harm pollution incident. If further information becomes known after the initial notification, that information must immediately be notified to all authorities in accordance with Section 150 (see above). The immediate verbal notification is to be followed by written notification to each relevant authority within seven days of the date on which the incident occurred.

Complying with these notification requirements does not remove the need to comply with any other legislative requirements for incident notification (e.g. requirements under EPL conditions or the Work Health and Safety Act 2011).

5.2 Summary of other regulatory agency notification requirements

Specific statutory requirements relating to the notification of environmental incidents to relevant regulatory agencies are summarised in Table 5.2. Additional requirements adopted by Roads and Maritime are indicated in *italics*. Any notification to regulatory agencies should be indicated in the Environmental Incident Report Form to confirm that any required notifications have been initiated.

Table 5.2: Regulatory agency notification requirements

Legislation / issue	Regulating authority	Section / requirement
<i>Commonwealth Aboriginal and Torres Strait Islanders Heritage Protection Act 1984</i>	Department of the Environment and Energy	Section 20 – requirement to notify the Minister of the discovery of Aboriginal remains.
<i>Contaminated Land Management Act 1997</i>	EPA	Section 60 – requirement to notify if Roads and Maritime activities have contaminated land or if Roads and Maritime owns land that has been contaminated.
<i>Heritage Act 1977</i>	Office of Environment and Heritage	Section 146 – requirement to notify the Heritage Council of the location of the relic once a relic has been discovered or located.
<i>National Parks and Wildlife Act 1974</i>	Office of Environment and Heritage	Section 89A – requirement to notify the location of an Aboriginal object that is the property of the Crown.

<i>Protection of the Environment Operations Act 1997</i>	<u>EPA</u> and other relevant authorities	Section 148 – requirement to immediately notify pollution incidents that cause or threaten Material Harm to the environment (see <u>Section 5.1</u>)
	<u>EPA</u>	<i>Pro-active reporting to the local EPA officer of offsite pollution incidents that occur as a result of Roads and Maritime activities is encouraged as soon as practicable after the pollution incident occurs.</i>
<i>Rural Fires Act 1997</i>	<u>NSW Rural Fire Service</u>	Section 64 – requirement to notify an appropriate fire officer of the inability to extinguish any fire burning during a bush fire danger period applicable to the land.
Breach of Conditions of Approval (projects approved under Part 5.1 of the EP&A Act)	<u>Department of Planning and Environment</u> (DPE)	DPE should be notified by the project proponent when there has been a breach of a Condition of Approval (CoA). There may also be other notification requirements included in the CoA.
<i>Water supply catchment areas</i>	<i>Local water supply authority</i>	<i>If an environmental incident has the potential for unapproved impacts on a drinking water supply, the relevant water supply authority must be advised.</i>

5.3 Requests for written reports from regulatory authorities (activities delivered internally by Roads and Maritime)

Should Roads and Maritime directly receive a request from a regulatory authority for a written report regarding an environmental incident, Environment Branch and Legal Branch must be immediately contacted for advice. No further correspondence (including email) about the incident should be distributed either internally or externally until advice is received. Environment Branch will coordinate with Legal Branch to:

- Assist in the investigation of the incident
- Provide legal advice to the project
- Co-ordinate the preparation of the written response to the regulatory authority.



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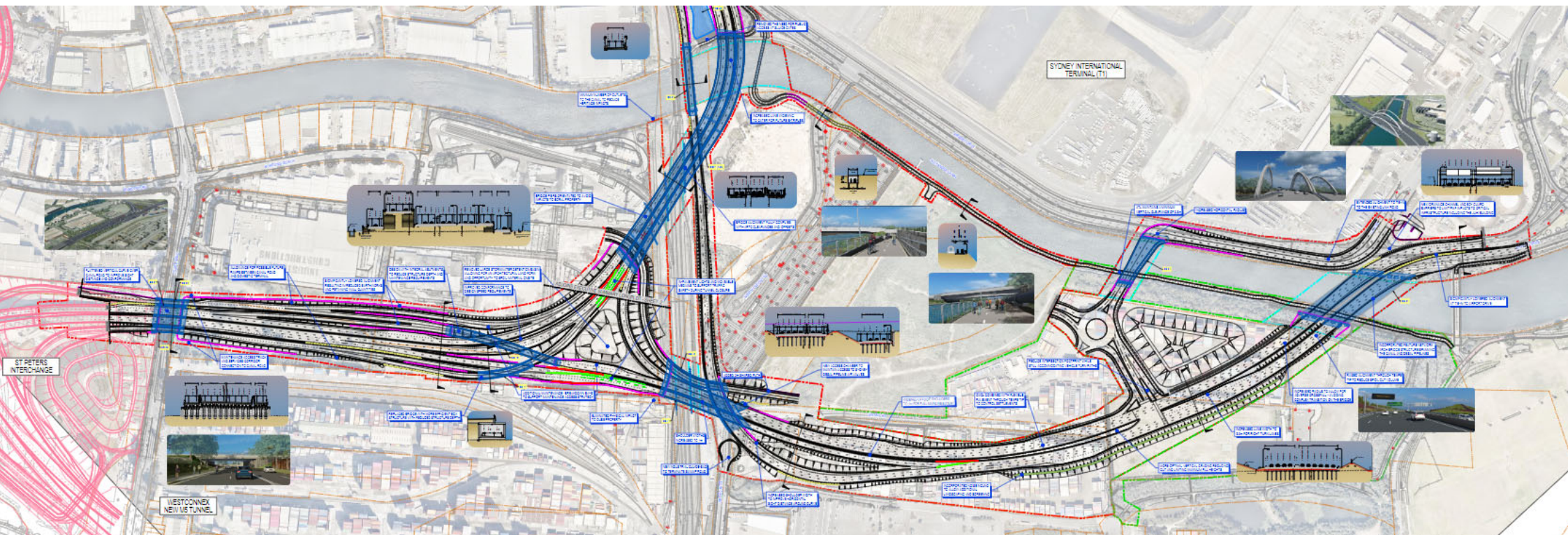
Customer feedback
Roads and Maritime
Locked Bag 928,
North Sydney NSW 2059

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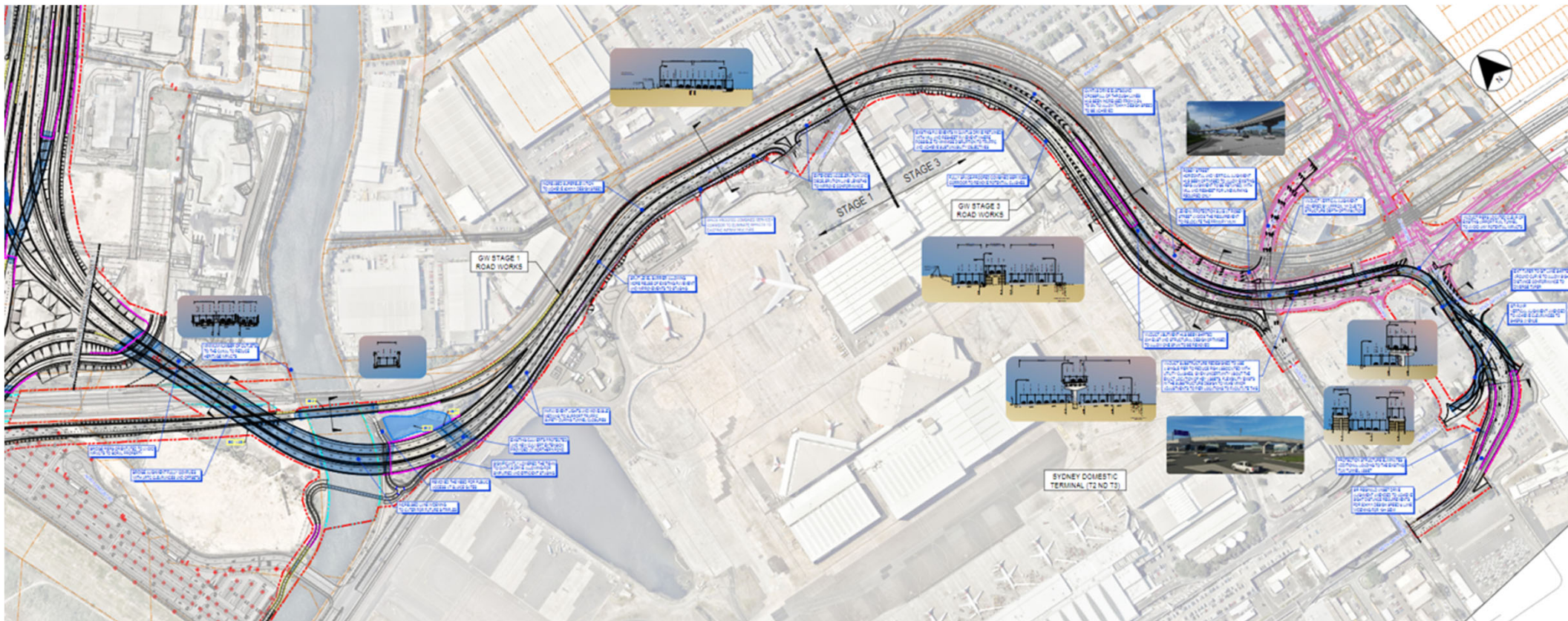
Appendix A8.

Diagrams showing overview of Construction Activities

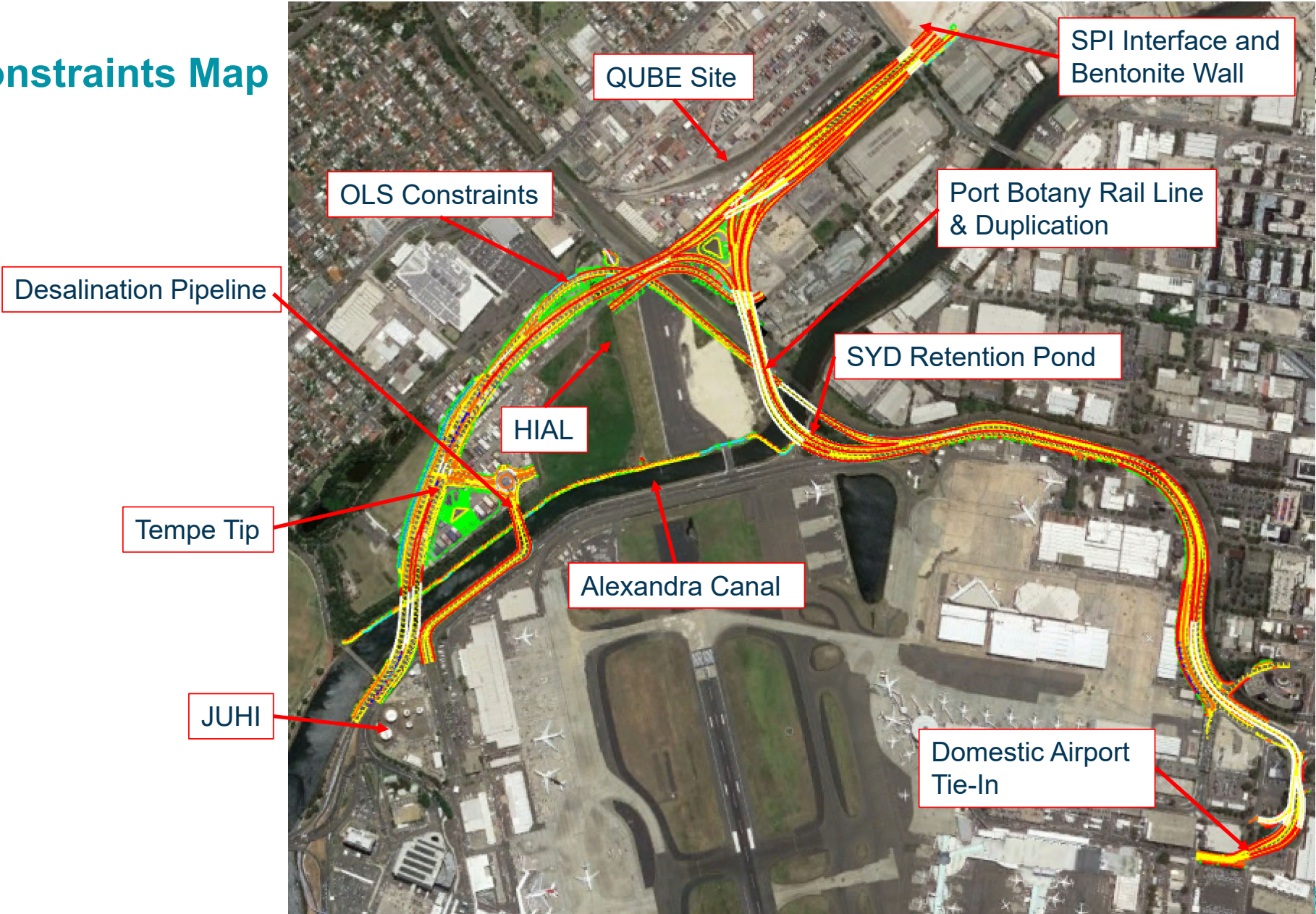
Stage 1 – Project Overview



Stage 3 – Project Overview



Key Constraints Map



Appendix A9.

Endorsement by Environmental Representative

Jake Shackleton
A/Director, Infrastructure Management
Department of Planning and Environment
GPO Box 39
Sydney, NSW, 2001

29 March 2021

20005-LT-ED-001_0

Dear Jake

**Sydney Gateway
Construction Environmental Management Plan (Rev 1) ER Endorsement**

I have reviewed the Construction Environmental Management Plan (CEMP) (Revision 1) for the Sydney Gateway project and am satisfied that the CEMP (Rev 1) prepared by the John Holland Seymour Whyte Joint Venture (JHSW JV) fulfils the requirements of Condition C1 and C2 of the Infrastructure Approval (SSI 9737).

This endorsement letter confirms the main document of the CEMP (Rev 1) meets the conditions, however, the individual Sub-plans that make up Appendix B of the CEMP have not yet been endorsed. Therefore, this letter is a conditional endorsement whereby the individual Sub-plans would all need to be endorsed prior to the final endorsement and final approval of the whole CEMP.

As required by Condition of Approval A24(d)(i) and C3, I hereby conditionally endorse the Construction Environmental Management Plan as being compliant with the requirements outlined in the Infrastructure Approval (SSI 9737).

Kind Regards

Cameron Weller
Principal Environmental Representative
Sydney Gateway Project

Appendix B1. Waste and Resource Management Plan

Appendix B1

SGWPW-JHSW-NWW-PM-PLN-000510

Construction Waste and Resource
Management Plan - State

Sydney Gateway Road Project

February 2021

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Document control

Approval and authorisation

Title	Sydney Gateway Stage 1 & 3 Construction Waste and Resource Management Sub - Plan
Endorsed by Environment Representative	Cameron Weller Hutchison Weller Pty Ltd
Signed	
Dated	
Approved on behalf of NSW Roads and Maritime Services by	Mark Stevenson Project Director
Signed	
Dated	
Approved on behalf of JHSWJV by	Ivan Karaban Project Director
Signed	
Dated	

Document Number: SGWPW-JHSW-NWW-PM-PLN-000510

Document status

Revision	Date	Description	Approval
A	21/12/2020	Draft for internal JHSWJV review	
B	14/01/2021	Draft for TfNSW, ER and IV review	
C	18/02/2021	Updated to respond to comments from ER and TfNSW.	IK
0	19/02/2021	Issued as Final for Approval	IK

Distribution of controlled copies

This CWRMP as part of the CEMP is available to all personnel and sub-contractors via the Project document control management system. An electronic copy can be found on the Project website.

The document is uncontrolled when printed. One controlled hard copy of the CWRMP as part of the CEMP and supporting documentation will be maintained by the Quality Manager at the Project office and on the project website.

Copy number	Issued to	Version
1	Transport for New South Wales	
2	Independent Verifier	
3	Environmental Representative	
4	Project Director	
5	Environment and Sustainability Manager	

Glossary/ Abbreviations

Abbreviations	Expanded text
CEMP	Construction Environmental Management Plan
CoA	Conditions of Approval
DPIE	NSW Department of Planning, Industry and Environment
EIS	Environmental Impact Statement
MDP	Major Development Plan
ENM	Excavated Natural Material, as defined in <i>the excavated natural material exemption</i>
EPA	NSW Environment Protection Authority
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EPL	Environmental Protection Licence
EWMS	Environmental Work Method Statements
JHSWJV	John Holland-Seymour Whyte Joint Venture
PESCP	Progressive Erosion and Sediment Control Plan
RAP	Reclaimed asphalt pavement
Resource	Resource covers energy, fuel, oil, water and other materials used for construction of the project.
SYD	Sydney Airport
TfNSW	Transport for New South Wales (formerly Roads and Maritime Services)
UMM	Updated Mitigation Measures
VENM	Virgin Excavated Natural Material
WARR Act	<i>Waste Avoidance and Resource Recovery Act 2001</i>
CWRMP	Construction Waste and Resource Management Plan
WRAPP	Waste Reduction and Purchasing Policy

1 Introduction

1.1 Context

This Construction Waste and Resource Management Sub Plan (CWRMP or Plan) forms part of the Construction Environmental Management Plan (CEMP) for the Sydney Gateway Road Project (the Project).

This CWRMP has been prepared to address the requirements of the Minister's Conditions of Approval (CoA), the environmental management measures listed in the Projects combined Environmental Impact Statement (EIS) / Major Development Plan (MDP), Updated Management Measures (UMM's) from the Submissions Report and all applicable legislation and TfNSW requirements.

Note – this Plan has been developed specifically for works occurring within NSW State land under approval SSI 9737, which, is administered by the NSW Department of Planning, Industry and Environment (DPIE). Works occurring within Commonwealth land are detailed in the Waste and Resources Management Plan – Commonwealth.

1.2 Environmental management systems overview

The Environmental Management System (EMS) overview is described in Section 1.5 of the CEMP. The EMS also incorporates the project specific CEMP and sub-plans, strategies, procedures and environmental work method statements (EWMS). The EMS form management guides that clearly identify required environmental management actions for implementation by JHSWJV personnel and contractors.

1.3 Background and project description

1.3.1 Background

Transport for NSW (TfNSW) have gained approval to deliver a high capacity road connection linking the Sydney motorway network at St Peters interchange with Sydney Airport's domestic and international terminals and the Port Botany Precinct. The Project is located on both State and Commonwealth land.

For areas on State land, the Project was declared to be critical State significant infrastructure (CSSI) under the Environmental Planning and Assessment Act 1979 (NSW) (EP&A Act) and was approved by the NSW Minister for Planning and Public Spaces on 27 August 2020.

Commonwealth approval under the Airports Act 1996 (the Airports Act) was granted by the Australian Minister for Infrastructure, Transport and Regional Development on 23 September 2020.

John Holland Seymour White Joint Venture (JHSWJV) have been contracted by Transport for New South Wales (TfNSW) for the Design and Construction of Sydney Gateway Stage 1 & Stage 3 (the Project).

1.3.2 Project Objectives

The primary objective of Sydney Gateway is to support sustainable growth in the economy and cater for projected increases in passengers and freight demand. This will be achieved by improving connectivity between the regional growth and freight distribution centres in western Sydney and the Sydney Airport and Port Botany area. The objectives of the Sydney Gateway road project are to:

- Improve connectivity to Sydney Airport terminals by providing high capacity direct road connections that cater for forecast growth in passenger and air freight volumes.
- Support the efficient distribution of freight to and from Sydney Airport and Port Botany to logistic centres in Western Sydney.
- Improve the liveability of Mascot town centre by reducing congestion and heavy vehicle movements on the local road network.

1.3.3 Detailed Description

The Project is located about eight kilometres south of the Sydney Central Business District, in the suburbs of Tempe, St Peters and Mascot. It sits within the boundaries of the Inner West, City of Sydney and Bayside local government areas.

The key features of the Project are illustrated in Figure 1-1, which include:

- Road links to provide access between the Sydney motorway network and Sydney Airport's terminals, consisting of the following components:
 - St Peters interchange connection – a new elevated section of road extending from St Peters interchange to the Botany Rail Line, including an overpass over Canal Road.
 - Terminal 1 connection – a new section of road connecting Terminal 1 with the St Peters interchange connection, including a bridge over Alexandra Canal and an overpass over the Botany Rail Line.
 - Qantas Drive upgrade and extension – widening and upgrading Qantas Drive to connect Terminals 2/3 with the St Peters interchange connection, including a high-level bridge over Alexandra Canal.
- Terminal links – two new sections of road connecting Terminal 1 and Terminals 2/3, including a bridge over Alexandra Canal.
- Terminals 2/3 access – a new elevated viaduct and overpass connecting Terminals 2/3 with the upgraded Qantas Drive.
- Road links to provide access to Sydney Airport land:
 - A new section of road and an overpass connecting Sydney Airport's northern lands on either side of the Botany Rail line (the northern lands access)
 - A new section of road, including a signalised intersection with the Terminal 1 connection and a bridge, connecting Sydney Airport's existing and proposed freight facilities on either side of Alexandra Canal (the freight terminal access)
- An active transport link, about 1.5 kilometres long and located along the western side of Alexandra Canal and section along Qantas Drive, to maintain connections between Sydney Airport, Mascot and the Sydney central business district.
- Intersection upgrades and/or modifications.
- Construction of operational ancillary infrastructure including maintenance bays, new and upgraded drainage infrastructure, signage and lighting, retaining walls, noise barriers, flood mitigation basin, emplacement mounds, utility works and landscaping.

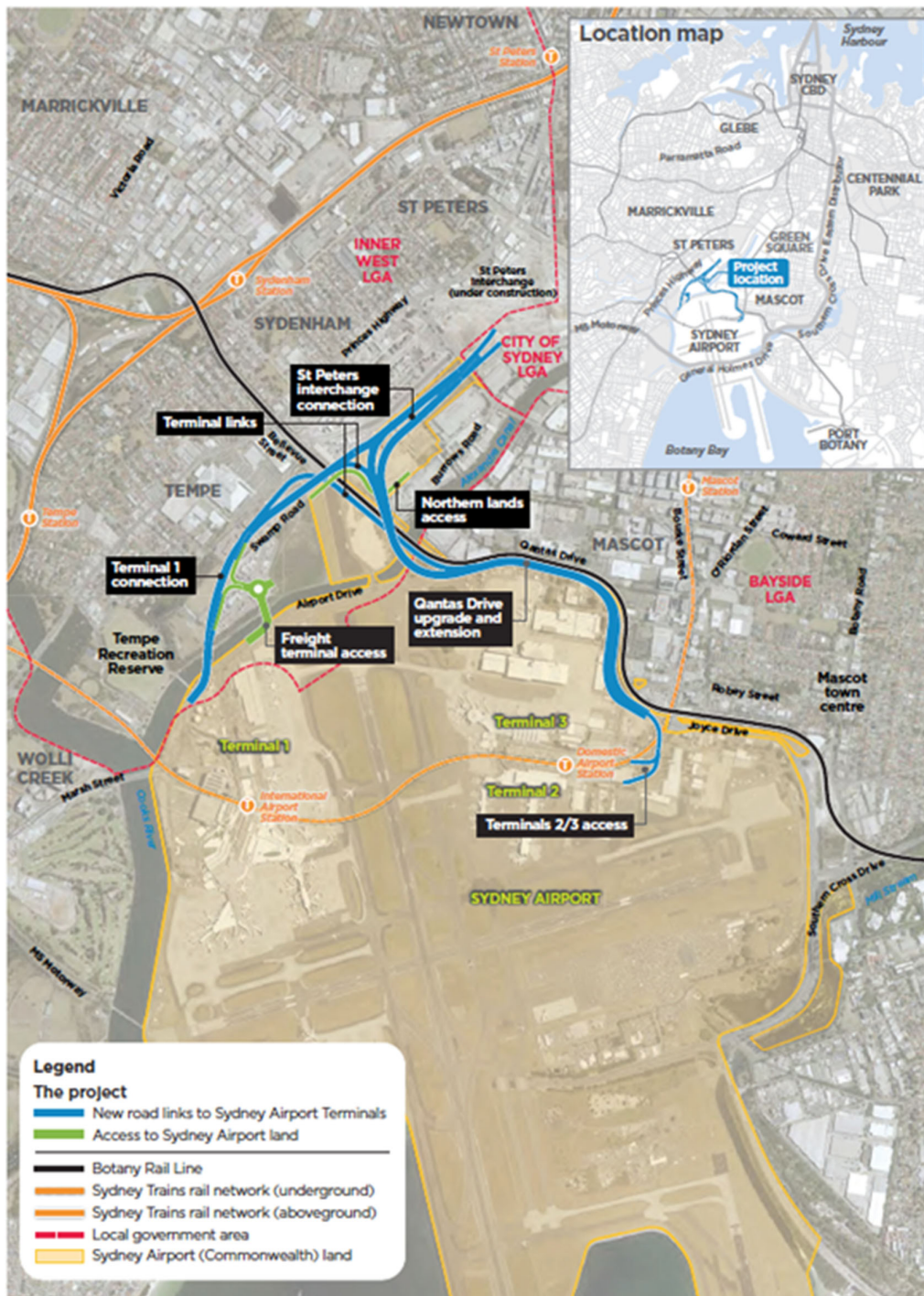


Figure 1-1 Project overview

2 Purpose and objectives

2.1 Purpose

The purpose of this Plan is to describe how JHSWJV proposes to manage waste during construction of the Project. This Plan also explores relevant aspects of resource recovery and management and sustainability requirements for the Project; for detailed information regarding sustainability refer to the Project's Sustainability Strategy.

2.2 Objectives

The key objective of the CWRMP is to ensure all requirements relevant to waste management are captured, scheduled and assigned responsibility as outlined in:

- The combined Environmental Impact Statement (EIS) / Major Development Plan (MDP) prepared for the Sydney Gateway Project – Stages 1 & 3.
- Conditions of Approval for SSI 9737 issued by the Minister for Planning and Public Spaces (NSW), on 27 August 2020.
- Updated Mitigation Measures (UMM) detailed in the Response to Submissions Report.
- Roads and Maritime specifications G36, G38 and G40.
- The Project's Environmental Protection Licence (EPL).
- Relevant legislation and other requirements described in Section 3.1 of this Plan.

2.3 Targets and Performance Outcomes

The following targets have been established for waste management during the delivery of the Project:

- Ensure compliance with the relevant legislative requirements, CoA and UMM.
- Meet environment protection licence (EPL) requirements.
- Effective management of waste during construction including minimisation of waste and conservation of energy where possible.
- Minimise the use of non-renewable resources and minimise and minimise the quantity of waste disposed to landfill.
- Ensure training is provided in the form of inductions to relevant Project personnel relating to waste management issues, before they begin work on site.
- Implement practicable measures to manage waste throughout the construction period.

The following performance outcomes relevant to waste management (as identified in Chapter 27.4 Compilation of performance outcomes of the EIS/MDP) are detailed in Table 2-1 below.

Table 2-1 Environmental performance Targets and Outcomes

No.	Performance Outcomes	Where addressed
1	The preferred waste management hierarchy of avoidance, minimisation, reuse, recycling and disposal is implemented.	This Plan

No.	Performance Outcomes	Where addressed
2	Measures to minimise waste, manage waste and conserve resources throughout the construction of the project are implemented.	This Plan Sustainability Management Plan
3	Construction staff have an increased level of understanding and awareness of waste and resource use management issues.	This Plan/ Toolbox Schedule
4	Uncontaminated spoil is recycled or reused either on or off site.	Waste Register
5	Reuse of waste is managed in accordance with relevant NSW EPA requirements.	This Plan
6	Waste is disposed of at appropriately licensed facilities	Waste Register

3 Environmental requirements

3.1 Relevant legislation and guidelines

3.1.1 Legislation

All legislation relevant to this CWRMP is included in Section 3.2.2 of the CEMP.

3.1.2 Guidelines and standards

The main guidelines, specifications and policy documents relevant to this plan include:

- Project Sustainability Strategy.
- Waste Avoidance and Resource Recovery Act 2001.
- Environmental Sustainability Strategy 2019-23 (Roads and Maritime 2019b).
- NSW Waste and Resource Recovery Strategy 2014-21 (NSW EPA, 2014).
- NSW Government Resource Efficiency Policy (GREP) (OEH 2014).
- Waste Classification Guidelines (NSW EPA 2014).
- Management of Wastes on Roads and Maritime Services Land (Roads and Maritime 2014).
- Management of road construction and maintenance wastes (Roads and Maritime 2016).
- Technical Direction: Legal offsite disposal of Roads and Maritime Services Waste (Roads and Maritime 2015).
- Technical Direction: Coal tar asphalt handling and disposal (Roads and Maritime 2015).
- Stockpile Site Management Guideline (Roads and Maritime 2011).
- Roads and Maritime waste fact sheets:
 - Waste Fact Sheet 1 - Virgin Excavated Natural Material.
 - Waste Fact Sheet 2 - Excavated Natural Material.
 - Waste Fact Sheet 3 - Excavated Public Road Materials.
 - Waste Fact Sheet 4 - Recovered Aggregates.
 - Waste Fact Sheet 5 - Asbestos Waste.
 - Waste Fact Sheet 6 - Waste Sampling.
 - Waste Fact Sheet 7 – Reclaimed asphalt pavement (RAP).
 - Waste Fact Sheet 9 – Re-use of waste off-site.

3.2 Minister's Conditions of Approval

The CoA relevant to this Plan are listed in Table 3-1 below. A cross reference is also included to indicate where the condition is addressed in this Plan or other Project management documents.

Table 3-1 Conditions of Approval relevant to the WRMP

CoA No.	Condition Requirements	Document Reference
E87	<p>Waste generated during construction and operation must be dealt with in accordance with the following priorities:</p> <ul style="list-style-type: none"> a) Waste generation must be avoided and where avoidance is not reasonably practicable, waste generation must be reduced; b) Where avoiding or reducing waste is not possible, waste must be re-used, recycled or recovered; and c) Where re-using, recycling or recovering waste is not possible, waste must be treated and disposed of. 	Chapter 5.1
E88	The importation of waste and the storage, treatment, processing, reprocessing or disposal of such waste must comply with the conditions of an EPL applying to the CSSI, or be done in accordance with a Resource Recovery Exemption or Order issued under the Protection of the Environment Operations (Waste) Regulation 2014, as the case may be.	Chapter 5.4
E89	Waste must only be exported to a site licensed by the EPA for the storage, treatment, processing, reprocessing or disposal of the subject waste, or in accordance with a Resource Recovery Exemption or Order issued under the Protection of the Environment Operations (Waste) Regulation 2014, or to any other place that can lawfully accept such waste.	Chapter 5.4
E90	All waste generated during construction and operation must be classified in accordance with the EPA's Waste Classification Guidelines, with appropriate records and disposal dockets retained for audit purposes.	Chapter 5.2

CoA No.	Condition Requirements	Document Reference
E91	<p>The proponent must develop and implement a waste tracking register that details:</p> <ul style="list-style-type: none"> a) The quantity of each type of waste generated, its classification and source location (recorded using latitude and longitude coordinates); b) The destination location(s) for all wastes generated during construction; c) The quantities of any waste types imported onto the CSSI site, including their classification and emplacement location (recorded using latitude and longitude coordinates); d) The quantities and types of wastes that are subject to a Resource Recovery Order and/or Exemption; and e) Disposal records demonstrating that receiving facilities have lawfully accepted the waste type. 	Chapter 8, Appendix A

3.3 Environmental Commitments and Management

Relevant UMMs are listed in Table 3-2 below. This includes reference to required outcomes, the timing of when the commitment applies, relevant documents or sections of the environmental assessment influencing the outcome and implementation.

Table 3-3 includes commitments required from the SWTC and the IS Technical Manual which are also required to be met throughout the Project:

Table 3-2 Updated management measures relevant to this WRMP

UMM	Commitment	Timing	Document Reference
WM2	A Construction Waste Management Plan will be prepared as part of the CEMP and implemented during construction. The plan will adopt the waste hierarchy principles contained in the Waste Avoidance and Resource Recovery Act 2001 and will detail processes, responsibilities and measures to manage waste and minimise the potential for impacts during construction.	Pre-construction	This plan

UMM	Commitment	Timing	Document Reference
WM3	Construction waste will be minimised by accurately calculating materials brought to the site and limiting materials packaging where possible.	Construction	Chapter 7
WM4	All waste disposal will be in accordance with the Waste Classification Guidelines (NSW EPA, 2014).	Construction	Chapter 5, Chapter 7
WM5	<p>The following measures would be implemented during works at the former Tempe landfill to avoid attracting wildlife:</p> <ul style="list-style-type: none"> • Staging the excavation to minimise the amount of exposed waste at any one time • Minimising the size and area of exposed stockpiles • Ensuring material that has been disturbed, uncapped, or temporarily stockpiled is suitably covered at the end of each day. 	Construction	Chapter 7
WM6	Suitable areas will be identified to allow for contingency management of unexpected waste materials, including contaminated materials. Areas will be hardstand or lined areas that are appropriately stabilised and bunded, with sufficient space for stockpile storage	Construction	Chapter 7
GHG4	A minimum of 20% of construction phase electricity to be purchased from an accredited GreenPower product	Construction	Sustainability Management Plan

Table 3-3 Additional measures relevant to this WRMP

Ref No.	Commitment	Timing	Document Reference
V1.2 IS Technical Manual Was-1	Predictions for waste quantities and types have been developed for construction and operation.	Ongoing throughout construction	Section 5.3
V1.2 IS Technical Manual Was-1	Measures to minimise waste during construction and operation have been identified and implemented	Ongoing throughout construction	Section 3
V1.2 IS Technical Manual Was-1	A Waste Management Plan (or similar) must demonstrate that the waste hierarchy was applied: 1.Avoid 2.Reduce 3.Reuse 4.Recycle 5.Disposal If an option less favourable than the first option is selected, then justification for not selecting options higher on the hierarchy must be provided.	Pre construction	This plan Section 5.1
V1.2 IS Technical Manual Was-1	Monitoring of all wastes is undertaken during construction and operation.	Construction	Section 8.3

Ref No.	Commitment	Timing	Document Reference
V1.2 IS Technical Manual Was-1	The monitoring needs to be regular (e.g. monthly) throughout the relevant rating phases as well as showing totals for the whole rating period.	Ongoing throughout construction	Section 8.3
V1.2 IS Technical Manual Was-1	Monitoring of waste should include the waste types generated, quantities (volumes) and destinations during construction. Summaries of (a) spoil, (b) inert and non-hazardous, and (c) office waste groups should be provided.	Ongoing throughout construction	Section 8.3
V1.2 IS Technical Manual Was-1	Waste monitoring and management must be managed, reviewed or audited by a suitably qualified professional.	Annually throughout construction or as per the Audit Schedule	Section 8.4
V1.2 IS Technical Manual Was-1	If review or audit is undertaken, it should be at least annually for construction or at least once for durations less than one year. The review or audit should cover both systems and data i.e. the systems used to manage waste and the data recording and reporting. The scope of the waste review/audit should include an objective assessment of the accuracy and completeness of reported waste information with the aim to provide confidence that the reported information represents a faithful, true, and fair account of waste management practices and performance.	Annually throughout construction or as per the Audit Schedule	Section 8.4

Ref No.	Commitment	Timing	Document Reference
V1.2 IS Technical Manual Was- 1	<p>Waste handling and disposal/recycling all the way to final destination has been audited at appropriate intervals.</p> <p>Auditing to final destination must be undertaken at least 6 monthly for construction. Final destination means at least to a waste facility where the waste is transformed into another product or material or into landfill.</p> <p>The audit should include a physical/visual verification of waste destinations. The audit need only focus on the significant waste streams and each audit may cover particular significant waste stream(s) as long as the full set is covered over the rating period. 'Significant' waste streams are to be justified taking into account the volume and nature of the wastes.</p>	Every 6 months throughout construction or as per the Audit Schedule	Section 8.4
V1.2 IS Technical Manual Was- 2	<p>All of the following targets for landfill diversion have been achieved or bettered:</p> <ul style="list-style-type: none"> 100% by volume of spoil >90% by volume of inert and non-hazardous waste >60% by volume of office waste material 	Ongoing throughout construction	Section 3 Section 6

Ref No.	Commitment	Timing	Document Reference
V1.2 IS technical Manual Was-3	<p>A deconstruction plan is developed based on good practice.</p> <p>Good practice must consider the following ten key principles of DfD (Guy, 2006): see technical manual for details.</p> <p>Where an aspect of good practice above is not applicable to the infrastructure, suitable justification must be provided.</p> <p>Development of a deconstruction plan should involve the following tasks (Davies, 2008; Guy 2006): see IS technical manual for details.</p> <p>A model Deconstruction Specification is provided in Guy (2006). The deconstruction plan should include:</p> <ul style="list-style-type: none"> - Material identification: Indicate anticipated types and quantities of materials to be salvaged, recycled, and disposed of. Indicate quantities by weight or volume but use same units of measure throughout. - Procedure: Describe deconstruction methodology, sequencing, and materials handling and removal procedures. Include the anticipated final destination of each material. 	Prior to construction completion	Section 3 Section 4 Section 5
V1.2 IS technical Manual Was-3	The deconstruction plan is reviewed and updated. Reviews should consider changes to technology and infrastructure planning. The deconstruction plan should be updated at least once during the rating phase period.	Prior to construction completion	Section 3 Section 4 Section 5
V1.2 IS technical Manual Was-3	0 to 50% by value of components or prefabricated units used can be easily separated on disassembly/ deconstruction into material types suitable for recycling or reuse.	Construction	Section 3 Sustainability Management Plan

Ref No.	Commitment	Timing	Document Reference
2.5 (d) Sydney Gateway Stage 1 & 3 Scope of Works and Technical Criteria Appendix D.5 Sustainability Requirements	The Contractor must demonstrate that opportunities for the beneficial reuse of useable spoil excavated during construction have been identified and analysed (including consideration of the volumes of spoil to be generated by other projects).	Ongoing throughout construction	Section 5
2.5 (e) Sydney Gateway Stage 1 & 3 Scope of Works and Technical Criteria Appendix D.5 Sustainability Requirements	The Contractor must demonstrate that opportunities have been fully investigated to: (i) minimise waste generation; (ii) maximise waste segregation and storage for different waste streams; and (iii) maximise waste reuse; recycling; and landfill diversion.	Ongoing throughout construction	Section 5

Ref No.	Commitment	Timing	Document Reference
2.5 (h) Sydney Gateway Stage 1 & 3 Scope of Works and Technical Criteria Appendix D.5 Sustainability Requirements	The Contractor must negotiate and implement packaging take-back arrangements with suppliers.	Pre-construction	Sustainability Management Plan
2.5 (g) Sydney Gateway Stage 1 & 3 Scope of Works and Technical Criteria Appendix D.5 Sustainability Requirements	<p>The Contractor must monitor, record and report on, in accordance with section 1.2.8(iii) of Appendix C.2 (Contractor Documentation Schedule), the following:</p> <p>(ii) quantities of waste to be beneficially reused (for each waste material type, e.g. spoil, timber) during the construction stage;</p> <p>(iii) quantities of waste to be recycled (for each waste material type, e.g. steel) during the construction stage;</p> <p>(iv) quantities of waste unable to be recycled or beneficially reused in accordance with section 2.5(g)(i) and section 2.5(g)(ii) above during the construction stage.</p>	Ongoing throughout construction	Section 8

4 Environmental aspects and impacts

4.1 Construction waste streams and resource use

The following construction related waste streams have been identified (EIS, Chapter 24, Table 24.1):

- Demolition wastes – timber, steel, fibre sheeting, brick, concrete, asphalt, road base, glass.
- Excavation wastes – Virgin Excavated Natural Material (VENM), Excavated Natural Material (ENM).
- Contaminated soils (including asbestos containing materials).
- Soils, general construction material and capping material.
- Vegetation from clearing and grubbing, including landscaped and/or turfed areas.
- Concrete, asphalt, aggregate, timber framework, scrap metals, cables.
- Packaging materials associated with items delivered to site such as pallets, crates, cartons, plastics and wrapping materials
- Wastes produced from the maintenance of construction plant, vehicles and equipment - including liquid hazardous wastes from cleaning, repairing and maintenance and tyres.
- Non-hazardous wastes would be generated through the use of worker's facilities such as toilet.
- Wastewater, sewage and grey water.
- General wastes including office wastes, scrap materials and biodegradable wastes

The following sources of construction related resource consumption (fuel and power) have been identified:

- Procurement and delivery of materials to site.
- Vegetation removal.
- Site establishment, including compound set up.
- Relocation and protection of services.
- Earthworks.
- Removal, relocation and compaction of excavated material.
- Construction of pavements, bridges and culverts.
- Demolition works.
- Operation of site compounds and lighting.
- Construction plant including cranes, rollers, excavators, bulldozers, graders and water trucks.
- Removal of waste from the site.

4.2 Impacts

Waste generation during construction would be from works associated with site preparation, demolition, construction of road infrastructure and landscaping. Potential impacts associated with waste generation and management include:

Generation of waste (excavation and handling)

- Energy and water consumption associated with packaging.
- Impacts associated with extraction of resources.

- Environmental impacts associated with generation and handling on site, including dust, odour, sediment laden/contaminated runoff and noise.

Storage of waste on site (including segregation)

- Sediment laden/contaminated runoff.
- Odours and dust.
- Health and safety of site personnel and neighbouring community.
- Littering.
- Site access restrictions.
- Cross contamination of wastes.
- Reduction in reuse of materials.
- Contamination of recycling facilities.
- Contamination of soils, groundwater and surface water.

Waste transportation

- Dust, noise, traffic and odours.
- Material tracking onto roads.
- Regulatory non-compliance.

Non-classified / incorrectly classified waste transport and disposal

- Regulatory non-compliance.
- Contamination of recycling facilities/landfills.
- Contamination of soils, groundwater and surface water.

Unlicensed waste contractors transporting waste

- Regulatory non-compliance.
- Potential illegal dumping of waste.

Resource use

- Consumption of non-renewable resources such as energy, diesel and other chemicals.
- Greenhouse gas emissions due to consumption of energy from non-renewable resources.

Relevant aspects and impacts are captured in Table 3.1, Environmental Commitments and Management Register

5 Waste management

5.1 Waste management hierarchy

To achieve positive waste and resource management outcomes, the Project will adopt waste management strategies in accordance with the waste hierarchy and requirements identified in the CoA E87, UMM WM2, NSW *Waste Avoidance and Resource Recovery Act 2001* (WARR Act) and the NSW Waste Avoidance and Resource Recovery Strategy 2014-21 (EPA 2014).

Waste generated during construction of the Project will be dealt with in accordance with the following priorities (in order of preference):

- Waste generation is to be avoided, and where avoidance is not reasonably practicable, waste generation is to be reduced (refer to Section 5.1.1),
- Where avoiding or reducing waste is not possible, waste is to be reused, recycled, or recovered (refer to Section 5.1.2), in accordance with a Resource Recovery Exemption or Order issued under the Protection of the Environment Operations (Waste) Regulation 2014; and
- Where re-using, recycling or recovering waste is not possible, waste is to be treated or disposed of at a waste management facility (premise lawfully permitted to accept the materials), or to any other place that can lawfully accept such waste.



Figure 5.1: Waste Management Hierarchy (NSW Waste Avoidance and Resource Recovery Strategy 2014-21 (EPA, 2014))

5.1.1 Waste avoidance and reduction

As demonstrated in Figure 1 the waste hierarchy (which governs the management of waste during construction of the Project) nominates avoidance of waste as the most important priority. During the construction phase, the following measures will be implemented to avoid creation of waste:

- Ensuring that the necessary planning is undertaken to enable efficient management of the delivery and storage of materials, to avoid spoilage of materials,
- Wherever possible, establishing agreements with suppliers for 'take back' arrangements for packaging/pallets/drums,
- Highlighting the minimisation of packaging as an important factor in the product procurement process,
- Ensuring correct types and quantities of materials are ordered, essentially avoiding excess material waste,
- Coordinating site activities to minimise waste through utilisation of unused materials,
- Employing trained and qualified plant and machinery operators to avoid damage to materials and reduce wastage of consumables during plant and machinery maintenance,
- Ensure that stored supplies are properly protected from the weather; and
- Where feasible and reasonable suppliers that can demonstrate sustainable practices will be selected e.g. locally sourced, produced with sustainable practices, EMS accredited.

5.1.2 Reuse and recycling

In accordance with the waste hierarchy principles, when avoiding or reducing waste is not possible, waste is to be reused on site or off site for the same or a similar use. It may also be recovered through recycling and reprocessing, so that waste can be processed into a similar non-waste product.

Waste separation and segregation will be promoted on site to facilitate reuse and recycling as a priority of the waste management program as follows:

- Waste segregation on site (construction activities) – waste materials, including spoil and demolition waste, will be separated on site into dedicated bins / areas for either reuse on site or collection by a waste contractor and transport to offsite facilities,
- Waste segregation on site (office) – waste within site offices shall be segregated on site with colour coded bins being provided for mixed recyclable, organic waste, landfill and paper. Paper bins will be provided throughout the office to encourage the recycling of scrap paper; and
- Waste separation off site at an appropriately licenced facility – wastes to be deposited into one bin where space is not available for placement of multiple bins, and the waste is to be sorted off site by a waste contractor.

When possible, waste shall be beneficially reused on or offsite in accordance with relevant approvals. This may occur through the following pathways and in compliance with appropriate legislation:

- Resource recovery orders and exemptions as referenced in Section 5.4 of this Plan,
- Appropriately approved recycling facility,
- Appropriately approved developments which are able to accept waste through the use of a notice under Section 143(3A) of the POEO Act (s.143 Notice) as detailed in Roads and Maritime QA Specification G36.

Waste sampling and classification is to occur when waste is being transported off site. In general, waste sampling shall be in accordance with the Roads and Maritime 'Waste Sampling' Environment Fact sheet on the Roads and Maritime website as well as the relevant Resource Recovery Exemption or Order as discussed in Section 5.5. Where large quantities are involved, further input from specialists may be obtained. In some instances, Project specific resource recovery orders and exemptions may be sought from EPA.

5.1.3 Waste handling and storage

Where waste is required to be handled and stored onsite prior to onsite reuse or offsite recycling/disposal, the following measures apply:

- Spoil, topsoil and mulch are to be stockpiled onsite in allocated areas, where appropriate, and mitigation measures for dust control and surface water management will be implemented as per the Air Quality Management Sub Plan and the Soil and Water Management Sub Plan.
- Liquid wastes are to be stored in appropriate containers in bunded areas until transported offsite. Bunded areas will have the capacity to hold 110 per cent of the liquid waste volume for bulk storage or 120 per cent of the volume of the largest container for smaller packaged storage.
- Hazardous waste will be managed by appropriately qualified and licensed contractors, in accordance with the requirements of the Environmentally Hazardous Chemicals Act 1985 and the EPA waste disposal guidelines.
- All other recyclable or non-recyclable wastes are to be stored in appropriate covered receptacles (e.g. bins or skips) in appropriate locations onsite and contractors commissioned to regularly remove/empty the bins to approved disposal or recycling facilities.

5.1.4 Waste disposal

Waste (and spoil) disposal is to be in accordance with the *Protection of the Environment Operations Act 1997* and the *Waste Avoidance and Resource Recovery Act 2001*. Wastes that are unable to be reused or recycled will be disposed of offsite to an appropriately licenced waste management facility following classification (refer to section 5.2). Locations of waste management/ disposal facilities are included in Appendix B.

Waste (including spoil) removed from site will be tracked using the Waste Tracking Register (CoA E91Appendix A). This register will be completed by engineering staff at each Worksite, and will capture information including:

- Date transported
- Haulage contractor
- Material type
- Waste classification
- Quantity
- Waste receipt location
- Truck registration
- Docket numbers (haulage, receipt, weighbridge)

Waste dockets associated with removal and disposal of waste (including spoil) from the JHSW Worksites are to be retained and referenced in the Waste Tracking Register. Soil classification reports are also to be retained.

In addition, waste reporting requirements (including reporting of spoil reuse and recycling statistics) are addressed in the Sustainability Management Plan.

Specialist licenced waste contractors may only be used when removing 'special waste' or 'hazardous waste' in accordance with the Protection of the Environment Operations (Waste) Regulation 2005. Waste truck loads will be covered, and tailgates secured prior to trucks leaving the worksite.

All waste disposal facilities must be appropriately licenced to accept the classified waste type. Prior to waste being taken to a waste facility, the Environment and Sustainability Manager must review and approve the proposed waste facility. Contractors will be required to submit the relevant documentation for review and approval prior to transport off site.

Contractors will be required to provide tracking receipts to confirm appropriate disposal of waste from TSE Worksites and will be required to report waste quantities in accordance with the Subcontractor Requirements Pack – Environment and Sustainability

Section 143 Notices

Notices under section 143(3A) of the POEO Act (“s.143 Notice”) must be obtained prior to transporting any waste to a place that is not part of the project lands and is not a licensed waste facility (the “Waste Site”). Signed s.143 notices will be retained on the JHSWJV record management system and will be provided to the TfNSW Representative prior to transport to release the TfNSW hold point.

This requirement includes waste transported for reuse, recycling, disposal or stockpiling. Waste in this context includes spoil, Virgin Excavated Natural Material (“VENM”), Excavated Natural Material (“ENM”), crushed rock, reclaimed asphalt pavement, mulched vegetation, waste concrete, etc.

Section 143 Notices must include:

- an accurate description of the waste;
- evidence that the Waste Site has the appropriate planning consent; and
- confirmation of the waste delivery arrangements with the landholder prior to transporting materials to the Waste Site.

Refer to the Section 143 Notice Pro-forma in Appendix C of this CWRMP.

5.2 Classification of waste streams

Where waste cannot be avoided, reused or recycled it will be classified and appropriate disposal will then occur. The classification of waste is undertaken in accordance with the EPA Waste Classification Guidelines Part 1: Classifying Waste (2014). This document identifies six classes of waste:

1. Special,
2. Liquid,
3. Hazardous,
4. Restricted Solid,
5. General Solid (putrescible) and
6. General Solid (non-putrescible),

The six-step process to classifying waste is detailed in Figure 5.2.

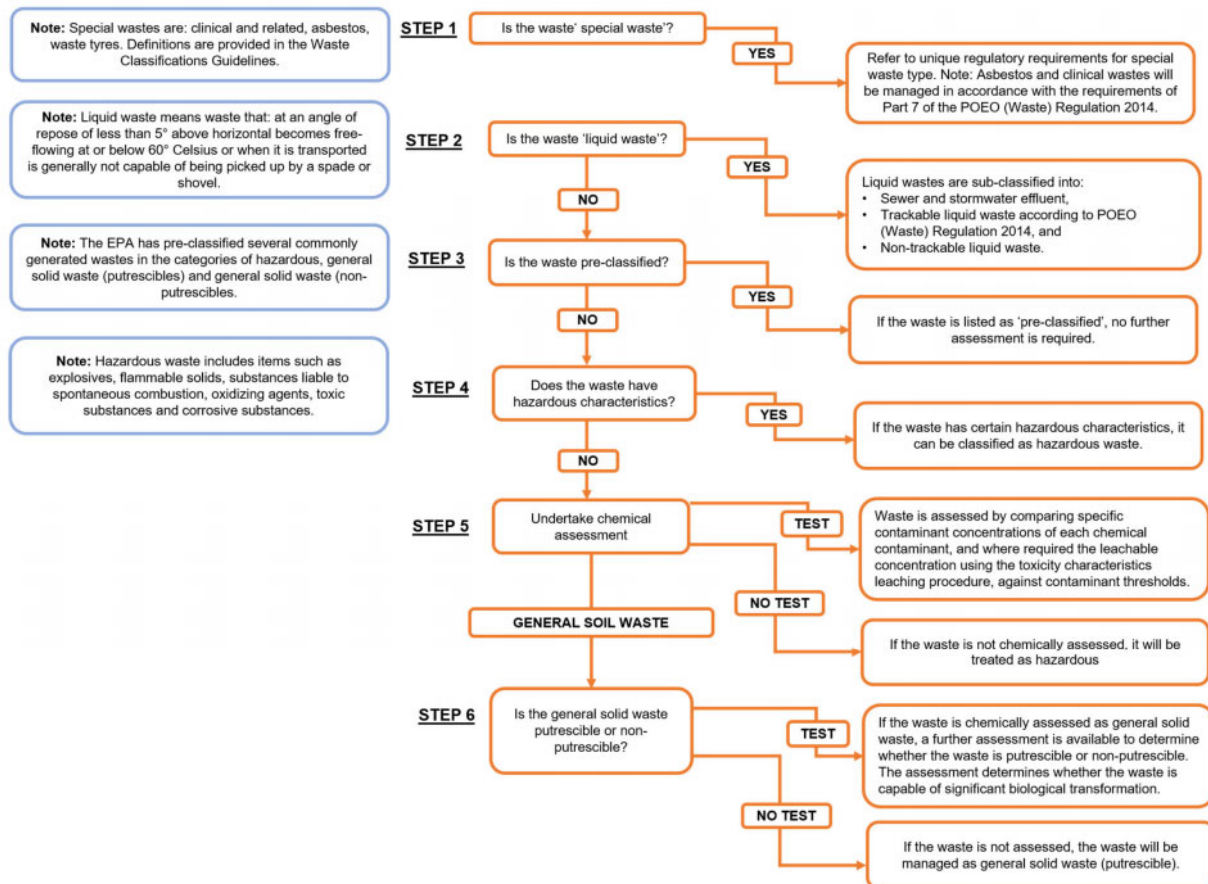


Figure 5.2 Waste classification process

5.3 Management of waste streams

The types of wastes which may be generated during construction are outlined within classifications in Table 5.1.

Table 5-1 Management of waste streams

Construction Activity	Waste Type	Waste Classification	Approx. quantity	Proposed reuse/recycling/disposal methods	Reuse / Recycle Target	Comments
Clearing and grubbing of vegetation, landscaped and/or turfed areas	Green waste	General solid waste (non-putrescible)	3,600 T	As far as practicable, weed-free green waste would be chipped, mulched and reused on site, transferred to another site (in accordance with an agreement that the waste can be legally accepted for the intended use under section 143 of the POEO Act), or collected by an authorised contractor and recycled off site.	To be included in calculations for 80% of construction and demolition waste reused / recycled target	-
Excavation and general earthworks	VENM / ENM	General solid waste (non-putrescible)	Up to 163,000 m ³ of excavated material, (subject to suitability for reuse on site)	Excavated materials would be reused on site as engineering fill where fit for purpose and practicable. Where excavated materials cannot be reused or retained on site they would be classified and taken off site for appropriate reuse or to a waste management facility that is lawfully permitted to accept that type of waste for reuse, recycling or disposal.	100%	-
	Contaminated soils (including asbestos containing materials)	Hazardous waste and/or special waste General solid waste (non-putrescible)	To be finalised after site investigations	In situ testing of soils in areas of potential contamination concern would be undertaken to determine the appropriate waste classification. Contaminated spoil may be reincorporated into the project in accordance with a RAP(s). Where not suitable for reused, contaminated spoil would be sampled before being transported and disposed of at a suitably licensed off-site location.	N/A	Contaminated material is not proposed to be recycled.
	Soils, general construction material and landfill capping material	General solid waste (non-putrescible)	To be finalised after site investigations	Where excavated materials cannot be reused or retained on site they would be classified and taken off site for appropriate reuse or to a waste management facility that is lawfully permitted to accept that type of waste for reuse, recycling or disposal.	80%	-

Construction Activity	Waste Type	Waste Classification	Approx. quantity	Proposed reuse/recycling/disposal methods	Reuse / Recycle Target	Comments
Excavation within the former Tempe landfill	VENM / ENM	General solid waste (non-putrescible) General solid waste (putrescible) (small quantities only)	90,000 m3	All excavated material suitable for reuse, from the former Tempe landfill, would be reinstated in on-site emplacement mounds where possible (to be determined during detailed design). Where excavated materials cannot be reused or retained on site they would be classified and taken off site for appropriate reuse or to a waste management facility that is lawfully permitted to accept that type of waste for reuse, recycling or disposal.	100%	-
Construction of temporary ancillary facilities, new roads, road furniture, road widening, road surfacing, installing drainage structures, retaining walls and new bridges and other construction activities	Concrete, asphalt, aggregate, timber formwork, scrap metals, cable and packaging materials	General solid waste (non-putrescible)	25,000 T	Where wastes cannot be reused or retained on site they would be classified and taken off site for appropriate reuse or to a waste management facility that is lawfully permitted to accept that type of waste for reuse, recycling or disposal.	To be included in calculations for: 80% of construction and demolition waste reused / recycled target, 100% of clean concrete beneficially reused, and 100% of clean asphalt pavement reclaimed.	-
Demolition works	Timber and steel	General solid waste (non-putrescible)	2,260 T	Where wastes cannot be reused or retained on site they would be classified and taken off site for appropriate reuse or to a waste management facility that is lawfully permitted to accept that type of waste for reuse, recycling or disposal.	To be included in calculations for 80% of construction and demolition waste reused / recycled target	-

Construction Activity	Waste Type	Waste Classification	Approx. quantity	Proposed reuse/recycling/disposal methods	Reuse / Recycle Target	Comments
Demolition works	Fibre sheeting, brick, concrete, asphalt, road base, glass	General solid waste (non-putrescible)	27,330 m ³	Where wastes cannot be reused or retained on site they would be classified and taken off site for appropriate reuse or to a waste management facility that is lawfully permitted to accept that type of waste for reuse, recycling or disposal.	To be included in calculations for: 80% of construction and demolition waste reused / recycled target, 100% of clean concrete beneficially reused, and 100% of clean asphalt pavement reclaimed.	-
Maintenance of construction plant, vehicles and equipment	Adhesives, lubricants, waste fuels and oils, engine coolant, hoses	General solid waste (non-putrescible)	1,000 L	Return to supplier where possible. Offsite disposal at an approved facility	N/A	-
	Batteries	Hazardous waste	Unknown	Offsite disposal at an approved facility / recycling at an approved facility	N/A	-
	Tyres	Special waste	> 10 T	Offsite disposal / recycling at an approved facility / in accordance with the Recovered Tyre Exemption	N/A	-
Activities at construction offices and compounds	Putrescibles (food and other organic waste)	General solid waste (putrescible)	2 T / week	Offsite disposal at an approved facility	N/A	-

Construction Activity	Waste Type	Waste Classification	Approx. quantity	Proposed reuse/recycling/disposal methods	Reuse / Recycle Target	Comments
	HDPE plastics	General solid waste (non-putrescible)	< 1 T / week	HDPE plastics such as milk bottles, chemical bottles, used IBCs, and plastic paint barrels will be source separated on-site and collected. The plastic will be redirected to a manufacturer to develop an irrigation pipe manufactured from 100% recycled HDPE plastic. As well as HDPE, collection and processing of HDPE waste at other affected stakeholder facilities, such as SYD Airport and local community facilities within Bayside and Inner West councils.	100%	Circular economy initiative
	Paper, cardboard, glass and printer cartridges	General solid waste (non-putrescible)	1 T / week	Offsite disposal at an approved facility.	40% of office waste to be diverted from landfill.	-
	Wastewater, sewage and grey water	Liquid waste	87,000 kL	Treated and reused on site when biologically and chemically suitable. If unable to be reused on site will be discharged in accordance with EPL and SSWMP water discharge criteria.	N/A	-
Dust suppression, wash down of plant and equipment	Sediment-laden and/or potentially contaminated wastewater	Liquid waste	Included above	As in accordance with SSWMP	N/A	-

5.4 Waste exemption

Clause 51 Protection of the Environment Operations (Waste) Regulation 2005 enables the EPA to grant exemptions to the licensing and payment of levies for the land application or use of waste. The EPA has issued general exemptions for a range of commonly recovered, high volume and well characterised waste materials that allow their use as fill or fertiliser at unlicensed, off-site facilities. The general Resource Recovery Exemptions and Orders may be applicable to this project are defined in Table 5.2 below. These are general gazette exemptions that do not require approval. A specific exemption may be granted where an application is made to the EPA.

Table 5.2 - Waste Recovery Exemptions and Orders, and associated conditions relevant to the project

Exemption/Order	General Conditions
Effluent Exemption 2014 Effluent Order 2014	The effluent can only be applied to land for the purposes of irrigation or as a soil amendment material. The consumer must apply the effluent within a reasonable period of time.
The excavated natural material exemption 2014 The excavated natural material order 2014	The chemical concentration or other attributes of the excavated natural material listed in the Excavated Natural Material Exemption must not be exceeded. The excavated natural material can only be applied to land as engineering fill or used in earthworks. ENM handling, processing and testing requirements are outlined in detail in the exemption.
The excavated public road material exemption 2014 The excavated public road material order 2014	The excavated public road material can only be stored within the road corridor at the site where it is to be applied to land. The excavated public road material can only be applied to land within the road corridor for public road related activities including road construction, maintenance and installation of road infrastructure facilities. This exemption does not apply to the land application of excavated public road material on any land outside the road corridor. The excavated public road material cannot be applied on private land. The consumer must land apply the relevant waste within a reasonable period of time.
The mulch exemption 2016 The mulch order 2016	The raw mulch can only be applied to land for the purposes of filtration or as a soil amendment material or used either singularly or in any combination as input material(s) to a composting process. The consumer must land apply the raw mulch within a reasonable period of time.

<p>The recovered aggregate exemption 2014</p> <p>The recovered aggregate order 2014</p>	<p>The chemical concentration or other attribute of the recovered aggregate listed in the Recovered aggregate Exemption must be met.</p> <p>The recovered aggregate can only be applied to land for road making activities, building, landscaping and construction works. This approval does not apply to any of the following applications:</p> <p>Construction of dams or related water storage infrastructure,</p> <p>Mine site rehabilitation,</p> <p>Quarry rehabilitation,</p> <p>Sand dredge pond rehabilitation,</p> <p>Back-filling of quarry voids,</p> <p>Raising or reshaping of land used for agricultural purposes, and</p> <p>Construction of roads on private land unless: the relevant waste is applied to land to the minimum extent necessary for the construction of a road, and a development consent for the development has been granted under the relevant Environmental Planning Instrument (EPI), or it is to provide access (temporary or permanent) to a development approved by a Council, or the works undertaken are either exempt or complying development.</p>
<p>The blast furnace slag exemption 2014</p> <p>The blast furnace slag order 2014</p>	<p>Blast furnace slag or blended slag can only be applied to land in cementitious mixes such as concrete or in non-cementitious mixes such as an engineering fill in earthworks or roadmaking activities.</p>
<p>The reclaimed asphalt pavement exemption 2014</p> <p>The reclaimed asphalt pavement order 2014</p>	<p>Reclaimed asphalt can only be applied to land for road related activities including road construction or road maintenance</p>

6 Resource management and conservation

As stated in the EIS/MDP Section 23.3.1, significant quantities of materials, water and electricity are expected to be required for the construction of the Project. Consequently, the EIS/MDP identified that resource consumption and waste generated by the Project could also contribute to the emission of greenhouse gases during construction.

Construction materials would likely be sourced from offsite suppliers, however locally sourced construction materials will be prioritised for use where practical to minimise haulage distances and the associated impacts on traffic in the area.

Water for the Project would, for example, be sourced (in order of general preference) from stormwater harvesting (non-potable water), on site construction water treatment and reuse (non-potable water) and mains supply (potable water). It is anticipated that the local water supply network would have sufficient capacity to accommodate water requirements.

Similarly, power requirements are expected to be significant during construction of the Project, however local substations are expected to have the required capacity to supply the construction ancillary facilities without affecting the local supply network.

6.1 Resource Management

The general resource recovery principles that will govern the management and conservation of resources are:

- Recovery of resources for reuse - reusable materials generated by the Project will be segregated for reuse on site, or off site where possible,
- Recovery of resources for recycling - recyclable resources (such as metals, plastics and other recyclable materials) generated during construction and demolition will be segregated for recycling and sent to an appropriate recycling facility for processing, and
- Recovery of resources for reprocessing cleared vegetation will be mulched or chipped on site and used for landscaping, in the absence of a higher beneficial use being identified.

The Project will commit to implementing the resource recovery principles stated above during construction of the Project. These practices include:

- Monitoring and recording quantities of materials used, waste to be beneficially reused and waste to be recycled during the construction stage,
- Conducting awareness programs for all site personnel regarding energy conservation methods,
- Capitalise on opportunities to reduce material use and maximise the use of materials with low environmental impact,
- Maximise the use of reused/recycled timber products and timber from sustainably managed forests that have obtained Forest Management Certification (FMC) which will also contribute towards Infrastructure Sustainability Council of Australia (ISCA) Rating Tool IS Materials Credits as an "Environmentally labelled products and supply chains",
- Optimise the amount of cement replacement material used in concrete,
- Optimise the amount of recycled material used in road base and sub-base,
- Preference would be given to the use of non-potable water over potable water in accordance with workplace health and safety considerations, economic feasibility, the functional specifications of the design, and non-potable water availability, and

- Non-potable water will be used where possible during construction for dust suppression and end of-project landscaping.

With the adoption of these principles, the Project would minimise long-term impacts through the sustainable use of construction materials, water resources, electricity consumption and consequently reduce greenhouse gas emissions.

7 Environmental control measures

Specific measures and requirements to meet the objectives of this WRMP and to address contract specifications, CoA and EMM's are outlined in Table 7-1.

Table 7-1 Waste, energy, and water management and mitigation measures

ID	Measure/Requirement	Resources needed	When to implement	Responsibility	Reference	Evidence
WM1	Excavated materials would be reused on site as engineering fill where fit for purpose and practicable.	N/A	Pre-construction / Construction	E&S Manager or delegate Foreman	EIS/MDP Chapter 24	Waste Tracking Register
WM2	A Construction Waste Management Plan will be prepared as part of the CEMP and implemented during construction. The plan will adopt the waste hierarchy principles contained in the Waste Avoidance and Resource Recovery Act 2001 and will detail processes, responsibilities and measures to manage waste and minimise the potential for impacts during construction.	Waste Management Plan	Pre-construction	E&S Manager or delegate	UMMs	This plan
WM3	Construction waste will be minimised by accurately calculating materials brought to the site and limiting materials packaging where possible.	N/A	Construction	E&S Manager or delegate	UMMs	Procurement strategies
WM4	All waste disposal will be in accordance with the Waste Classification Guidelines (NSW EPA, 2014).	Waste Classification Guidelines (NSW EPA, 2014)	Construction	E&S Manager or delegate	UMMs	Waste Tracking Register

ID	Measure/Requirement	Resources needed	When to implement	Responsibility	Reference	Evidence
WM5	<p>The following measures would be implemented during works at the former Tempe landfill to avoid attracting wildlife:</p> <ul style="list-style-type: none"> • Staging the excavation to minimise the amount of exposed waste at any one time • Minimising the size and area of exposed stockpiles • Ensuring material that has been disturbed, uncapped, or temporarily stockpiled is suitably covered at the end of each day. 	N/A	Construction	E&S Manager or delegate Foreman	UMMs	<p>Project design</p> <p>Site inspection reports</p>
WM6	Suitable areas will be identified to allow for contingency management of unexpected waste materials, including contaminated materials. Areas will be hardstand or lined areas that are appropriately stabilised and bunded, with sufficient space for stockpile storage	Suitable areas for contaminated material stockpiling	Construction	E&S Manager or delegate Foreman	UMMs	Site layout plans in the CEMP

ID	Measure/Requirement	Resources needed	When to implement	Responsibility	Reference	Evidence
WM7	<p>Waste generated during construction and operation must be dealt with in accordance with the following priorities:</p> <p>a) Waste generation must be avoided and where avoidance is not reasonably practicable, waste generation must be reduced;</p> <p>b) Where avoiding or reducing waste is not possible, waste must be re-used, recycled or recovered; and</p> <p>c) Where re-using, recycling or recovering waste is not possible, waste must be treated and disposed of.</p>	WRMP Waste Tracking Register	Construction	E&S Manager or delegate Foreman	CoA E87 RMS QA Specification G36 4.11.1	Waste Tracking Register
WM8	The importation of waste and the storage, treatment, processing, reprocessing or disposal of such waste must comply with the conditions of an EPL applying to the CSSI, or be done in accordance with a Resource Recovery Exemption or Order issued under the Protection of the Environment Operations (Waste) Regulation 2014, as the case may be.	EPL	Construction	E&S Manager or delegate Foreman	CoA E88	EPL Waste Tracking Register

ID	Measure/Requirement	Resources needed	When to implement	Responsibility	Reference	Evidence
WM9	Waste must only be exported to a site licensed by the EPA for the storage, treatment, processing, reprocessing or disposal of the subject waste, or in accordance with a Resource Recovery Exemption or Order issued under the Protection of the Environment Operations (Waste) Regulation 2014, or to any other place that can lawfully accept such waste.	Resource Recovery Exemptions or Orders	Construction	E&S Manager or delegate Foreman	CoA E89 RMS QA Specification G36 4.11.4	Waste Tracking Register Receipts Sect 143 Forms
WM10	All waste generated during construction and operation must be classified in accordance with the EPA's Waste Classification Guidelines, with appropriate records and disposal dockets retained for audit purposes.	Waste Classification Guidelines (NSW EPA, 2014)	Construction	E&S Manager or delegate Foreman	CoA E90 RMS QA Specification G36 4.11.1	Waste Tracking Register Receipts

ID	Measure/Requirement	Resources needed	When to implement	Responsibility	Reference	Evidence
WM11	<p>The proponent must develop and implement a waste tracking register that details:</p> <ul style="list-style-type: none"> a) The quantity of each type of waste generated, its classification and source location (recorded using latitude and longitude coordinates); b) The destination location(s) for all wastes generated during construction; c) The quantities of any waste types imported onto the CSSI site, including their classification and emplacement location (recorded using latitude and longitude coordinates); d) The quantities and types of wastes that are subject to a Resource Recovery Order and/or Exemption; and e) Disposal records demonstrating that receiving facilities have lawfully accepted the waste type. 	Waste Tracking Register	Construction	E&S Manager or delegate Foreman	CoA E91 RMS QA Specification G36 4.11.2	Waste Tracking Register Receipts
WM12	An annual WARR report will be submitted containing information relating to wastes generated or recycled in accordance with Roads and Maritime QA Specification G36 Annexure G36/F.	WARR Report	Construction	E&S Manager or delegate Foreman	RMS QA Specification G36 4.11.3	Waste Tracking Register Receipts

ID	Measure/Requirement	Resources needed	When to implement	Responsibility	Reference	Evidence
WM13	A portion of the material excavated from the former Tempe landfill would be reinstated in on-site emplacement mounds where possible (see further information in section 7.10.2).	N/A	Pre-construction / Construction	E&S Manager or delegate Foreman	EIS/MDP Chapter 24	Waste Tracking Register
WM14	Wastewater, sewage, and grey water would be disposed to sewer or transported to an appropriately licensed liquid waste treatment facility.	N/A	Construction	E&S Manager or delegate Foreman	EIS/MDP Chapter 24	Waste Tracking Register Receipts
WM15	Tyres would be collected by an authorised contractor for recycling or disposal off site at an appropriately licenced facility.	N/A	Construction	E&S Manager or delegate Foreman	EIS/MDP Chapter 24	Waste Tracking Register Receipts
WM16	Waste from construction vehicle and plant maintenance activities would be collected and stored in designated waste storage areas for collection by an authorised contractor for disposal off site. Any potentially hazardous waste would be stored separately in clearly labelled receptacles and disposed of in accordance with its waste classification.	Appropriate receptacles for segregation	Construction	E&S Manager or delegate Foreman	EIS/MDP Chapter 24	Waste Tracking Register Receipts
WM17	Recyclable materials such as paper, cardboard, plastics, glass, ferrous, and non-ferrous containers would be stored at recycling bins for collection by an authorised contractor, and recycled off site.	Appropriate receptacles for segregation	Construction	E&S Manager or delegate Foreman	EIS/MDP Chapter 24	Waste Tracking Register Receipts

ID	Measure/Requirement	Resources needed	When to implement	Responsibility	Reference	Evidence
WM18	Where recycling is not feasible, waste would be collected and stored in designated waste storage areas for collection by an authorised contractor for disposal off site at a licenced waste facility	Appropriate receptacles for segregation	Construction	E&S Manager or delegate Foreman	EIS/MDP Chapter 24	Waste Tracking Register Receipts
WM19	Waste oil and oil filters would be stored in separate recycling bins and collected by an authorised contractor, and recycled off site, where feasible.	Appropriate receptacles for segregation	Construction	E&S Manager or delegate Foreman	EIS/MDP Chapter 24	Waste Tracking Register Receipts
WM20	Extracted groundwater would be managed in accordance with a dewatering management strategy	N/A	Construction	E&S Manager or delegate Foreman	EIS/MDP Chapter 24	Dewatering Management Strategy
WM21	As far as practicable, weed-free green waste would be chipped, mulched and reused on site, transferred to another site (in accordance with an agreement that the waste can be legally accepted for the intended use under section 143 of the POEO Act), or collected by an authorised contractor and recycled off site.	Section 143 of the POEO Act	Construction	E&S Manager or delegate Foreman	EIS/MDP Chapter 24	Waste Tracking Register Receipts
WM22	Asbestos waste management will be undertaken in accordance with the relevant legislations and guidelines.	Asbestos Management Plan	Construction	E&S Manager or delegate Foreman	EIS/MDP Chapter 24	Safety Inspections

ID	Measure/Requirement	Resources needed	When to implement	Responsibility	Reference	Evidence
WM23	A Deconstruction Plan would be developed prior to operation to assist with the material identification and handling considerations in accordance with the requirements detailed in V1.2 IS Technical Manual.	Deconstruction Plan	Prior to Operation	E&S Manager or delegate Foreman	EIS/MDP Chapter 24	Deconstruction Plan

8 Compliance management

8.1 Roles and responsibilities

The JHSWJV Project Team's organisational structure and overall roles and responsibilities are outlined in Section 3.3 of the CEMP. Specific responsibilities for the implementation of environmental controls are detailed in Table 2 of this Plan.

8.2 Training

All employees, contractors and staff working on site will undergo site induction training, which will include information relating to waste and resource management issues. The induction training will address elements related to waste and resource management including:

- Existence and requirements of this plan,
- Existence and requirements of other management plans and guidelines such as the Unexpected Contaminated Lands and Asbestos Finds Procedure, the Sustainability Strategy,
- Relevant legislation and guidelines,
- Roles and responsibilities for waste management,
- Incident response, management and reporting,
- Waste reporting requirements,
- Requirements of the waste hierarchy,
- Waste/recycle storage requirements,
- Energy and resource use efficiency best practices,
- Potential for contaminated material to be present on site and management requirements if such material is identified; and
- Expectations for targets relevant to waste and resource management including ISCA targets.

Targeted training in the form of toolbox talks or specific training will also be provided to personnel with a key role in waste management.

Further details regarding staff induction and training are outlined in Section 3.5 of the CEMP.

8.3 Monitoring and inspection

Compliance with the requirements of this CWRMP, its implementation and effectiveness will be monitored through:

- Regular inspections of worksite and activities,
- JHSWJV Environmental Inspections which occur weekly (or more depending on works/weather conditions),
- Internal and external audits, including regular audits of appointed Project Waste Management Contractor(s) and waste disposal facilities; and
- Compliance Tracking Report (6 monthly).

Additional requirements and responsibilities in relation to inspections are documented in Section 3.9.1 and Section 3.9.2 of the CEMP. Inspection and monitoring requirements relevant to waste management for the Project are identified in Table 8.1.

Table 8-1 Inspection and monitoring requirements

Item	Frequency	Standards	Records	Responsibility
Asbestos survey	As required, prior to demolition	Inspection to be undertaken by a qualified asbestos surveyor	Reporting as per Asbestos Management Plan	Safety Manager
Site inspections	Weekly	Waste Classification Guidelines (EPA 2014) TfNSW fact sheets	Environmental Inspection Checklist	Environment, Approvals and Sustainability Manager or delegate
Site inspections	Fortnightly	Implementation of this plan	Environmental Representative inspection report	ER
Site inspections	As required	Implementation of this plan	TfNSW inspection report	TfNSW
Visual surveillance	Daily	Storage containers (bins, skips, tanks, etc.) in sufficient numbers to facilitate segregation Correct bin type used Containers clearly sign posted Containers emptied at sufficient frequency	Foreman's logbook and photos as relevant	Foreman Environment, Approvals and Sustainability Manager or delegate

8.4 Auditing

Audits (both internal and external) will be undertaken to assess the effectiveness of environmental controls, compliance with this sub plan, CoA and other relevant approvals, licenses and guidelines.

In accordance with the ISCA waste management requirements, as detailed in the Sustainability Strategy, external audits of the waste management system will be undertaken at least annually.

Audit requirements are detailed in Section 3.9.3 of the CEMP.

8.5 Reporting

Reporting requirements and responsibilities are documented in Section 3.9.5 of the CEMP. Subcontractors will supply all required data to the delivery team including data for waste movements to inform the Waste and Spoil Management Tracking Register.

Reporting requirements relevant to waste management are identified in Table 8.2.

Table 8-2 Reporting Requirements

Item	Frequency	Standards	Records	Responsibility
Diesel Plant and Equipment Reporting	Annual	Roads and Maritime QA Specification G36 Section 4.4.2 and GREP reporting tool	Reporting on the conformity, or otherwise, of mobile nonroad diesel plant and equipment used for the work under the deed. Prepared in accordance with the GREP "Clean Air Data Management Tool1".	Environment, Approvals and Sustainability Manager
NGER Reporting	Annual	NGER Scheme	Required report information including: Diesel usage, Electricity from site generators, Bitumen and asphalt produced, and Amount of acetylene.	Environment, Approvals and Sustainability Manager
Sustainability / resource consumption monitoring	As specified in the Sustainability Management Plan	As specified in the Sustainability Management Plan	As specified in the Sustainability Management Plan	Sustainability Manager
WARR Reporting	Annual	Roads and Maritime Specification G36 Annexure G36/F	Reporting will include the following three components to the report to be addressed: Purchasing data: data on the amount of material purchased by the Project to enable construction works listed under the deed Waste and recycling data: data on the amount of material generated and recycled by JHSWJV in the course of completing work under the deed Project initiatives and barriers: provide information taken to reduce waste, recycle resources and purchase recycled content materials in the course of completing work under the deed.	Environment, Approvals and Sustainability Manager

9 Review and improvement

9.1 Continuous improvement

Continuous improvement of this Plan will be achieved by the ongoing evaluation of environmental management performance against environmental policies, objectives and targets for the purpose of identifying opportunities for improvement.

The continuous improvement process will:

- Identify areas of opportunity for improvement of environmental management and performance.
- Determine the cause or causes of non-conformances and deficiencies.
- Develop and implement a plan of corrective and preventative action to address any non-conformances and deficiencies.
- Verify the effectiveness of the corrective and preventative actions.
- Document any changes in procedures resulting from process improvement.
- Make comparisons with objectives and targets.

9.2 CWRMP update and amendment

The processes described in Section 3.9 to Section 3.13 of the CEMP may result in the need to update or revise this Plan. This will occur as needed.

Only the Environment, Approvals and Sustainability Manager, or delegate, has the authority to change any of the environmental management documentation.

A copy of the updated plan and changes will be distributed to all relevant stakeholders in accordance with the approved document control procedure – refer to Section 3.11.2 of the CEMP.

Appendix A – Waste Tracking Register

[illegible]



Appendix B – Waste Management Disposal Facilities

To be updated where required as new facilities/contractors are onboarded.

Waste Contractor	Licence No.	Waste Facility(s)	Waste Facility Licence No.
SJ Read	12763	Bingo Bins PTY LTD (McPherson Recycling PTY LTD)	12857
Environmental Treatment Solutions PTY LTD	13230	OneSteel Recycling PTY LTD	872
Cleanaway Operations PTY LTD	4560	SUEZ Recycling & Recovery PTY LTD	4068
SITA Australia	12889	Cleanaway Co Pty Ltd St Marys Waste Treatment facility	20271
BINGO Recycling	20392	Synergy Resource Management	20906
SAF Group	21499	Sydney Recycling Park	12901
		MET Recycling	20948
		Boral Recycling	6893
		Veolia Environmental Services PTY LTD Horsley Park Waste Management Facility	11584
		Veolia Environmental Services PTY LTD Horsley Park Resource Recovery Facility	20339
		Dial-a-dump PTY LTD Genesis Facility	13426
		Dial-a-dump PTY LTD	4679
		Sell & Parker PTY LTD	11555
		Concrete Recyclers (GROUP) PTY LTD	6664

Appendix C – Section 143 Notice Pro-Forma

**ORIGINAL: TO BE COMPLETED BY LANDOWNER AND GIVEN TO WASTE
TRANSPORTER OR DISPLAYED AT WASTE FACILITY****APPROVED NOTICE UNDER SECTION 143****PROTECTION OF THE ENVIRONMENT OPERATIONS ACT 1997**

WARNING: If you sign this notice it could be used as a defence by a transporter if they deposit waste on your land. It does not give you a defence. It is an offence to provide false or misleading information about waste (section 144AA)

I (full name)

am the owner and/or occupier (delete if not applicable) of (insert street address and/or folio identification number of place):

.....

certify that this place can lawfully be used as a waste facility for the waste(s) specified in the following table.

(Note: you must clearly state the exact type. Do not use terms like 'fill' or 'clean fill'.)

Table of specified wastes

Type of waste e.g. virgin excavated natural material	Classification of waste e.g. general solid waste	Amount of waste e.g. 50 tonnes
.....
.....
.....
.....

Before signing this notice you should read the back of this form for important information about offences.

Signature

Signature

Name

Name

Position title (e.g.
director, owner,
occupier)

Position title (e.g.
director, owner,
occupier)

ACN

ACN

Date

Date

Note that only one signature is required if the person signing this notice is not signing on behalf of a company.

**Lawful authority to use place as waste facility for the specified waste**

The place can lawfully be used for the types of waste described in the notice ~~because~~ (Delete whichever is not applicable):

A. This use is permitted by EPA licence number

Or

An EPA licence is not required (for example, a resource recovery exemption may apply)

And because (Delete whichever is not applicable):

B. The place has consent or approval under the *Environmental Planning and Assessment Act 1979* for the uses described in the table above.

Or

The place can be used as a waste facility without consent or approval under the *Environmental Planning and Assessment Act 1979*.

The use(s) for the waste at the place are:

Land owners and occupiers should note that it is an offence to use land as a waste facility without lawful authority, see section 144 of the *Protection of the Environment Operations Act 1997* (POEO Act). It is also an offence to carry out an activity listed in Schedule 1 to the POEO Act without an Environment Protection Licence when one is required (see section 48). Offences carry a maximum penalty of \$250,000 for an individual and \$1,000,000 for a corporation. In the case of a continuing offence, a further penalty applies for each day the offence continues, being \$60,000 for an individual and \$120,000 for a corporation.

Regardless of this notice, any person who carries out any development or activity on land involving waste must ensure they comply with any planning requirements including obtaining any planning consent or approval and complying with any conditions attached to that consent or approval

Information about this notice

Waste is a very broad concept under the law and covers many types of materials you may not think of as waste; for example, it covers waste tyres, building and demolition materials and virgin excavated natural material.

Under the POEO Act, a waste facility includes any premises used for storage, treatment, processing, sorting or disposal of waste. For example, if you are planning to build a road or dam, or fill a gully, this could involve using your place as a waste facility.

Section 143 of the POEO Act makes it an offence to transport waste to a place that cannot lawfully be used as a waste facility for that waste. The notice above is the approved notice under section 143 (3A) of the POEO Act. If you sign this notice it may be used as a defence by a transporter if they are charged with unlawfully transporting or depositing waste on your land. It does not give you a defence to using your land as a waste facility without lawful authority.

If you sign this notice, you should give it to the transporter or display it at the waste facility. The transporter should keep the original and you should keep a copy.

If the landowner or occupier signing this notice is a company, the full name of the company and ACN should be used and the notice must be executed in accordance with the Corporations Law.

If you operate an unlicensed landfill site for business or commercial purposes you should contact the EPA to discuss reporting and operating requirements.

If you are not sure if you require an EPA licence you can ring the Environment Line on 131 555.

You are likely to need development consent to use your land as a waste facility. If you are not sure if you require development consent you should contact your local council.

**COPY: TO BE KEPT BY LANDOWNER AND KEPT FOR RECORDS****APPROVED NOTICE UNDER SECTION 143****PROTECTION OF THE ENVIRONMENT OPERATIONS ACT 1997**

WARNING: If you sign this notice it could be used as a defence by a transporter if they deposit waste on your land. It does not give you a defence. It is an offence to provide false or misleading information about waste (section 144AA)

I (full name)

am the owner and/or occupier (delete if not applicable) of (insert street address and/or folio identification number of place):

.....

certify that this place can lawfully be used as a waste facility for the waste(s) specified in the following table.

(Note: you must clearly state the exact type. Do not use terms like 'fill' or 'clean fill'.)

Table of specified wastes

Type of waste e.g. virgin excavated natural material	Classification of waste e.g. general solid waste	Amount of waste e.g. 50 tonnes
.....
.....
.....
.....

Before signing this notice you should read the back of this form for important information about offences.

Signature	Signature
Name	Name
Position title (e.g. director, owner, occupier)	Position title (e.g. director, owner, occupier)
ACN	ACN
Date	Date

Note that only one signature is required if the person signing this notice is not signing on behalf of a company.

Appendix B2. Air Quality Management Plan

Appendix B8

SGWPW-JHSW-NWW-PM-PLN-000509

**Air Quality Management Sub Plan – SSI
9737**

Sydney Gateway Road Project

February 2021

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Document control

Approval and authorisation

Title	Air Quality Management Sub-Plan
Endorsed by Environment Representative	Cameron Weller Hutchison Weller Pty Ltd
Signed	
Dated	
Approved on behalf of NSW Transport for New South Wales (TfNSW) by	Mark Stevenson Project Director
Signed	
Dated	
Approved on behalf of JHSWJV by	Ivan Karaban Project Director
Signed	
Dated	

Document Number: SGWPW-JHSW-NWW-PM-PLN-000509

Document status

Revision	Date	Description	Approval
A	18/12/20	Draft for review	-
B	21/12/20	For circulation to ER, TfNSW and IV	IK
C	12/02/21	Updated as per TfNSW & ER comments	IK
0	15/02/21	Final for Information	IK

Distribution of controlled copies

This AQMP as part of the CEMP is available to all personnel and sub-contractors via the Project document control management system. An electronic copy can be found on the Project website.

The document is uncontrolled when printed. One controlled hard copy of the AQMP as part of the CEMP and supporting documentation will be maintained by the Quality Manager at the Project office (and on the Project website).

Copy number	Issued to	Version
1	Transport for New South Wales	
2	Independent Verifier	
3	Environmental Representative	
4	Project Director	
5	Environment and Sustainability Manager	

Glossary/ Abbreviations

Abbreviations	Expanded text
AQMP	Air Quality Management Sub-Plan
BOM	Australian Government Bureau of Meteorology
CEMP	Construction Environmental Management Plan
CoA	Conditions of Approval
CSSI	Critical State Significant Infrastructure
DDG	Dust Deposition Gauge
DDMP	Dust Deposition Monitoring Program
DP&E	NSW Department of Planning and Environment (now DPIE)
DPI	NSW Department of Primary Industries (now DPIE)
DPIE	NSW Department of Planning, Industry and Environment
EIS	Environmental Impact Statement
EMS	Environmental Management System
EPL	Environmental Protection License
EPA	NSW Environment Protection Authority
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
ER	Environmental Representative
EWMS	Environmental Work Method Statements
GREP	Government Resource Efficiency Policy
JHET	John Holland Event Tracker
JHSWJV	John Holland Seymour Whyte Joint Venture
MDP	Major Development Plan
PIRMP	Pollution Incident Response Management Plan
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
TWP	Technical Working Paper
TfNSW	Transport for NSW (formerly Roads and Maritime Services)
UMM	Updated Management Measures

1 Introduction

1.1 Context

This Air Quality Management Sub Plan (AQMP or Plan) forms part of the Construction Environmental Management Plan (CEMP) for Design and Construction of Sydney Gateway Stage 1 & 3 (the Project).

This AQMP has been prepared to address the requirements of the Minister's Conditions of Approval (CoA), the environmental management measures listed in the Projects combined Environmental Impact Statement (EIS) / Major Development Plan (MDP), Updated Management Measures (UMM's) from the Submissions Report and all applicable legislation and TfNSW requirements.

Note – this Plan has been developed specifically for works occurring within NSW State land under approval SSI 9737, which, is administered by the NSW Department of Planning, Industry and Environment (DPIE). Works occurring within Commonwealth land are detailed in the Air Quality Management Plan – Commonwealth.

1.2 Environmental management systems overview

The Environmental Management System (EMS) overview is described in Section 1.5 of the CEMP. The EMS also incorporates the project specific CEMP and sub-plans, strategies, procedures and environmental work method statements (EWMS). The EMS form management guides that clearly identify required environmental management actions for implementation by JHSWJV personnel and contractors.

1.3 Background

1.3.1 Background

Transport for NSW (TfNSW) have gained approval to deliver a high capacity road connection linking the Sydney motorway network at St Peters interchange with Sydney Airport's domestic and international terminals and the Port Botany Precinct. The Project is located on both State and Commonwealth land.

For areas on State land, the Project was declared to be critical State significant infrastructure (CSSI) under the *Environmental Planning and Assessment Act 1979* (NSW) (EP&A Act) and was approved by the NSW Minister for Planning and Public Spaces on 27 August 2020.

Commonwealth approval under the *Airports Act 1996* (the *Airports Act*) was granted by the Australian Minister for Infrastructure, Transport and Regional Development on 23 September 2020.

John Holland Seymour White Joint Venture (JHSWJV) have been contracted by Transport for New South Wales (TfNSW) for the Design and Construction of Sydney Gateway Stage 1 & Stage 3 (the Project).

1.3.2 Project Objectives

The primary objective of Sydney Gateway is to support sustainable growth in the economy and cater for projected increases in passengers and freight demand. This will be achieved by improving connectivity between the regional growth and freight distribution centres in western Sydney and the Sydney Airport and Port Botany area. The objectives of the Sydney Gateway road project are to:

- Improve connectivity to Sydney Airport terminals by providing high capacity direct road connections that cater for forecast growth in passenger and air freight volumes.

- Support the efficient distribution of freight to and from Sydney Airport and Port Botany to logistic centres in Western Sydney.
- Improve the liveability of Mascot town centre by reducing congestion and heavy vehicle movements on the local road network.

1.3.3 Detailed Description

The Project is located about eight kilometres south of the Sydney Central Business District, in the suburbs of Tempe, St Peters and Mascot. It sits within the boundaries of the Inner West, City of Sydney and Bayside local government areas.

The key features of the Project are illustrated in Figure 1-1, which include:

- Road links to provide access between the Sydney motorway network and Sydney Airport's terminals, consisting of the following components:
 - St Peters interchange connection – a new elevated section of road extending from St Peters interchange to the Botany Rail Line, including an overpass over Canal Road.
 - Terminal 1 connection – a new section of road connecting Terminal 1 with the St Peters interchange connection, including a bridge over Alexandra Canal and an overpass over the Botany Rail Line.
 - Qantas Drive upgrade and extension – widening and upgrading Qantas Drive to connect Terminals 2/3 with the St Peters interchange connection, including a high-level bridge over Alexandra Canal.
- Terminal links – two new sections of road connecting Terminal 1 and Terminals 2/3, including a bridge over Alexandra Canal.
- Terminals 2/3 access – a new elevated viaduct and overpass connecting Terminals 2/3 with the upgraded Qantas Drive.
- Road links to provide access to Sydney Airport land:
 - A new section of road and an overpass connecting Sydney Airport's northern lands on either side of the Botany Rail line (the northern lands access)
 - A new section of road, including a signalised intersection with the Terminal 1 connection and a bridge, connecting Sydney Airport's existing and proposed freight facilities on either side of Alexandra Canal (the freight terminal access)
- An active transport link, about 1.5 kilometres long and located along the western side of Alexandra Canal and section along Qantas Drive, to maintain connections between Sydney Airport, Mascot and the Sydney central business district.
- Intersection upgrades and/or modifications.
- Construction of operational ancillary infrastructure including maintenance bays, new and upgraded drainage infrastructure, signage and lighting, retaining walls, noise barriers, flood mitigation basin, emplacement mounds, utility works and landscaping.



2 Purpose and objectives

2.1 Purpose

The purpose of this Plan is to describe how the JHSWJV proposes to manage and protect air quality during construction of the Project.

2.2 Objectives

The key objective of the AQMP is to ensure all requirements relevant to air quality are captured, scheduled and assigned responsibility as outlined in:

- The combined Environmental Impact Statement (EIS) / Major Development Plan (MDP) prepared for the Sydney Gateway Project – Stages 1 & 3.
- Conditions of Approval for SSI 9737 issued by the Minister for Planning and Public Spaces (NSW), on 27 August 2020.
- Updated Mitigation Measures (UMM) detailed in the Response to Submissions Report.
- Roads and Maritime specifications G36, G38 and G40.
- The Project's Environmental Protection Licence (EPL).
- Relevant legislation and other requirements described in Section 3.1 of this Plan.

2.3 Targets

The following targets have been established for the management of air quality impacts during the delivery of the Project. To achieve this outcome, JHSWJV will meet the targets as outlined below.

- Ensure compliance with the relevant legislative requirements, CoA and UMM.
- Meet environment protection licence (EPL) requirements.
- Effective management of dust, odour and other emissions during construction.
- Ensure training is provided in the form of inductions to relevant Project personnel relating to air quality issues, before they begin work on site.
- Implement reasonably practicable measures to minimise the emission of dust and other air pollutants during construction.
- No exceedance of dust deposition gauge (DDG) criteria attributable to the Project.

3 Environmental requirements

3.1 Relevant legislation and guidelines

3.1.1 Legislation

All legislation relevant to this AQMP is included in Section 3.2.2 of the CEMP.

3.1.2 Guidelines and standards

The main guidelines, specifications and policy documents relevant to this plan include:

- National Environment Protection Councils (NEPC) – National Environment Protection Measure (NEPM) for Ambient Air Quality Guidelines.
- AS 3580.1.1-2007 Methods of Sampling Analysis of Ambient Air. Part 1.1 Guide to Siting Air Monitoring Equipment.
- AS/NZS 3580.10.1 2016, Methods for sampling and analysis of ambient air – Determination of particulars – Deposited Matter – Gravimetric method.
- Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (DEC 2005).
- Managing Urban Stormwater: Soils and Construction, Volume 1 (Landcom 2004) and Volume 2 (DECC 2008) (the “Blue Book”).
- Roads and Maritime QA Specification G36 – Environmental Protection (Management System).
- Roads and Maritime QA Specification G38 – Soil and Water Management (Soil and Water Management Plan).

3.2 Air quality criteria

Air quality criteria are used to assess the potential for ambient air quality to give rise to adverse health or nuisance effects. Emissions from construction equipment, vehicles and aircraft are likely to impact local air quality. Landfill gas and odours from Tempe Tip is also a Project risk however, this is dealt with specifically in the Landfill Leachate, Gas and Odour Management Plan required under CoA C5(f).

The acceptable increment in annual average dust deposition depends on the existing deposition level. These are based on research by Dean (1990) and other investigations, which detail community response to dust fallout. It should be remembered that the air quality goals relate to the total dust burden in the air and not just the dust from the Project. In other words, there needs to be some consideration of background levels when using these goals to assess impacts. The air quality monitoring criteria for the Project is listed in Table 3-1 which is sourced from DECCW guideline – *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales (DECCW 2005)*.

Table 3-1: Air quality monitoring criteria for construction phase of the Project

Pollutant	Annual Concentration		Source
Deposited dust ^a	2 g/m ² /month ^b	4 g/m ² /month ^c	NERDDC (1998)

Note:

- Dust is assessed as insoluble solids as defined by AS 3580.10.1-1991 (AM-19).
- Maximum increase in deposited dust level.
- Maximum total deposited dust level.

Other dust monitoring analytes such as PM₁₀, PM_{2.5} are not considered to be necessary due to the minimal amount of sensitive residential receivers located directly adjacent to the Project.

3.3 Conditions of Approval – SSI 9737

The Conditions of Approval (CoA) relevant to this Plan are listed in Table 3-2 below. A cross reference is also included to indicate where the condition is addressed in this Plan or other Project management documents.

Table 3-2: Conditions of Approval relevant to the AQMP

Source	Requirement	Document Reference
Ministers Conditions of Approval – E1	In addition to the performance outcomes, commitments and mitigation measures specified in the documents listed in Condition A1, all reasonably practicable measures must be implemented to minimise the emission of dust and other air pollutants during the construction and operation of the CSSI.	Section 6 of this AQMP

3.4 Other Requirements Relevant to the Development of this Plan

Other requirements detailed in the EIS/MDP, Submissions Report and relevant TfNSW Specifications (G36, 38 and 40) are detailed in Table 3-3 below. This includes reference to required outcomes, the timing of when the commitment applies and relevant documents or sections of the environmental assessment influencing the outcome and implementation.

Table 3-3 Other environmental requirements relevant to this AQMP

Source	Requirement	Document Reference
TfNSW G36 – Section 4.4.1	Prepare and implement an Air Quality Management Sub-Plan as part of the CEMP, or include mitigation strategies within the CEMP, to minimise the impact of dust, offensive odour, and other air pollutants on the surrounding environment, including adjacent properties and sensitive places.	This Plan
TfNSW G36 – Section 4.4.1	Comply with the requirements of the POEO Act and any conditions of licences, notifications, approvals or permits in relation to maximum air pollutant levels.	An Environmental Protection Licence will be obtained for the Project.
TfNSW G36 – Section 4.4.1	Plan and carry out all your construction activities to avoid where practicable, or minimise, the generation of dust and vehicle emissions. Include in the Air Quality Management Sub-Plan or mitigation strategies the procedures for effective dust control, including dust monitoring and reporting procedures.	Section 6

Source	Requirement	Document Reference
TfNSW G36 – Section 4.4.1	Where air quality monitoring is required, it must comply with the EPA publication “Approved Methods for Sampling and Analysis of Air Pollutants in NSW”. Monitoring data must include reporting of insoluble solids in accordance with the EPA publication “Approved Methods for the Modelling and Assessment of Air Pollutants in NSW”.	Appendix A
TfNSW G36 – Section 4.4.2	<p>Report on the conformity, or otherwise, of mobile non-road diesel plant and equipment used for the Work Under the Contract with the relevant United States Environmental Protection Agency, European Union (EU) standards or approved equivalent emission standards.</p> <p>Once a year, submit to the Independent Verifier such reports at the following dates: (a) before 31 July, for the reporting period ending 30 June for the previous 12 months (b) at Actual Completion Date, for the final reporting period.</p> <p>Prepare the report in accordance with the GREP “Clean Air data management tool”. The types of diesel plant and equipment that are to be included, or excluded, from the report are given in this document, which is available at: http://www.rms.nsw.gov.au/documents/about/environment/grep-clean-air-data-management-tool.xlsm.</p>	Section 6
UMM – AQ2	<p>A Construction Air Quality Management Plan will be prepared as part of the CEMP and implemented during construction. The plan will detail processes, responsibilities and measures to manage air quality, odour and landfill gas and minimise the potential for impacts during construction.</p> <p>The plan will include an air quality, odour and landfill gas monitoring program, and will detail the measures that will be implemented to compare the actual performance of construction against the predicted performance. Monitoring will be undertaken for the duration of construction.</p>	<p>This Plan</p> <p>Landfill Leachate, Gas and Odour Management Plan (odours)</p>
UMM – AQ6	Demolition activities, including removal of hazardous building materials, will be planned and carried out in a manner that minimises the potential for dust generation.	Section 6
UMM – AQ7	The detailed construction program will be developed in consultation with the contractors constructing the Botany Rail Duplication Project. Consultation will be maintained over the duration of both Projects to plan activities in a manner that reduces the potential for air quality-related impacts. Where practicable, activities with a high potential to generate dust will be programmed so that they do not occur at the same time.	Section 6
IS v1.2 Technical Manual	Measures to minimise adverse impacts to local air quality during construction and operation have been identified and implemented.	Section 6

Source	Requirement	Document Reference
IS v1.2 Technical Manual	Air emission or air quality goals are limits that must not be exceeded or levels that the project aims to keep within.	Section 2.3 and 3.2
IS v1.2 Technical Manual	Baseline studies should be undertaken and air quality predictions established to inform the management process and measures.	Appendix A, Section 1.1
IS v1.2 Technical Manual	Measures should be documented in management plans such as Construction and Operational Environmental Management Plans or specific Air Quality Management Plans.	This Plan, Section 6
IS v1.2 Technical Manual	Air emission or air quality goals should be based on relevant regulations and the advice of a qualified air quality specialist.	Section 3.1
IS v1.2 Technical Manual	Monitoring of air emissions and/or air quality is undertaken at appropriate intervals and in response to complaints during construction.	Appendix A
IS v1.2 Technical Manual	Monitoring and modelling demonstrates no recurring or major exceedances of air emission or air quality goals.	Monitoring Records
IS v1.2 Technical Manual	Exceedances are measured air emission or air quality levels above the goals. Recurring exceedances are defined as more than two of a similar type within a 12 month period. Major exceedances are defined as exceeding the air emission or air quality goals by more than 50%.	Monitoring Records
IS v1.2 Technical Manual	Monitoring and modelling demonstrates no exceedances of air emission or air quality goals.	Monitoring Records

4 Existing Environment

Emissions to the atmosphere during construction that could result in adverse impacts to air quality typically consist of dust, particulates, and gases. The following sections summarise what is known about factors influencing air quality impacts and management within and adjacent to the Project.

4.1 Key Reference Documents

The key reference documents are detailed below:

- Environmental Impact Statement (EIS) November 2019 – Chapter 12.
- Volume 4: Technical working paper 4: Air quality.
- Relevant guidelines, specifications and policy documents (refer to Section 3.1).

4.2 Air quality records

'*Technical Working Paper (TWP) 4: Air Quality*' details the historical trends in Sydney's air quality from 2004-2017. The analysis was based on hourly data from long-term monitoring stations at Chullora, Earlwood, Randwick and Rozelle and M5 East monitoring points operated by OEH and TfNSW. The results for specific air quality metrics during the period 2004-2017 are summarised in Table 4-1 below.

Table 4-1 Air quality records between 2004-2017.

Pollutant	Averaging Period	Comment (for period 2004-2017)
CO	Maximum 1-hour and rolling 8-hour	<ul style="list-style-type: none"> • All values were well below the air quality criteria of 30 mg/m³ (1-hour) and 10 mg/m³ (8-hour). Between 2008 and 2017 the maximum 1-hour concentrations were typically between around 1.5 and 5mg/m³, and the maximum 8-hour concentrations were around 2mg/m³. • There were general downward trends in maximum concentrations, and these trends were statistically significant at most stations.
NO ₂	Annual Mean	<ul style="list-style-type: none"> • Concentrations at all stations have been well below the air quality criterion of 62 µg/m³ and have ranged between around 15 and 25µg/m³ (depending on the station) in recent years. Values at the OEH stations exhibited a systematic, and generally significant, downward trend overall. • However, in recent years the concentrations at some stations appear to have stabilised. The long-term average NO₂ concentrations at TfNSW roadside stations (F1 and M1) were around 10 µg/m³ higher than those at the M5 East background stations. Even so, the concentrations at the roadside stations were also well below the criterion.
	Maximum 1-hour	<ul style="list-style-type: none"> • Although variable from year to year, maximum NO₂ concentrations have been quite stable in the longer term. The values across all stations have typically varied around 100 µg/m³ and continue to be well below the criterion of 246 µg/m³. The maximum 1-hour NO₂ concentrations at the two TfNSW roadside stations in 2016 were 144 µg/m³ and 165 µg/m³.

Pollutant	Averaging Period	Comment (for period 2004-2017)
PM10	Annual Mean	<ul style="list-style-type: none"> Annual mean PM10 concentrations at the OEH stations showed a downward trend, and this was statistically significant at several stations. In recent years the annual mean concentration at these stations has been between 17µg/m³ and 20µg/m³. The concentrations at the TfNSW background stations appear to have stabilised at around 15µg/m³. These values can be compared with air quality criterion of 25µg/m³. The measurements from the TfNSW roadside sites show that the road increment for PM10 is small.
	Maximum 24-hour	<ul style="list-style-type: none"> Maximum 24-hour PM10 concentrations exhibited no trend with time, and there was a large amount of variation from year to year. In 2017 the concentrations at the various stations were clustered around 50-60 µg/m³. Again, the roadside values were similar to the background values.
PM2.5	Annual Mean	<ul style="list-style-type: none"> PM2.5 has been measured over several years at two OEH stations in the study area. Concentrations at Chullora and Earlwood showed a similar pattern, with a systematic reduction between 2004 and 2012 being followed by a substantial increase in 2013. The main reason for the increase was a change in the measurement method. The increases meant that background PM2.5 concentrations in the study area between 2013 and 2017 were already very close to or above the standard in the AAQ NEPM of 8µg/m³, and above the long-term goal of 7µg/m³.
	Maximum 24-hour	<ul style="list-style-type: none"> There has been no systematic long-term trend in the maximum 24- hour PM2.5 concentration. However, there has been an underlying increase in concentrations between 2014 and 2017, such that they are currently above the NSW criterion of 25µg/m³. In most years the maximum concentrations have been above the NEPM long term goal of 20µg/m³.

4.3 Rainfall and Wind

4.3.1 Rainfall and Temperature

The historical records from the Bureau of Meteorology (BoM) weather station at Sydney Airport site (066037) has been presented in the EIS to reflect the potential rainfall and temperature conditions as it is broadly representative of the Project area.

As shown in Table 4-2 below, the annual average daily maximum and minimum temperatures are 22.4°C and 13.5°C, respectively. On average, January is the hottest month with an average daily maximum temperature of 26.7°C. July is the coldest month, with an average daily minimum temperature of 7.3°C. The wettest month is June, with 124.9 millimetres falling over eight rain days. The average annual rainfall is 1,081 millimetres over an average of 96 rain days per year.

Table 4-2 Long-term average climate summary for Sydney Airport AMO.

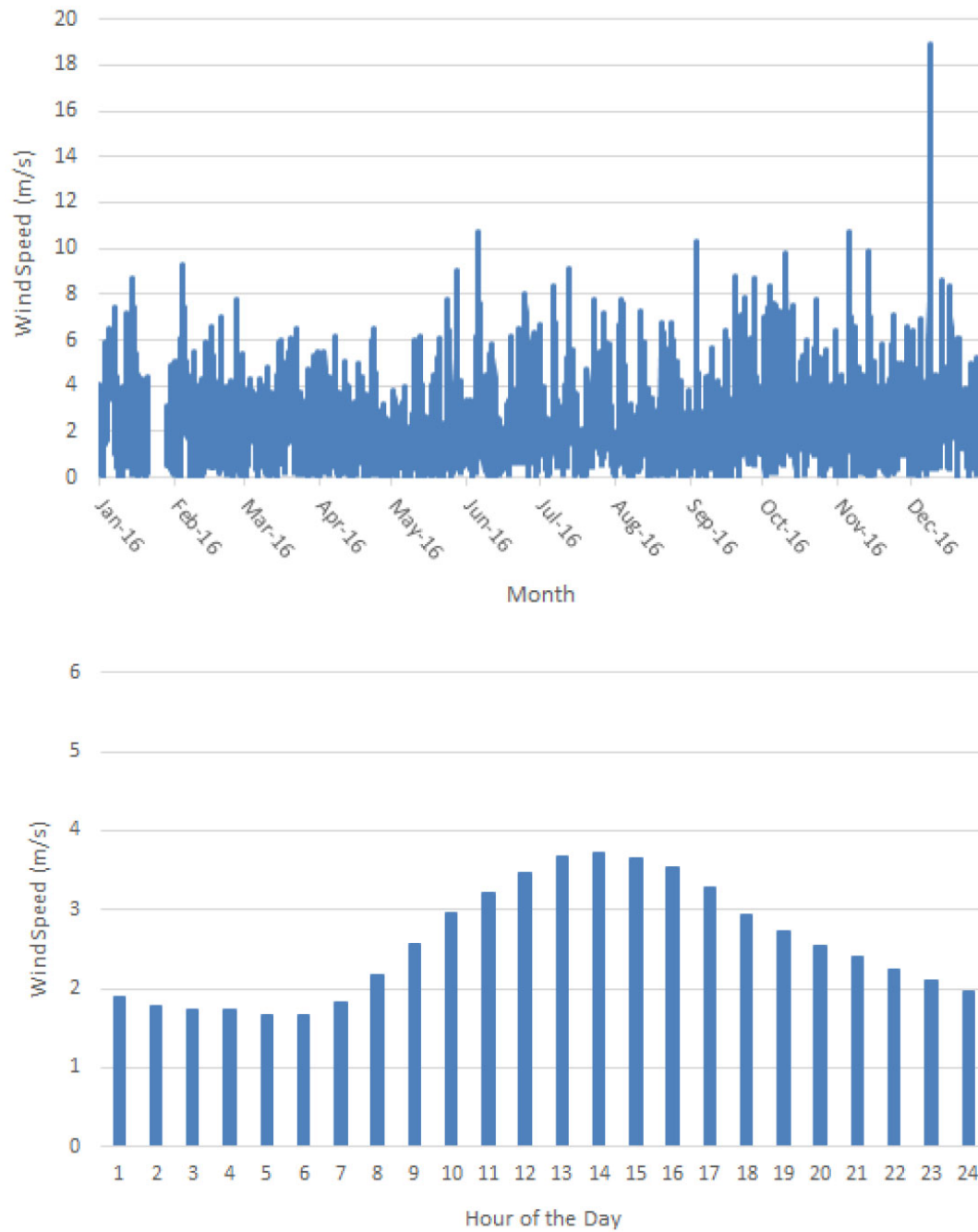
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean daily maximum temperature (°C)												
26.7	26.5	25.4	23.0	20.1	17.6	17.1	18.4	20.7	22.7	24.2	25.9	22.4
Mean daily minimum temperature (°C)												
19.0	19.1	17.6	14.3	11.0	8.7	7.3	8.2	10.5	13.3	15.5	17.6	13.5
Mean monthly rainfall (mm)												
94.5	111.5	117.0	107.8	96.1	124.9	68.9	76.0	59.8	70.6	80.6	73.6	1081.1
Mean rain days per month (number)												
8.1	8.7	9.3	8.5	8.3	8.8	6.6	6.8	6.8	7.9	8.3	7.8	95.9

4.3.2 Wind

As detailed in Section 4.5 of the Technical Working Paper 4: Air Quality (Volume 4 of the EIS), the weather station at Randwick has identified that the long-term wind speed and wind direction patterns over the eight-year period between 2009 and 2016 were quite consistent. The annual average wind speed ranged from 1.9 metres per second to 2.6 metres per second. It is worth noting that the station was surrounded by trees until 2010 when they were removed. The annual average wind speeds between 2011 and 2016 were 2.4 to 2.6 metres per second. The annual percentage of calms (wind speeds <0.5 metres per second) ranged from 9.1 to 10.7 per cent between 2011 and 2016.

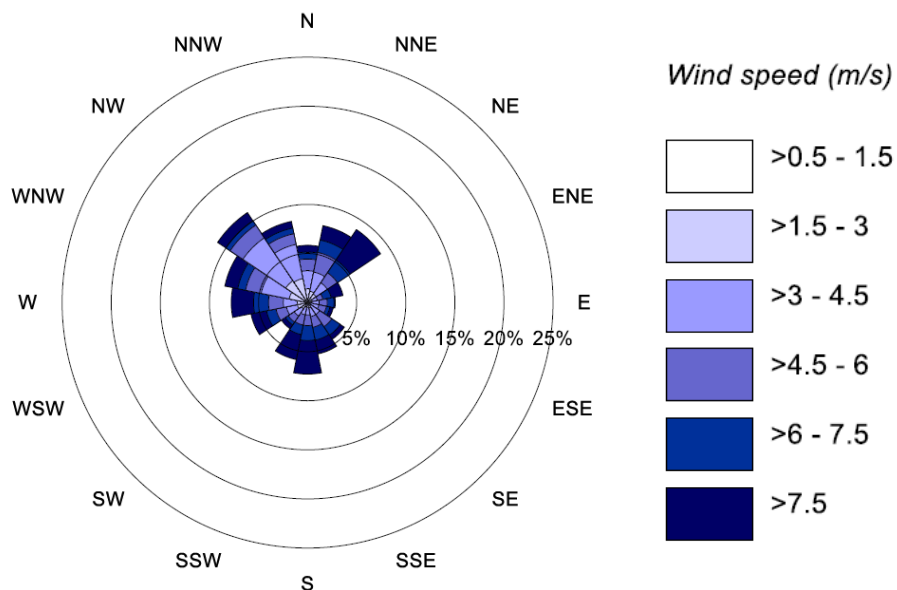
Figure 4-1 shows annual and diurnal plots of wind speed from the Randwick station for 2016. The annual plots show a typical distribution of wind speed over the course of a year. Figure 4-2 show the diurnal plots also show typical patterns, with higher wind speeds during the day and lower wind speeds at night and in the early morning.

Figure 4-1 Wind speeds at Randwick station during 2016.



As per Annexure F of TWP:4, the predominant wind direction observed during 2016 at the Sydney Airport BoM weather station is north-west as seen in the wind rose in Figure 4.3.

Figure 4-3 Wind rose for BoM Sydney Airport weather station for 2016



4.4 Soil Characteristics

Materials susceptible to aeolian erosion include demolition wastes, imported fill, imported road base and hardstand subgrade, historic imported soils and natural soils, excavated sandstone bedrock and landfill waste from Tempe Tip. These materials when subject to mechanical forces from construction equipment and removal of existing groundcover such as pavements and vegetation are subject to forming nuisance dust.

The Technical Working Paper 4: Air Quality (Volume 4 of the EIS) did not base the risk of dust impacts on soil types, but rather based it on the construction activity and sensitivity of the area. The dust impact is determined by the nature of the activity, the magnitude of works and area of exposed material. Depending on this criteria wind erosion can be high due to the unconsolidated condition of the soil.

5 Environmental aspects and impacts

5.1 Construction activities

Emissions to the atmosphere during construction that could result in adverse impacts to air quality are typically divided into two categories. These are:

- Dust and particulates.
- Gaseous.

Key aspects of the Project that could result in dust emissions include:

- Building demolition at temporary and permanent ancillary facility sites.
- General earthworks.
- Drilling, piling, excavation and benching.
- Operating plant and equipment.
- Topsoil / material handling including stockpiling, material loading and material haulage.
- Vehicular movements over unpaved surface (including unsealed access roads).
- Wind erosion of exposed areas and temporary stockpiles.
- Tracking of dirt onto roads.
- Treatment of contaminated sites.
- Dust generating activities during out-of-hours works.

Air emissions, other than dust, which may be generated by construction activities include:

- Vehicle and plant exhaust emissions.
- Odours/gases may be released during:
 - Excavations of organic or contaminated materials.
 - During sealing works.
 - Groundwater extraction/treatment.
 - Disturbance of the former Tempe Landfill.

Note – Odour and gases are further detailed in the Landfill, Leachate, Gas and Odour Management Plan.

5.2 Factors likely to affect dust generation and impacts

In addition to the inherent risk of key construction activities and their potential to generate dust, a number of other environment factors also influence dust emissions. These include:

- Wind direction – influences the direction of dust and suspended particles.
- Wind speed – governs the potential suspension and drift resistance of particles.
- Soil type - more erodible soil types have an increased soil or dust erosion potential.
- Soil moisture – increased soil moisture reduces soil or dust erosion potential.
- Rainfall or dew – rainfall or heavy dew that wets the surface of the soil and reduces the risk of dust generation.

5.3 Impacts

The potential for impacts on air quality will depend on a number of factors. Primarily impacts will be dependent on the nature, extent and magnitude of construction activities and their interaction with the natural environment. Potential impacts attributable to construction might include:

- Deposition of dust on surfaces where it may cause damage and/or lead to a need for increased cleaning or repair.
- Aesthetic effects that arise from visible airborne dust plumes and from deposits of dust on surfaces.
- Need for increased maintenance of air filtering systems (e.g. air conditioners etc).
- Potential adverse health effects including eye, nose and throat irritation from excessive inhalation of fine particles.
- Impacts on water quality and/or vegetation health from dust deposition.
- Impacts on residential sensitive receivers, including impacts on living areas, swimming pools and general amenities.
- Complaints from the public relating to dust or odours.
- Airborne dust impacting airport operations.

Some impacts on air quality attributable to the Project are anticipated and have been described in the EIS/MDP. Section 6 provides a suite of mitigation measures that will be implemented to avoid or minimise those impacts.

6 Environmental control measures

Specific measures and requirements to meet the objectives of this AQMP and to address impacts on air quality are outlined in Table 6.1.

Table 6-1: Air Quality management and mitigation measures

ID	Measure/Requirement	When to implement	Responsibility	Reference	Evidence
Planning					
AQ1	Regular communication is to be carried out with other Projects under construction in close proximity to ensure that measures are in place to manage cumulative dust impacts. Regular communication between onsite personnel is also to be carried out to ensure mitigation measures are being identified, implemented and monitored.	Pre-construction / Construction	Construction Manager / Community & Stakeholder Manager	UMM AQ7 Best Practice	Site Diary Co-ordination meeting - minutes
AQ2	Air quality control measures from this plan will be included in relevant Environmental Work Method Statements (EWMS) and/or Progressive Erosion and Sediment Control Plans (PESCP) or Site Environment Plans (SEPs).	Pre-construction / Construction	Site Engineer / Environmental Officer	Best Practice	EWMS PESCP SEP
AQ3	The detailed construction program will be developed in consultation with the contractors constructing the Botany Rail Duplication Project. Consultation will be maintained over the duration of both Projects to plan activities in a manner that reduces the potential for air quality-related impacts. Where practicable, activities with a high potential to generate dust will be programmed so that they do not occur at the same time.	Pre-construction / Construction	Construction Manager / Superintendent	UMM AQ7	Co-ordination meeting - minutes
Incident Management					
AQ4	All incidents will be classified and managed in accordance with the RMS Incident Classification and Reporting Procedure as well as the JHSW incident management procedure as detailed in the CEMP. If the event is defined as an incident as per the CoA, the Secretary will be notified as soon as possible and in any event within 24 hours of any incident (CoA A34). Where the incident causes or has the potential to cause material harm to the environment, the Pollution Incident Response Management Plan (PIRMP) will be implemented which includes immediate notification to the EPA and other relevant authorities. TfNSW, the Secretary and the ER will also be notified within 24 hours of an incident being notified to the EPA.	Construction	Environmental and Sustainability Manager	POEO Act CoA A34	Environmental Incident Report

ID	Measure/Requirement	When to implement	Responsibility	Reference	Evidence
AQ5	Dust and air quality complaints would be recorded, cause(s) identified, appropriate measures to reduce emissions taken in a timely manner, and the measures taken would be recorded.	Construction	Community & Stakeholder Manager	Best Practice	Consultation Manager Records
Dust Management					
AQ6	Unfavourable weather: Construction activities with the potential to generate dust will be modified or ceased during unfavourable weather conditions to reduce the potential for dust generation e.g. hot, dry, windy conditions likely to generate dust. Expected unfavourable weather conditions will be communicated via daily pre-start and will be monitored, and communicated where necessary, throughout the day.	Construction	Environment co-ordinator / Foreman / Superintendent	Best Practice	Daily Pre-Start Inspections Records
AQ7	Stockpile Management: Stockpiles with the potential to result in dust emissions will be managed to reduce the potential for dust generation. Management examples include (but not limited to) covering with geofabric, polymer stabilisation, revegetation, compacting/shaping, wetting during windy conditions, minimising size of stockpile etc.	Construction	Environment co-ordinator / Foreman / Superintendent	Best Practice	Daily Pre-Start Inspections Weekly Environmental Inspection records
AQ8	Exposed Surfaces: Minimise areas of exposed soil at all times, where possible, to reduce the potential for dust generation. Exposed soils will be temporarily stabilised (e.g. soil binder, covering piles with geofabric, water suppression) during weather conditions conducive to dust generation and prior to extended periods of inactivity (e.g. over 10 days) to minimise dust generation and any potential impacts on sensitive receivers, including airport operations. Exposed soils will be revegetated and/or permanently stabilised as soon as reasonable and feasible following disturbance and not being actively worked.	Construction	Environment co-ordinator / Superintendent	EPL Best Practice	Weekly Environmental Inspection records
AQ9	Managing Airborne Dust – In addition to preventing the generation of airborne dust, appropriate measures to manage any airborne dust will also be implemented throughout the Project as required. This will be determined progressively throughout	Construction	Construction Manager / Engineers	Best Practice EPL	Daily Pre-Start Inspections Weekly Environmental Inspection records

ID	Measure/Requirement	When to implement	Responsibility	Reference	Evidence
	construction. Examples include sprinklers, dust screens, dust suppression/water carts etc.				
AQ10	Cutting, grinding and sawing: Dust suppression and/or collection techniques will be used during cutting, grinding or sawing activities likely to result in dust impacts (e.g. water suppression or other engineered controls).	Construction	Foreman	Best Practice	Weekly Environmental Inspection records
AQ11	Storage and handling of materials: Equipment will be selected and processes developed to minimise the potential for dust generation e.g. location selection, avoiding double handling, use of misting or sprinklers.	Construction	Foreman / Engineers	Best Practice	Weekly Environmental Inspection records
AQ12	Transportation of material: All loaded spoil haulage trucks and other Project-related heavy vehicles that enter and leave the Project site and are carrying materials with the potential to result in dust generation (including dry bulk material) will be covered at all times, except during unloading and loading, to prevent dust emissions during transport in accordance with relevant road regulations.	Construction,	Foreman / Environmental Co-ordinator	Best Practice	Weekly Environmental Inspection records Site diaries
AQ13	Demolition Activities: Demolition activities will be planned and carried out with adequate dust suppression to minimise the potential for dust generation (e.g. considering weather conditions before works, removing unconsolidated material with dust generating capacity before mechanical demolition or misting sprays). All potentially hazardous material will be identified and removed from each building in an appropriate manner prior to demolition.	Construction	Project Manager / Engineers	UMM AQ6	Activity Method Statement Demolition Plan Weekly Environmental Inspection records
AQ14	Access Roads and Entry/Exit Stabilisation: Access/haul roads and all sealed surfaces within Project sites and site accesses will be maintained and managed to reduce dust generation. At the commencement of establishment of Project ancillary facilities, controls such as wheel washing systems and rumble grids will be installed at designated site entry/exits points to prevent	Pre-construction Construction	Superintendent / Environmental Co-ordinator		Construction staging plans Weekly Environmental Inspection records

ID	Measure/Requirement	When to implement	Responsibility	Reference	Evidence
	deposition of loose material on sealed surfaces outside Project sites. Sweep (not wash into drains) accumulated sediment from site roads; remove mud from wheels and bodies of haulage plant before they enter public roads.				
AQ15	Haul roads: unsealed haul roads will be treated with water carts where required and monitored during earthworks operations, ceasing works if necessary, during high winds where dust controls are not effective. Where possible, construct haul roads out of material which will minimize dust generation i.e. dgb/roc. Accumulated fine sediment on sealed haul roads will also be managed to minimise dust generation. This may include street sweepers and water carts where necessary.	Construction	Foreman / Engineers	EPL Best Practice	Weekly Environmental Inspection records
AQ16	All site personnel must report observations of release of dust from the premises to supervisory staff so that appropriate management measures can be implemented.	Pre-construction Construction	All staff	EPL Best Practice	Informal site observations Weekly Environmental Inspection records
Operating vehicles/machinery					
AQ17	Construction plant and equipment will be operated, inspected and maintained to maximise efficiency and comply with relevant emission standards. Engine idling will be minimised when plant is stationary, and plant will be switched off when not in use to reduce emissions.	Construction	Foreman / Plant Operators	Best Practice Best Practice	Weekly Environmental Inspection records Plant and equipment records
Other					
AQ18	The application of pesticides will be modified, reduced or controlled during high or unfavourable wind conditions where wind can carry pesticides outside of the defined treatment area.	Construction	Foreman	Best practice	Application records Site diaries

ID	Measure/Requirement	When to implement	Responsibility	Reference	Evidence
AQ19	All potentially hazardous material will be identified and removed from buildings in an appropriate manner prior to the commencement of and/or progressively during demolition and in accordance with all relevant codes of practice.	Construction	Project Manager / Engineers	UMM AQ6 UMM CS8	Hazardous material survey
AQ20	Undertake weekly documented site inspections while construction works are occurring to identify and action any air quality issues resulting from Project activities.	Construction	Environment Manager / Environmental Co-ordinator	CEMP	Weekly Environmental Inspection records
AQ21	Where air quality monitoring is required, it must comply with the EPA publication "Approved Methods for Sampling and Analysis of Air Pollutants in NSW". Monitoring data must include reporting of insoluble solids in accordance with the EPA publication "Approved Methods for the Modelling and Assessment of Air Pollutants in NSW".	Construction	Environment Manager / Environmental Co-ordinator	G36	Dust monitoring reports
AQ22	Where possible, the use of mains electricity would be favoured over diesel or petrol-powered generators where practicable to reduce site emissions.	Construction	Environment Manager / Environmental Co-ordinator	Best Practice	Environment Manager / Environmental Co-ordinator
AQ23	Dust Deposition Gauges (DDG) will be monitored during the relevant phases of construction accordance with the Dust Deposition Monitoring Program (refer to Appendix A).	Construction	Environment Manager / Environmental Co-ordinator	Best Practice	DDG monitoring reports Dust deposition gauges

7 Compliance management

7.1 Roles and responsibilities

The JHSWJV Project Team's organisational structure and overall roles and responsibilities are outlined in Section 3.3 of the CEMP. Specific responsibilities for the implementation of environmental controls are detailed in Section 6 of this Plan.

7.2 Training

All employees, contractors and utility staff working on site will undergo site induction training relating to overall environmental management. The induction training will address elements related to air quality management including:

- Requirements of this Plan.
- Applicable and relevant legislative requirements.
- Roles and responsibilities for air quality management.
- Typical construction activities that may impact air quality and associated environmental mitigation and management measures.

Targeted training in the form of toolbox talks or specific training may also be provided to personnel with a key role in air quality management. Examples of training topics could include:

- Potential sources of dust, emissions and other air pollutants.
- Impacts to the environment and surrounding community.
- Planning and preparedness for high wind events and dust risk periods.
- Erosion and sediment controls installation methods.

Further details about staff induction and training are outlined in Section 3.5 of the CEMP.

7.3 Monitoring and inspection

Regular monitoring and inspections will be carried out during construction in accordance with the Project requirements. Monitoring and inspections are detailed below however, it should be noted an adaptive approach to dust management will be implemented, where mitigation measures will be amended and improved if they are found not be meeting the required outcomes:

- Daily informal observations by the Foreman to identify and action any air quality issues related to:
 - Visible sources of dust.
 - Visible dust emissions.
 - Implementation and effectiveness of all dust controls.
 - No continuous visible vehicle/plant/equipment emissions for longer than 10 seconds as per the POEO Clean Air Regulation.
 - No mud tracking off-site; check main exit/entry points and material on public roads.
 - No detectable offensive odours and gases (e.g. inspection of potential odour sources including freshly disturbed areas, open stockpiles, water treatment plants, waste skips, etc).
- Weather forecast (e.g. rainfall) will be checked daily to allow for proactive dust management actions to be implemented and on the daily pre-start record.

- Weekly documented site inspections by the environmental team while construction works are occurring. The frequency of these inspections is to be reflective of the risk associated with potential impacts.
- When there is an exceedance of dust criteria detailed in Table 3-1 or in response to dust related complaints.

The regular site inspections, required actions and ongoing issues will be recorded and actioned appropriately within agreed timeframes by relevant Project personnel. These inspections are to be recorded as part of Environmental Inspection Checklist.

Additional requirements and responsibilities in relation to inspections are documented in Section 3.9 of the CEMP.

7.3.1 Monthly Dust Deposition Gauge Monitoring

Dust depositional monitoring will be undertaken in accordance with the Dust Deposition Monitoring Program (Appendix A). Odour management and monitoring requirements are contained within the Landfill leachate, odour and gas management plan.

7.4 Auditing

Audits (both internal and external) will be undertaken to assess the effectiveness of environmental controls, compliance with this sub plan, CoA and other relevant approvals, licenses and guidelines. Audit requirements are detailed in Section 3.9 of the CEMP.

7.5 Reporting

Project reporting requirements specifically relevant to the management of air quality are identified in Table 7-1. Other general reporting requirements are further detailed in Section 3.9 of the CEMP. In addition to the table, reporting of monitoring data may also be required under compliance tracking obligations or monthly reporting.

Table 7-1: Air Quality reporting requirements

Item	Frequency	Standards	External Reporting	Responsibility
Incidents	As required	As required by the CoA, EPL, TfNSW Environmental Incident Classification and Reporting procedure. Incidents will also be entered in the JHET system.	Appropriate authority dependant on the nature of the incident (refer to Section 3.8 in the CEMP).	Environment Manager / Foreman or delegate
Exceedances	As required	As per the CEMP.	Authorities as per compliance and reporting obligations	Environment Manager / Foreman or delegate
Complaints	As required	Communication, notification and complaints handling requirements regarding air quality matters will be managed through the Complaints Management System and the Communication Strategy.	ER TfNSW EPA DPIE	Environment Manager / Community & Stakeholder Manager or delegate
Air Emissions Performance	Annually (31 July)	A required by TfNSW G36 Specification.	TfNSW	Environment Manager

Item	Frequency	Standards	External Reporting	Responsibility
of Mobile Non-road Diesel Plant and Equipment	and completion	Reporting on the conformity, or otherwise, of mobile non-road diesel and plant equipment used for the Work Under the deed.		

8 Review and improvement

8.1 Continuous improvement

Continuous improvement of this Plan will be achieved by the ongoing evaluation of environmental management performance against environmental policies, objectives and targets for the purpose of identifying opportunities for improvement.

The continuous improvement process will:

- Identify areas of opportunity for improvement of environmental management and performance.
- Determine the cause or causes of non-conformances and deficiencies.
- Develop and implement a plan of corrective and preventative action to address any non-conformances and deficiencies.
- Verify the effectiveness of the corrective and preventative actions.
- Document any changes in procedures resulting from process improvement.
- Make comparisons with objectives and targets.

8.2 AQMP update and amendment

The processes described in Section 3.9 to Section 3.13 of the CEMP may result in the need to update or revise this Plan. This will occur as needed. Only the Environment Manager, or delegate, has the authority to change any of the environmental management documentation.

A copy of the updated plan and changes will be distributed to all relevant stakeholders in accordance with the approved document control procedure – refer to Section 3.11 of the CEMP.

Appendix A – Dust Deposition Monitoring Plan

Dust Deposition Monitoring Program

Design and Construction of Sydney Gateway Stage 1 & Stage 3

Document status

Revision	Date	Description	Approval
A	18/12/20	Draft for review	
B	22/12/20	For circulation to JH, TfNSW	IK
C	02/02/21	Updated as per TfNSW and ER comments	IK

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1 Dust Deposition Monitoring

The purpose of this document is to describe how JHSWJV propose to monitor air quality linked to dust emissions during construction of the Project. This Program provides details of the dust deposition monitoring network, frequency of monitoring, and test parameters.

Operational monitoring and operation measures do not fall within the scope of the construction phase and therefore are not included within the processes contained within this DDMP.

1.1 Baseline Monitoring

Baseline monitoring data for dust deposition was not undertaken during the EIS. Additionally, a review of the EPA's Sydney air quality monitoring stations identified that the EPA do not measure dust deposition as part of their air quality monitoring program. Therefore, no baseline data for dust deposition has been presented.

1.2 Construction Monitoring

1.2.1 Overview

Dust deposition gauges record airborne dust which can be derived from construction activities and provide a useful measure of changing local air quality. A total network of two dust deposition gauges will be installed on State land during construction of the Project (refer to Section 2.1).

Data from these gauges enables determination of dust deposition levels at the relevant ancillary facility. Data will be collected on a monthly basis, and results for dust deposition will be compared against the criterion.

1.2.2 Performance Criteria

The EPA expresses dust deposition criteria in two ways. Firstly, a maximum increase in deposited dust of 2g/m²/month over the existing background/baseline deposition levels. As background/baseline dust deposition levels are not available this criterion has not currently been adopted. Note – once adequate background/baseline data is available, this criteria may be used.

The second criterion is a measure of the 12-month rolling average of insoluble solids. This criterion has currently been adopted for the Project. The long-term (annual average) EPA criterion for depositional dust that applies to the Project is provided in Table 1.

Table 1: Long term impact assessment criterion for deposited dust

Pollutant	Averaging Period	Criterion
Deposited dust	Annual	4g/m ² /month

The Project is located in an urban environment, and in the absence of background / baseline data, there is a potential that existing deposited dust levels may already be in exceedance of the criterion listed in Table 3.1.

If an exceedance is observed, a review will be initiated to determine the significance of the exceedance(s) and possible causes. The review will assess the available dust deposition data, recent weather records, and recent activities or recorded air quality control incidents occurring at the relevant ancillary facility. In addition, the review will also identify what, if any dust minimisation improvements can be made.

2 Monitoring Methodology / Sampling Protocol

2.1 Monitoring Locations

Monitoring will be undertaken using dust deposition gauges located on State land across the Project as identified in Table 2 and shown in Figure 1. Note – DDG #1 and 2 are located on Commonwealth land. See the AQEMP – Commonwealth for further details.

Table 2: Long term impact assessment criterion for deposited dust

ID	Location	Description
03	Visy Compound	1 x DDG located near the C1 Visy compound at the Project boundary.
04	Tempe Wetlands	1 x DDG located adjacent to Tempe Wetlands at the Project boundary.

The exact locations for each of the sampling locations have been selected in accordance with AS/NZS 3580.1.1 2016, *Methods for Sampling and analysis of ambient air – Guide to siting air monitoring equipment*, as far as practicable. Monitoring sites will be established as per the requirements detailed in Table 3.

Table 3: DDG monitoring location criteria as detailed in AS/NZS 3580.1.1 2016

Pollutant	Type of Monitoring Station	Height Above Ground	Other locating criteria (minimum requirements) *
Deposited matter	Peak, neighbourhood and background	1-8-2.2m	<ul style="list-style-type: none"> • Clear sky angle 120° • Unrestricted airflow of 360° around sample gauge • 10m from nearest object or tree dripline • 5m from road • No boiler or incinerator flues nearby

* As detailed in AS/NZS 3580.1.1 2016, where these distances are not possible justification will be provided as to site selection.

If the locations of the DDG's are altered throughout the Project, this DDMP would be updated to reflect the new locations.

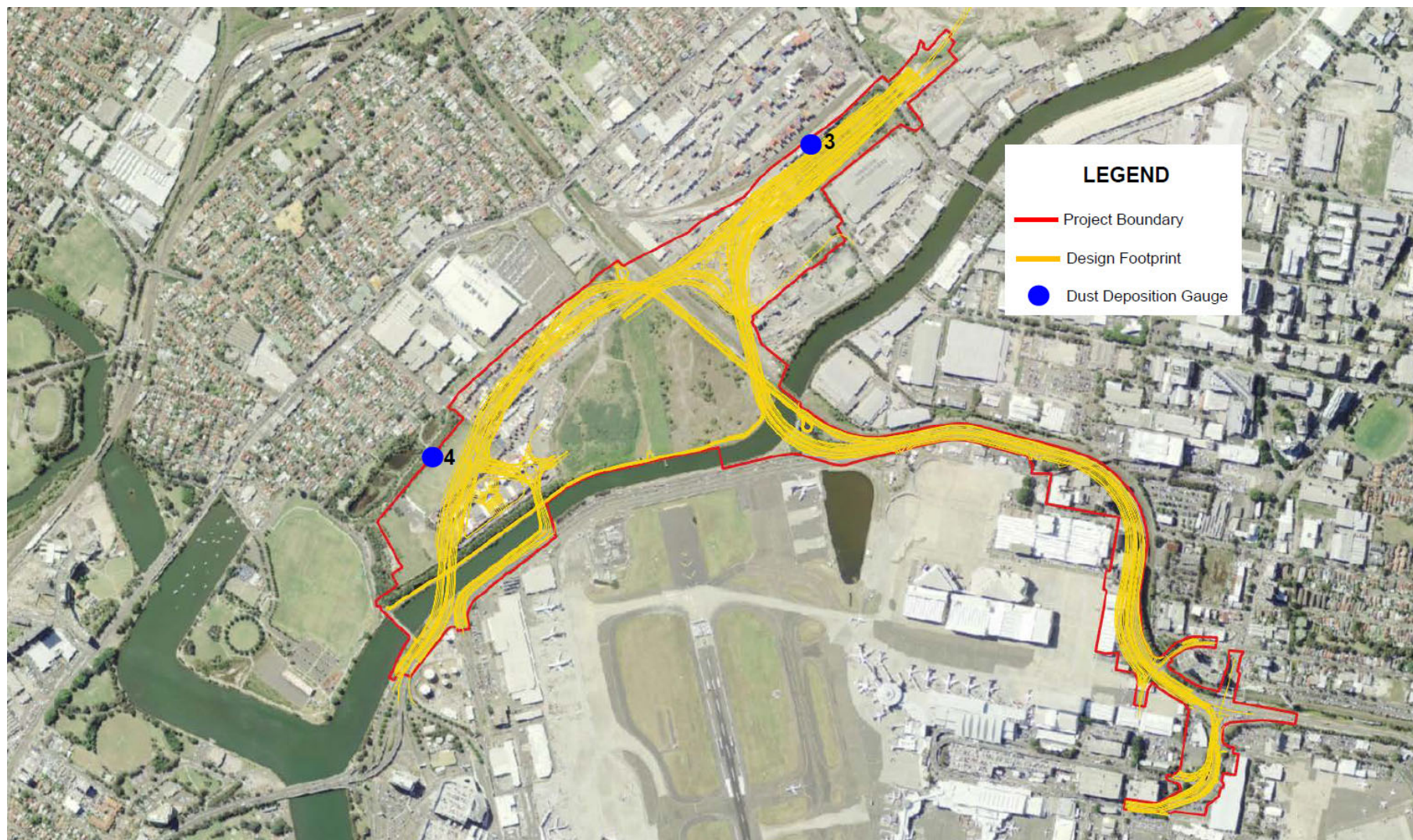


Figure 1: Location of dust deposition gauges located on State land.

2.2 Sample Collection and Laboratory Analysis

The dust deposition gauges will be collected, and replaced, from site every 30 ± 2 days and then analysed for insoluble solids.

Analysis will be undertaken by a National Association of Testing Authorities (NATA) accredited laboratory. Monitoring for depositional dust must comply with *AS/NZS 3580.10.1 2016, Methods for sampling and analysis of ambient air – Determination of particulates – Deposited Matter – Gravimetric Method* and the *NSW EPA Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales (2016)*.

2.3 Quality Assurance and documentation

Any sample to be sent to a laboratory will be subject to quality assurance protocols.

Quality assurance and control protocols during sampling and recording parameters will be undertaken with each sampling event in accordance with *AS/NZS 3580.10.1 2016, Methods for sampling and analysis of ambient air – Determination of particulates – Deposited Matter – Gravimetric Method* to ensure the integrity of the dataset.

Samples are to be transported to a NATA-accredited laboratory under documented chain-of-custody protocols. Monitoring records will be maintained in SharePoint or similar document control system.

2.4 Data Analysis and Management Responses

Results from the construction monitoring program will be compared with the criterion identified in Table 2 and with results previously recorded on the Project.

Average monthly monitoring results (averaged over a 12 month period) for dust deposition will be compared against the criterion. If an exceedance is observed, a review will be initiated to determine the significance of the exceedance(s) and possible causes. The review will assess available dust deposition data, recent weather data (e.g. fire activity), and recent activities occurring on-site.

If the exceedance is determined to be attributable to Project works, it will be treated as a non-conformance and managed in accordance with the requirements of the CEMP. Corrective and preventative actions will be identified and implemented as part of that process.

2.5 Auditing

Audit requirements are detailed in Section 3.9.3 of the CEMP.

2.6 Reporting

During construction, dust deposition data will be collected, tabulated and assessed against the criterion identified in Table 4-1. Dust monitoring results associated with the DDMP for the construction phase of the Project will be provided to TfNSW and ER upon request.

2.7 Plan Update & Amendment

The processes described in Section 3.13 of the CEMP may result in the need to update or revise the DDMP. Revisions of this DDMP will be in accordance with the process outlined in Section 3.13 of the CEMP.

Appendix B3. Flora and Fauna Management Plan

Appendix B4. Groundwater Management Plan

Appendix B5. Landfill Leachate, Gas and Odour Management Plan

Appendix B6. Non-Aboriginal Heritage Management Plan

Appendix B7. Aboriginal Heritage Management Plan

Appendix B7

SGWPW-JHSW-NWW-PM-PLN-000513

Aboriginal Heritage Management Sub Plan

Sydney Gateway Road Project

April 2021

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**Document control****Approval and authorisation**

Title	Sydney Gateway Aboriginal Heritage Management Sub Plan
Endorsed by Environment Representative	Cameron Weller Hutchison Weller Pty Ltd
Signed	
Dated	
Approved on behalf of NSW Roads and Maritime Services by	Mark Stevenson Project Director
Signed	
Dated	
Approved on behalf of JHSWJV by	Ivan Karaban Project Director
Signed	
Dated	

Document status

The below document status table is for tracking the revisions of the AHMP.

Revision	Date	Description	Approval
A	23/02/21	Draft from AMBS for JHSWJV review	-
B	03/03/21	Draft for Internal Review	IK
C	05/03/21	Draft for TfNSW/ER/IV review	IK
D	29/04/2021	Updated to respond to TfNSW and ER Comments	IK

Distribution of controlled copies

This AHMP as part of the CEMP is available to all personnel and sub-contractors via the Project document control management system. An electronic copy can be found on the Project website.

The document is uncontrolled when printed. One controlled hard copy of the AHMP as part of the CEMP and supporting documentation will be maintained by the Quality Manager at the Project office (and on the Project website).

Copy number	Issued to	Version
1	Transport for New South Wales	
2	Independent Verifier	
3	Environmental Representative	
4	Project Director	
5	Environment and Sustainability Manager	
6	Quality Manager	



Glossary/ Abbreviations

Abbreviations	Expanded text
Aboriginal place	An Aboriginal Place is an area declared under section 84 by the Minister administering the <i>National Parks and Wildlife Act 1974</i> to be of special significance with respect to Aboriginal culture
Aboriginal objects	Aboriginal objects include any deposit, object or material evidence (not being a handicraft made for sale), including Aboriginal remains, relating to the Aboriginal habitation of NSW, before or concurrent with occupation by non-Aboriginal people, as defined in section 5 of the <i>National Parks and Wildlife Act 1974</i>
AHMP	Aboriginal Heritage Management Sub Plan
AHIMS	Aboriginal Heritage Information Management System
ASO	Aboriginal Sites Officer
CEMP	Construction Environmental Management Plan
CoA	Condition of approval
DPIE	Department of Planning, Industry and Environment
EIS/MDP	Environmental Impact Statement / Major Development Plan
Environmental heritage	Places, buildings, works, relics, movable objects and precincts, of State or local heritage significance as outline in Section 4 of the Heritage Act
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EPBC Act	<i>Environmental Protection and Biodiversity Conservation Act 1999</i>
EWMS	Environmental Work Method Statements
Heritage Act	<i>Heritage Act 1997</i>
LALC	Local Aboriginal Land Council
NPW Act	<i>National Parks and Wildlife Act 1974</i>
OEH	Office of Environment and Heritage
Project, the	Sydney Gateway Road Project
RAP	Registered Aboriginal Parties



Secretary	Secretary of the NSW Department of Planning, Industry and Environment (or delegate)
TfNSW	Transport for New South Wales (formerly RMS, or Roads and Maritime Services)
UMM	Updated Mitigation Measure

1 Introduction

1.1 Context

This Aboriginal Heritage Management Sub Plan (AHMP or Plan) forms part of the Construction Environmental Management Plan (CEMP) for the Sydney Gateway Road Project (the Project).

This AHMP has been prepared to address the requirements of the environmental management measures listed in the Sydney Gateway Road Project Environmental Impact Statement/Major Development Plan (EIS/MDP), and the updated mitigation measures (UMMs) in the Response to Submissions Report (May 2020), and all applicable legislation.

1.2 Background

1.2.1 Background

Transport for NSW (TfNSW) have gained approval to deliver a high capacity road connection linking the Sydney motorway network at St Peters interchange with Sydney Airport's domestic and international terminals and the Port Botany Precinct. The Project is located on both State and Commonwealth land.

For areas on State land, the Project was declared to be critical State significant infrastructure (CSSI) under the *Environmental Planning and Assessment Act 1979* (NSW) (EP&A Act) and was approved by the NSW Minister for Planning and Public Spaces on 27 August 2020.

Commonwealth approval under the *Airports Act 1996* (the *Airports Act*) was granted by the Australian Minister for Infrastructure, Transport and Regional Development on 23 September 2020.

John Holland Seymour White Joint Venture (JHSWJV) have been contracted by Transport for New South Wales (TfNSW) for the Design and Construction of Sydney Gateway Stage 1 & Stage 3 (the Project).

1.2.2 Project Objectives

The primary objective of the Project is to support sustainable growth in the economy and cater for projected increases in passengers and freight demand. This will be achieved by improving connectivity between the regional growth and freight distribution centres in western Sydney and the Sydney Airport and Port Botany area. The objectives of the Project are to:

- Improve connectivity to Sydney Airport terminals by providing high capacity direct road connections that cater for forecast growth in passenger and air freight volumes.
- Support the efficient distribution of freight to and from Sydney Airport and Port Botany to logistic centres in Western Sydney.
- Improve the liveability of Mascot town centre by reducing congestion and heavy vehicle movements on the local road network.

1.2.3 Detailed Description

The Project is located about eight kilometres south of the Sydney Central Business District, in the suburbs of Tempe, St Peters and Mascot. It sits within the boundaries of the Inner West, City of Sydney and Bayside local government areas.

The key features of the Project are illustrated in Figure 1-1, which include:

- Road links to provide access between the Sydney motorway network and Sydney Airport's terminals, consisting of the following components:

- St Peters interchange connection – a new elevated section of road extending from St Peters interchange to the Botany Rail Line, including an overpass over Canal Road.
- Terminal 1 connection – a new section of road connecting Terminal 1 with the St Peters interchange connection, including a bridge over Alexandra Canal and an overpass over the Botany Rail Line.
- Qantas Drive upgrade and extension – widening and upgrading Qantas Drive to connect Terminals 2/3 with the St Peters interchange connection, including a high-level bridge over Alexandra Canal.
- Terminal links – two new sections of road connecting Terminal 1 and Terminals 2/3, including a bridge over Alexandra Canal.
- Terminals 2/3 access – a new elevated viaduct and overpass connecting Terminals 2/3 with the upgraded Qantas Drive.
- Road links to provide access to Sydney Airport land:
 - A new section of road and an overpass connecting Sydney Airport's northern lands on either side of the Botany Rail line (the northern lands access)
 - A new section of road, including a signalised intersection with the Terminal 1 connection and a bridge, connecting Sydney Airport's existing and proposed freight facilities on either side of Alexandra Canal (the freight terminal access)
- An active transport link, about 3 kilometres long and located along the western side of Alexandra Canal and section along Qantas Drive, to maintain connections between Sydney Airport, Mascot and the Sydney central business district.
- Intersection upgrades and/or modifications.
- Construction of operational ancillary infrastructure including maintenance bays, new and upgraded drainage infrastructure, signage and lighting, retaining walls, noise barriers, flood mitigation basin, emplacement mounds, utility works and landscaping.

1.3 Environmental management systems overview

The Environmental Management System (EMS) overview is described in Section 1.5 of the CEMP. The EMS also incorporates the Project specific CEMP and sub-plans, strategies, procedures and environmental work method statements (EWMS). The EMS form management guides that clearly identify required environmental management actions for implementation by JHSWJV personnel and contractors.

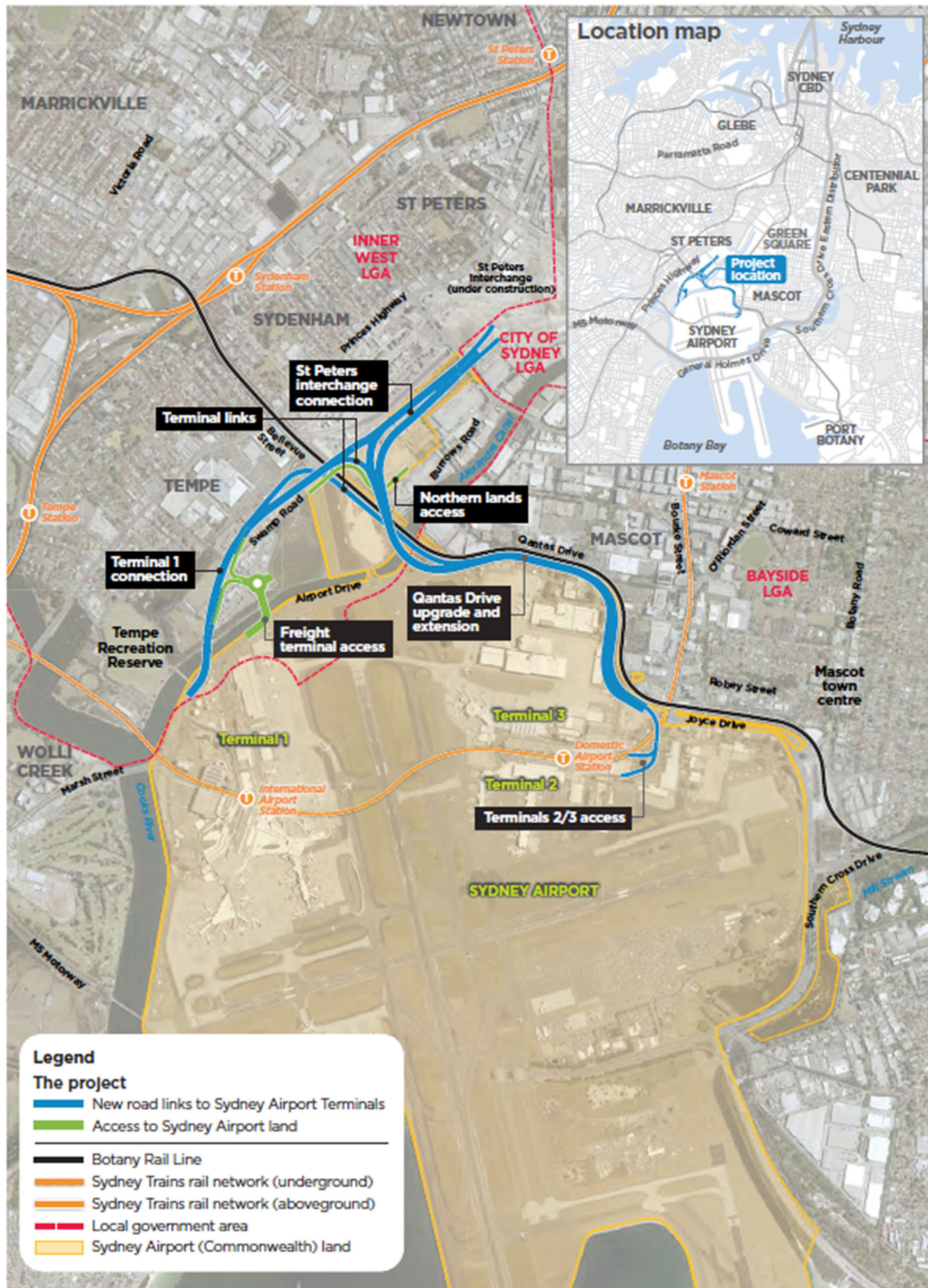


Figure 1-1 Project overview

2 Purpose and objectives

2.1 Purpose

The purpose of this Plan is to describe how Aboriginal heritage will be protected and managed during construction of the Project.

2.2 Scope

This Plan details the methods to be used to provide clearance prior to disturbing the ground for construction works within Investigation Areas 1 and 2. It also details the process in place in the event of unexpected heritage finds. Operational measures do not fall within the scope of this Plan and therefore are not included within this Plan.

2.3 Objectives

The key objective of the AHMP is to ensure all CoA, and UMMs relevant to Aboriginal heritage are described, scheduled and assigned responsibility as outlined in:

- The EIS/MDP prepared for the Sydney Gateway Road Project
- Conditions of Approval granted to the Project on 27th August 2020
- Response to Submissions Report for the Sydney Gateway Road Project (May 2020)
- Roads and Maritime specification G36
- All relevant legislation and other requirements described in Section 3.1 of this Plan.

2.4 Targets and performance outcomes

The desired environmental performance outcome for Aboriginal heritage is to design, construct and operate the Project, to the greatest extent possible, to ensure the long-term protection, conservation and management of items of Aboriginal heritage significance.

The targets outlined below have been established to achieve this environmental performance outcome, as related to the management of Aboriginal heritage items, during the delivery of the Project:

- Ensure full compliance with the relevant legislative requirements, CoA and UMM's.
- Implement measures to minimise adverse impacts to heritage during construction and operation.
- Implement monitoring of heritage at appropriate intervals during construction.

The following performance outcomes relevant to Aboriginal Heritage (as identified in Chapter 27.4 Compilation of performance outcomes of the EIS/MDP) are detailed in Table 2-1 below.



Table 2-1 Aboriginal Heritage Performance Outcomes

No.	Performance outcome	Where Addressed
1	<p>Heritage</p> <p>Aboriginal heritage objects with the potential to be impacted by the Project are salvaged and retained.</p> <p>Key Aboriginal heritage values are incorporated into the final urban design and landscaping outcomes.</p> <p>Visual impacts on heritage items are mitigated through individually tailored landscape treatments.</p> <p>Impacts on heritage are managed in accordance with relevant legislation, including the EP&A Act, the Heritage Act 1977 (NSW), Airports (Environment Protection) Regulation 1997 and relevant guidelines.</p>	<p>Potential impacts and mitigation on Aboriginal heritage items are detailed in Sections 5 and 6 of this Plan.</p> <p>The Place, Design and Landscape Plan will incorporate heritage values as required by CoA E76.</p> <p>Implement the monitoring of potential archaeological sites as detailed in Section 6.</p>

3 Environmental Requirements

3.1 Relevant legislation and guidelines

3.1.1 Legislation

All legislation relevant to this AHMP is included in the table below as well as in Appendix A1 of the CEMP.

Act	Requirement	Reference	Applicability
<i>National Parks and Wildlife Act 1974</i>	Do not harm or desecrate an Aboriginal object or Aboriginal place without consent	S86 S90	N/A
	Notify the NPWS within reasonable time of becoming aware of the location or discovery of certain Aboriginal objects.	S89A	Yes
	An Aboriginal heritage impact permit may be issued.	S90	No – Under the EP&A Act the Project is exempt from this AHIP requirement
<i>Aboriginal and Torres Strait Islander Heritage Protection Act 1984</i> (Commonwealth)	Report any discovery of Aboriginal remains to the Federal Minister for the Environment and Heritage.	S20	Yes
	Comply with the provisions of any declaration in relation to a significant Aboriginal area or object.	S22	Yes

3.1.2 Additional approvals, licences, permits and requirements

There are no additional licences or approvals required for Aboriginal heritage outside those listed in Section 3.2 and 3.3 below..

3.1.3 Guidelines

The main guidelines, specifications and policy documents relevant to this Plan include:

- Roads and Maritime Services Specification G36 – Environmental Protection (Management System).
- NSW Office of Environment and Heritage (OEH)'s Aboriginal Cultural Heritage Consultation Requirements for Proponents (NSW Department of Environment Climate Change and Water (DECCW) 2010a)
- Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW (DECCW 2010b)
- Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW (Department of Environment Climate Change and Water (DECCW) 2010c)
- NSW Roads and Maritime Services Procedure for Aboriginal Cultural Heritage Consultation and Investigation (PACHCI) (Roads and Maritime Services 2011a)

- Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW (OEH 2011)
- Roads and Maritime Standard Management Procedure: Unexpected Heritage Items (March 2015)
- NSW Government Policy on Aboriginal Participation in Construction (released 1 May 2015, updated 1 August 2016)
- Roads and Maritime Cultural Heritage Guidelines (November 2015)

3.2 Minister's Conditions of Approval

The conditions listed in Table 3.1 below are relevant to Aboriginal heritage management for the Project. Condition A1 prescribes that the Project must generally be carried out in accordance with the *Sydney Gateway Road Project Environmental Impact Statement/Preliminary Draft Major Development Plan* (dated November 2019), which prescribes the preparation of an AHMP (Table 27.9).

Table 3-1 CoA relevant to this AHMP

Source	Requirements	How addressed
E10	An Unexpected Heritage Finds and Human Remains Procedure must be prepared to manage unexpected heritage finds in accordance with any guidelines and standards prepared by the Heritage Council of NSW or Heritage DPC.	The Unexpected Heritage Items Procedure is included in Appendix B of this Plan.
E11	The Unexpected Heritage Finds and Human Remains Procedure must be prepared and submitted to the Planning Secretary for information no later than one month before the commencement of construction.	The Unexpected Heritage Items Procedure is included in Appendix B of this Plan. This Procedure will be submitted to DPIE.
E12	The Unexpected Heritage Finds and Human Remains Procedure, as submitted to the Planning Secretary, must be implemented for the duration of construction.	This procedure forms part of this Plan and will be valid for the period of construction.

3.3 Updated Environmental Management Measures

Relevant updated mitigation measures (UMMs) are listed in Table 3-1 below. This includes references to required outcomes, the timing of when the commitment applies relevant documents or sections of the environmental assessment influencing the outcome and implementation.

Table 3-2 Environmental management measures relevant to this AHMP

Source	Requirements	How addressed
AH1	Detailed design and construction planning will avoid direct impacts on Investigation Area 1 and Investigation Area 2 where practicable.	<p>The details on archaeological excavations are contained in Sections 5 and 6 of this Plan .</p> <p>The detailed Salvage Excavation Methodology is provided in Appendix A of this Plan.</p> <p>An Aboriginal archaeological salvage excavation report will be prepared as detailed in Section 7.5 of this Plan.</p>
AH2	An Aboriginal heritage interpretation strategy will be developed in consultation with registered Aboriginal parties and other relevant stakeholders. The interpretation strategy will have regard to Sydney Airport Master Plan 2039 and the Sydney Airport Heritage Management Plan.	An Aboriginal Heritage Interpretation Strategy will be developed to meet this requirement.

Source	Requirements	How addressed
AH3	Archaeological salvage excavation will be undertaken prior to construction within those parts of Investigation Area 1 and Investigation Area 2 where deep sediments would be directly impacted by the project.	<p>The details on archaeological excavations are contained in Sections 5 and 6 of this Plan .</p> <p>The detailed Salvage Excavation Methodology is provided in Appendix A of this Plan.</p> <p>An Aboriginal archaeological salvage excavation report will be prepared as detailed in Section 7.5 of this Plan.</p>

Source	Requirements	How addressed
AH4	An Aboriginal Heritage Management Plan will be prepared prior to construction and implemented as part of the CEMP. The plan will include measures to manage Aboriginal heritage and minimise the potential for impacts during construction. It will include the proposed salvage methodology, unexpected find procedure (see measure AH6) and process for additional consultation with Aboriginal stakeholders.	This Plan has been developed to meet the requirements of this condition. The salvage methodology is included in Appendix A of this Plan. The unexpected finds procedure is included in Appendix B of this Plan. The process for consultation with Aboriginal stakeholders is included in Section 3.4.
AH5	Aboriginal stakeholder consultation will continue to be undertaken in accordance with the Procedure for Aboriginal cultural heritage consultation and investigation (Roads and Maritime, 2011b) and Aboriginal cultural heritage consultation requirements for proponents 2010 (DECCW, 2010c).	The process for consultation with Aboriginal stakeholders is included in Section 3.4.
AH6	If suspected Aboriginal heritage items or human remains are uncovered during construction they will be managed in accordance with the Standard Management Procedure: Unexpected Heritage Items Procedure (Roads and Maritime Services, 2015e).	The Unexpected Heritage Items Procedure is included in Appendix B of this Plan.

Source	Requirements	How addressed
G36, 4.9	Prepare an Aboriginal Heritage Management Sub-Plan as part of the CEMP or include mitigation strategies within the CEMP to manage any areas of the Site where known Aboriginal objects, places and/or culturally sensitive areas have been identified on Site.	This Plan has been developed to meet the requirements of this condition.
G36, 4.9	<p>The procedure for unexpected finds must include the following steps:</p> <ul style="list-style-type: none"> • cease work in the immediate area of the identified potential Aboriginal object immediately; • notify the Principal immediately; • provide access to the Site to any heritage specialist required to assess the finds; • provide temporary exclusion (pedestrian) fencing; • implement additional safeguards as required. 	The Unexpected Heritage Items Procedure is included in Appendix B of this Plan.
G36, 4.9	Provide for all personnel working on the Site training on their responsibilities pertaining to the Aboriginal Heritage provisions of the National Parks and Wildlife Act 1974 (NSW). Make the personnel working on Site aware of all Aboriginal archaeological sites and areas of cultural sensitivity identified in the Cultural Heritage Assessment Report or the Environment Assessment documents listed in Annexure G36/A3 that must be preserved.	Details on training of personnel are included in Section 7.2 of this Plan.

3.4 Consultation

Consultation with registered Aboriginal stakeholders and government authorities were integral in the assessment of Aboriginal cultural heritage for the Project and the development of the EIS/MDP. Detailed consultation information is provided in the EIS/MDP Technical Working Paper 10 – Aboriginal Cultural Heritage Assessment Report. Consultation was undertaken in accordance with the Stage 2 and Stage 3 requirements of the NSW Roads and Maritime Services Procedure for Aboriginal Cultural Heritage Consultation and Investigation (PACHCI) (Roads and Maritime Services 2011a).

In accordance with Stage 1 of PACHCI process, the following Aboriginal community consultation process was adopted:

- Identification of key Aboriginal stakeholders through searches of the National Native Title Register and Registrar of Aboriginal Owners, as well as identify the relevant Local Aboriginal Land Council (LALC) – refer to Table 4-1.
- A site survey was undertaken by a heritage advisor and with a representative from the identified LALC present
- An archaeological assessment was undertaken and the associated report was prepared in conjunction with relevant aboriginal stakeholders.

As the survey identified there was a potential for impacts on Aboriginal heritage, TfNSW (formerly Roads and Maritime) commenced consultation requirements in accordance with PACHCI Stage 3 and the Consultation Requirements.

The salvage excavation methodology for the Project was then developed in consultation with Registered Aboriginal Parties (RAPs) via an Aboriginal Focus Group (AFG).

Consultation and engagement with the Aboriginal community will continue as per the Heritage NSW Aboriginal community consultation requirements, and RAP organisations will be invited to participate in the archaeological salvage excavation works. RAP engagement will be undertaken in consultation with the TfNSW Aboriginal Cultural Heritage Advisor.

The project RAPs are detailed in table 4.1 below.

Table 4-1 Registered Aboriginal Parties

Group represented	Contact name
Metropolitan LALC	Nathan Moran
La Perouse LALC	Chris Ingrey
Tocomwall Pty Ltd	Scott Franks
Darug Boorooberogal Elders Aboriginal Corporation	Gordon Workman
Muragadi Heritage Indigenous Corporation	Darleen Johnson
Murra Bidgee Mullangari	Ryan Johnson

Group represented	Contact name
Darug Land Observations	Jamie Workman, Gordon Workman and Anna O'Hara
Butucarbin Aboriginal Corporation	Jennifer Beale
Didge Ngunawal Clan	Paul Boyd and Lilli Carroll
DJMD	Darren Duncan

Ongoing consultation with agencies and relevant stakeholders, may be carried out for particular issues pertaining to the Project's impact on Aboriginal cultural heritage, such as in the case of any unexpected Aboriginal heritage finds. Consultation will be with the Registered Aboriginal Parties identified in Table 4-1 above.

4 Existing environment

The following sections summarise the existing environment and archaeological context of the landscape within and adjacent to the Project area. Detailed information is provided in Chapter 18 of the EIS/MDP and Technical Working Paper 10.

4.1 Aboriginal historical and landscape context

Prior to European settlement, land in the study area was occupied by the Gadigal people. It is considered likely that the Project site was occupied by the Wangal clan, whose territory extended between the Parramatta and Cooks rivers. In the study area, wetlands associated with the original alignment of Shea's Creek, the Cooks River and Gumbramorra Swamp were a source of reliable fresh water and food for Aboriginal people. Outcrops of Hawkesbury Sandstone around the Cooks River and surrounding environment would have provided shelter and materials.

Since early European settlement the study area has been subject to significant disturbance and development. However, deeper estuarine and fluvial soils remain intact in some areas, including surrounding some parts of Alexandra Canal. Within these deeper soils, shell material has been encountered at depths of up to five metres below ground level.

Alexandra Canal has been identified as having Aboriginal heritage values. The Sydney Water Section 170 heritage register listing for the canal notes that 'the discovery of the butchered Dugong, Aboriginal axes and the remains of an ancient forest in this area that were uncovered during construction have revealed both a species and a food source of Aboriginal occupation in the Botany basin and a scientific understanding to the changing sea levels along the area.'

4.2 Recorded Aboriginal sites and places

- There are no listed Aboriginal sites recorded on the AHIMS database within the Project site. The closest listed site is the Shea's Creek Dugong (AHIMS ID 45-6-0751), which is recorded to have been located about 250 metres from the Project site. The AHIMS record indicates that this site has been destroyed.
- No Aboriginal sites or places listed under the EPBC Act were identified in the Project site.
- No intangible Aboriginal heritage was identified in the Project site
- There are no Aboriginal places declared under section 84 of the National Parks and Wildlife Act 1974 (NSW), or Aboriginal places of heritage significance defined by the Standard Instrument – Principal Local Environmental Plan, located within or near the Project site.
- There are no native title claims relevant to the Project site.

4.3 Archaeological survey results, potential and significance

Two areas with archaeological potential were identified during the archaeological field surveys. These are referred to as Investigation Area 1 and Investigation Area 2 (refer to Figure 4-1). These areas are located close to Alexandra Canal, adjacent to the rail corridor on either side of the canal, and mainly within Sydney Airport land. Although evidence of surface disturbance was identified at these locations, geological data indicates that deeper soils (at a depth of about five metres below ground level) are undisturbed. These deeper soils have the potential to contain Aboriginal archaeological deposits due to the age of these soils. As such, Investigation Area 1 and Investigation Area 2 are considered to have archaeological potential.

Based on the results of the survey and review of existing conditions, the assessment of the archaeological significance of the Project site concluded that:

- The majority of the Project site has nil to low archaeological potential and does not have scientific significance.
- Investigation Area 1 and Investigation Area 2 have moderate archaeological potential and moderate to high scientific significance as a result of the potential presence of undisturbed material beneath the ground surface.
- Any archaeological remains would be rare and have the potential to add to knowledge of the Aboriginal heritage values of the study area.

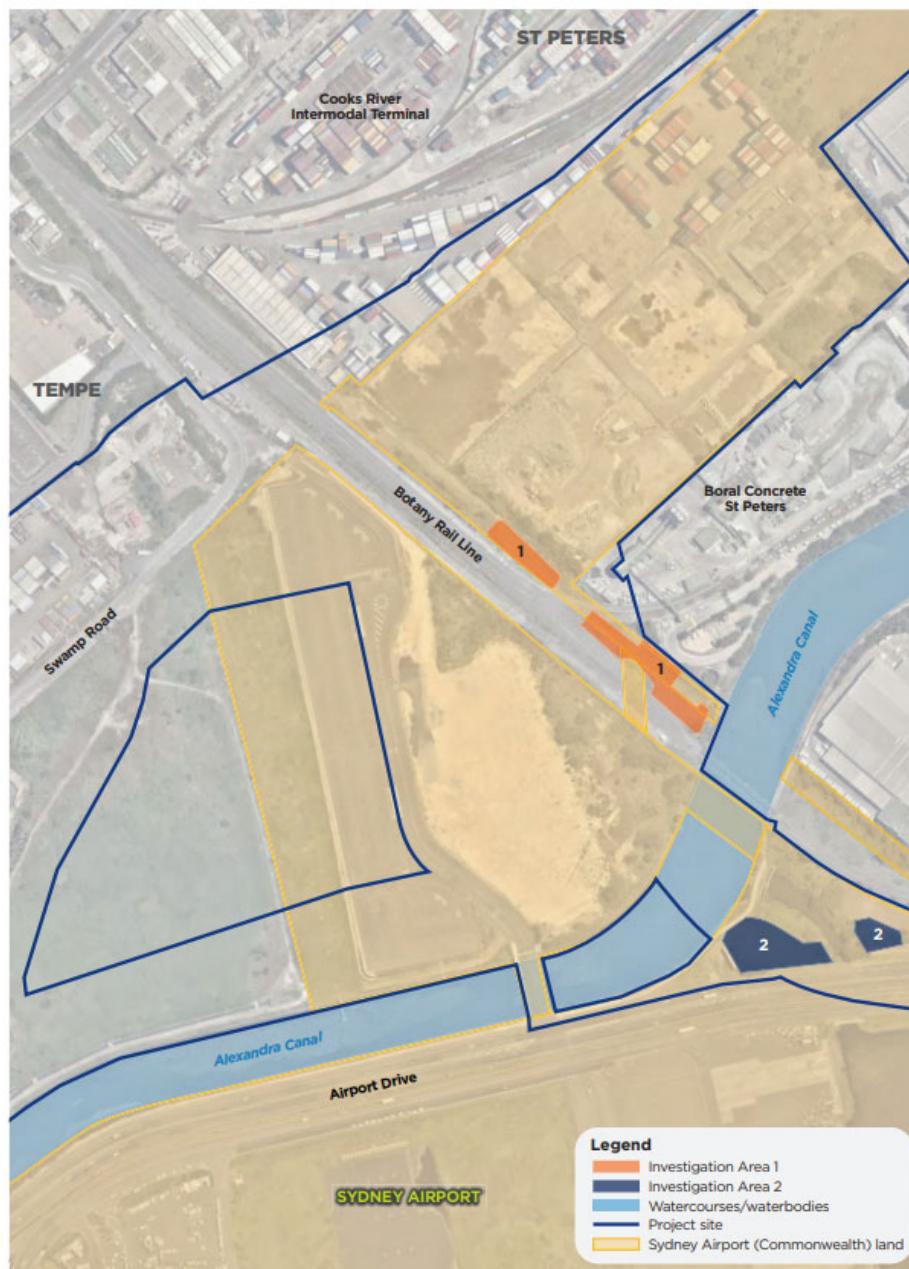


Figure 4-1 Areas of Aboriginal Archaeological Potential

5 Environmental aspects and impacts

5.1 Construction Activities

Works associated with the Project would disturb the ground within Investigation Areas 1 and 2. These works include:

- Constructing the piers associated for the Qantas Drive bridge (on both sides of Alexandra Canal);
- Construction of a drainage channel adjacent to the rail corridor;
- Potential installation associated utilities; and,
- the culvert connecting to the northern side of Alexandra Canal.

5.2 Potential Impacts

Constructing this infrastructure would involve works at depths that could disturb the underlying sandy and clay estuarine deposits, which are considered to be archaeologically sensitive and potentially contain archaeological material.

These works would directly and partially impact these areas of archaeological potential, resulting in a partial loss of the potential Aboriginal heritage values of these areas.

5.3 Unexpected heritage items

The EIS/MDP has identified that it is unlikely that that Aboriginal heritage objects or human remains are present within the Project area outside of the archaeologically sensitive Investigation Area 1 and Area 2. However, should any potential Aboriginal heritage objects or human remains be identified during works, all works in the vicinity of the find would cease, and they would be managed in accordance with the Roads and Maritime Standard Management Procedure: Unexpected Heritage Items Procedure (2015).

6 Environmental mitigation and management measures

Specific measures and requirements to address contract specification, CoA and UMMs in relation to Aboriginal heritage are outlined in Table 7-1.

Table 7-6-1 Aboriginal management and mitigation measures

ID	Measure/Requirement	When to implement	Responsibility	Evidence
AHM1	An Aboriginal Heritage Management Plan will be implemented through construction.	Pre-construction, construction	Environment, Approvals & Sustainability Manager or delegate	This Plan has been developed to comply with this requirement. The detailed Salvage Excavation Methodology is contained in Appendix A and a procedure for Unexpected Heritage Items is provided in Appendix B.
AHM2	All personnel working on Site must participate in induction training prior to commencing works on site. This will include aware training of all Aboriginal archaeological sites and areas of cultural sensitivity identified in the Cultural Heritage Assessment Report	Pre - construction and during inductions	Environment, Approvals & Sustainability Manager or delegate	Induction Records and Toolbox Talk Records
AHM3	Archaeological salvage excavation will be undertaken prior to construction within those parts of Investigation Area 1 and Investigation Area 2 where deep sediments would be directly impacted by the Project. Archaeological salvage excavation (including post-excavation analysis and reporting) will be completed prior	Pre-construction	Environment, Approvals & Sustainability Manager or delegate Foreman	The Salvage Excavation Methodology included in Appendix A will be implemented throughout the salvage works. A final Salvage Excavation Report will be prepared as detailed in Section 7.5 of this Plan.

ID	Measure/Requirement	When to implement	Responsibility	Evidence
	to any activities that may result in harm to Aboriginal objects in these areas.			
AHM4	If suspected Aboriginal heritage items or human remains are uncovered during construction they will be managed in accordance with the Standard Management Procedure: Unexpected Heritage Items (Roads and Maritime Services, 2015e).	Pre-construction, construction, post-construction	Environment, Approvals & Sustainability Manager or delegate Foreman	The Unexpected Heritage Items Procedure (included in Appendix B) will be implemented throughout the works.

7 Compliance Management

7.1 Roles and responsibilities

The JHSWJV Project Team's organisational structure and overall roles and responsibilities are outlined in Section 3.3 of the CEMP. Specific responsibilities for the implementation of environmental controls are detailed in Section 7 of this Plan.

7.2 Training

All employees, contractors and utility staff working on site will undergo site induction training relating to Aboriginal heritage management issues prior to construction commencing. The induction training will address elements related to heritage management including:

- Existence and requirements of this sub-plan
- Relevant legislation including their responsibilities pertaining to the Aboriginal Heritage provisions of the National Parks and Wildlife Act 1974 (NSW)
- Roles and responsibilities for Aboriginal heritage management
- Location of identified Aboriginal heritage salvage sites, areas of cultural sensitivity and no-go areas
- Proposed Aboriginal heritage management and protection measures
- Procedure to follow in the event of an unexpected heritage item find or discovery of human remains during construction works (Roads and Maritime Services Unexpected Heritage Items Procedure (November 2015) (refer to Appendix B).

Further details regarding staff induction and training are outlined in 3.5 of the CEMP.

7.3 Monitoring and inspections

Inspections of Aboriginal heritage areas and activities with the potential to impact Aboriginal heritage will occur for the duration of the Project. Site inspections assess compliance with the implementation of management measures and requirements for site activities as detailed in this Plan..

In the case of any unexpected Aboriginal heritage finds identified during proposed works all on site personnel will follow the Unexpected Heritage Items Procedure in Appendix B.

Additional requirements and responsibilities in relation to inspections are documented in Section 3.9.1 and Section 3.9.2 of the CEMP.

7.4 Auditing

Audits (both internal and external) will be undertaken to assess the effectiveness of environmental controls, compliance with this sub plan, CoA and other relevant approvals, licenses and guidelines.

Audit requirements are detailed in Section 3.9.3 of the CEMP.

7.5 Reporting

Reporting requirements and responsibilities are documented in Section 3.9.5 of the CEMP. Specific requirements for Aboriginal heritage reporting include:

- Reporting in accordance with Roads and Maritime's Standard Management Procedure: Unexpected Heritage Items (March 2015) if an unexpected heritage item is discovered
- Reporting in accordance with the Roads and Maritime Services PACHCI (2011) is required if land outside of the assessed construction footprint is to be utilised during construction of the Project
- An Aboriginal archaeological salvage excavation report including results and analysis of excavated materials, in accordance with the Heritage NSW Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW (OEH 2011)
- Existing condition surveys / reports, ground settlement reports and/or a post-construction condition survey / report would also be undertaken for any unexpected Aboriginal heritage finds identified during construction activities to assess if impacts have occurred.

8 Review and improvement

8.1 Continuous improvement

Continuous improvement of this plan will be achieved by the ongoing evaluation of environmental management performance against environmental policies, objectives and targets for the purpose of identifying opportunities for improvement.

The continuous improvement process will be designed to:

- Identify areas of opportunity for improvement of environmental management and performance
- Determine the cause or causes of non-conformances and deficiencies
- Develop and implement a plan of corrective and preventative action to address any non-conformances and deficiencies
- Verify the effectiveness of the corrective and preventative actions
- Document any changes in procedures resulting from process improvement
- Make comparisons with objectives and targets.

8.2 Plan update and amendment

The processes described in Chapter 3.9 and Chapter 3.13 of the CEMP may result in the need to update or revise this Plan. This will occur as needed.

Only the Environment, Approvals and Sustainability Manager, or delegate, has the authority to change any of the environmental management documentation.

A copy of the updated plan and changes will be distributed to all relevant stakeholders in accordance with the approved document control procedure – refer to Section 3.11.2 of the CEMP.

Appendix A – Salvage Excavation Methodology

14.0 SALVAGE METHODOLOGY

14.1 Aims

Salvage excavations should be undertaken within Investigation Area 1 and Investigation Area 2 to mitigate potential impacts on these areas. Any archaeological remains are likely to have a **moderate – high scientific/archaeological significance**.

14.2 Salvage excavation justification

The justification for the methodology proposed is that *in situ* sandy clay estuarine deposits are highly likely to occur in Investigation Area 1 and Investigation Area 2. The actual presence of these deposits and the depths from the current ground surface are unknown. Similar deposits have been demonstrated to contain Aboriginal objects (Etheridge et al. 1896). Where these contain Aboriginal archaeological deposits, they are likely to have moderate to high scientific significance. Not all of the *in situ* sandy clay estuarine deposits are likely to be impacted during the proposed works, so partial conservation of the deposits within Investigation Area 1 and Investigation Area 2 (if present) is likely to be achieved.

The justification for proceeding directly to a salvage strategy is because the layers of interest (if present) are likely to be well below the water table in highly permeable soils. The high permeability soils mean that dewatering excavations to facilitate hand dug test excavations in accordance with the Code of Practice would not be feasible, as inflow volumes and rates would be too great. Also, the groundwater may be contaminated. There is also a risk that the sandy soils would collapse as the excavation progresses to depth. It would be extremely hazardous to both the environment and excavation team to attempt to remove sediments through a test excavation phase and then return at a later stage to re-excavate for salvage (if required). Therefore, to mitigate against these issues, a staged salvage program is proposed with the aim of identifying and removing Aboriginal heritage material from the impact area.

14.3 Constraints to the methodology

Generally, it is considered best practice that all archaeological excavations are completed by hand and guided by the Code of Practice. However, health and safety risks and logistical constraints such as groundwater, contaminated soil and fill, and deep deposits mean that this approach is not feasible.

14.3.1 Groundwater

High volumes of groundwater inflow will be an issue for excavation within the Investigation Areas. Groundwater is likely to rapidly infill any excavation once the current water table is reached. The potential archaeological deposit is expected to be below the current water table. Depth to groundwater recorded during monitoring (WSP | Parsons Brinckerhoff 2016) was as shallow as 1.6 metres below ground level. Potential groundwater inflow rates during culvert construction (to ensure that the groundwater level is below the bottom of the excavation) at this location are estimated in the groundwater technical working paper at 680 to 2297 cubic metres per day.

Excavation by hand would not be feasible as groundwater would infill areas rapidly. The groundwater inflows would need to be captured to maintain a dry excavation. Direct discharge of the water extracted from the excavation to Alexandra Canal is unlikely due to the potential for contamination in the groundwater. The extracted water requires capture and treatment prior to discharge. Based on

calculated inflows rates and volumes it would not be feasible to keep excavation areas open for long durations.

14.3.2 Contamination

The groundwater within the Investigation Areas has the potential to be contaminated with a range of substances including poly-fluoroalkyl substances (PFAS), hydrocarbons, metals, and high concentrations of ammonia. There is also the potential of encountering acid sulphate soils (ASS) particularly near Alexandra Canal. Exposing contaminated sediments during excavation poses a risk to human health and the surrounding environment and will need to be managed through appropriate environmental and occupational health measures. A safe work method statement will be produced prior to the commencement of the proposed investigation and will detail the risks to human health and the environment.

14.3.3 Nature of subsurface deposit

There are varying depths of fill across the Investigation Areas. If potential archaeological deposits are present, they are likely to be well below the groundwater table. Due to this depth and likelihood of rapid inflow of groundwater to any excavation, archaeological excavation by hand will not be feasible. In addition, excavation in deep sandy soils may be at high risk of collapse adding to the significant logistical constraints which make excavation by hand in accordance with the Code of Practice not feasible.

14.4 Methodology

Given the constraints of archaeological excavation within Investigation Areas, it is proposed to use a sonic drill rig and push tubes to conduct salvage excavation. This would mitigate against health and safety risks relating to contaminated soils and fill, high volumes of contaminated groundwater and the constraints associated with the required depth of excavation.

The methodology proposes a three phased salvage excavation to identify the sandy clay estuarine deposits prior to the construction stage of the project and remove any Aboriginal heritage objects.

The salvage excavation will only target areas that will be impacted by the project. Remaining archaeological features outside the excavation area would be preserved intact.

14.4.1 Personnel

As per section 1.6 of the Code of Practice, archaeological investigations in NSW must use the services of people who are skilled and experienced in archaeology. The Code of Practice states that an appropriately skilled person has:

a minimum of a bachelor's degree with honours in archaeology or relevant experience in the field of Aboriginal cultural heritage management, and

the equivalent of two years' full-time experience in Aboriginal archaeological investigation, including involvement in a project of similar scope, and

a demonstrated ability to conduct a project of the scope required through inclusion as an attributed author on a report of similar scope.

The salvage excavation will be managed and supervised by suitably qualified heritage professional whose qualifications meet or exceed the requirements of the Code of Practice.

14.4.2 Safe work methods statement

Due to the likely occurrence of hazardous material during works, a detailed safe work method statement (SWMS) will be developed prior to the commencement of works. The SWMS will include protocols to manage any hazardous materials likely to be present. The SWMS will need to include a plan of emergency decontamination and evacuation. Plans for the safe layout of the work site will be included in the SWMS.

A responsibility matrix will be developed and incorporated into the SWMS. As Artefact Heritage does not specialise in the safe management of contaminated or acidic soils, an environmental hygienist will be required onsite to assess excavated materials to identify any potential health and safety risks and provide direction as to management.

14.4.3 Sample strategy

To minimise impact on the environment and production of hazardous waste, a three phase program for excavations was developed to identify and target archaeologically significant features. All phases will be completed during a continuous excavation program to minimise the time that hazardous material is exposed and workers are placed at risk. Excavation will be limited as much as feasible to the area and depth of impact, as indicated by current design plans. Any changes to design plans may require further archaeological investigation.

In summary, Phase 1 push tubes results would confirm the presence of deposits with archaeological potential, Phase 2 would use more tubes to determine the presence and frequency of any cultural remains and Phase 3 would undertake further push tubing in the immediate area of the finds to maximise recovery of archaeological evidence.

Phase 1

Phase 1 would involve the placement of 14 push tubes with a diameter of around 200 millimetres (Figure 14.1). These push tubes would sample an area of 0.03 square metres each. Four locations for piling have been identified. The initial excavations at these locations would progress to bedrock to identify if layers of archaeological potential are present. The subsequent excavations would only need to progress as deep as necessary to sample the deposits of interest (if present). The remaining push tubes (1-3 and 6-7) will investigate land in which the drainage channel will be located. These depths have been calculated based on the concept design and will need to be confirmed prior to the commencement of the salvage program. Table 14.1 provides a summary of the push tube depths.

Table 14.1: Proposed Phase 1 push tubes

Phase 1 location number	Estimated depth of excavation (m AHD)	Estimated depth from surface
1	-0.83	2.8 metres
2	-0.91	2.8 metres
3	-0.99	3.3 metres
4	Bedrock	Unknown

Phase 1 location number	Estimated depth of excavation (m AHD)	Estimated depth from surface
5	Bedrock	Unknown
6	-1.24	4.3 metres
7	-1.36	5 metres
8	-1.47	4 metres
9	Bedrock	Unknown
10	Bedrock	Unknown
11	Bedrock	Unknown
12	Bedrock	Unknown
13	Bedrock	Unknown
14	Bedrock	Unknown

Where identical estuarine deposits are identified between two or more push tube locations, it will be assumed that the deposit between those two points is comprised of the same material. Areas where archaeologically sensitive deposits (sandy clay estuarine soils) are identified would trigger Phase 2 investigations.

Note that Phase 1 deposits would be processed in the following ways:

- Introduced fills – not investigated
- Estuarine deposits – hand sieved, and environmental samples taken where appropriate
- Shell midden – bulk samples and sieved if low density of shell
- Sterile deposits – not investigated (for example clay or sandstone transition soils below estuarine deposits).

Phase 2

Phase 2 investigations will involve the placement of push tubes at 2.5 metre intervals from the triggering push tube within the impact footprint. Information yielded from the Phase 1 investigation would also inform the required depth for subsequent phases of investigation.

Phase 3

Where significant archaeological triggers are identified, Phase 2 locations would be expanded with additional push tubes placed around the circumference of the Phase 2 location to determine the full extent of the archaeological features (Phase 3). The decision on which Phase 2 locations to further investigate with Phase 3 excavations would be made by the supervising archaeologist based on the following ‘triggers’ being encountered:

- Identification of artefacts (no minimum number due to potential significance of site)
- Archaeological features such as hearths and/or middens
- Cultural material with potential for scientific dating

- Any other features identified by the supervising archaeologist and Aboriginal stakeholder representatives.

A record of finds as they are retrieved from the sieve would be kept to determine if Phase 3 excavations are required. The precise locations of all the push tubes would need to be recorded by a survey and the resulting data provided to the consulting archaeologist in GIS format.

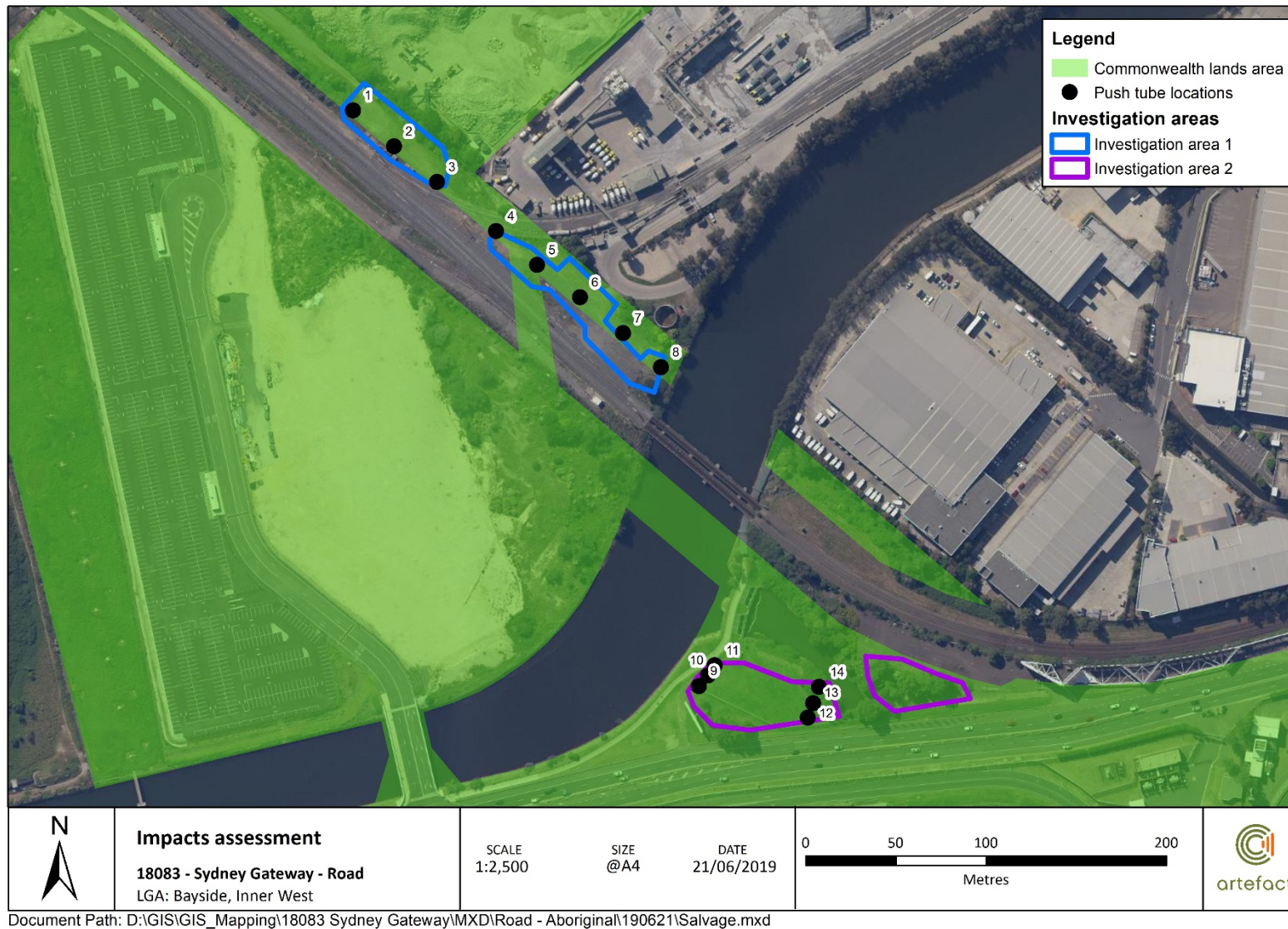


Figure 14.1: Proposed location of Phase 1 push tubes (indicative)

14.4.4 Excavation procedure

Due to the health and safety risks associated with potential contaminated deposits, a sonic drill rig and 200 millimetre (approx.) push tubes is proposed for the excavation. The push tubes would be inserted with a steel casing to prevent the collapse of the pit. The sonic rig has a catcher at the bottom which will ensure the recovery of undisturbed, uncompressed cores of sand.

The push tubes would remove 1.5-2 metres of material per section. Each section would be placed inside a plastic tube to maintain stratigraphical integrity. The samples would need to be examined for potential hazardous material by an environmental hygienist. The investigations contractor would need to develop a management strategy for the segregation, storage and disposal of any material that constitutes a threat to humans or the environment. Recommendations would be given by the contamination expert on site as to whether the deposit was safe to sieve. If the material is conformed as containing hazardous material and not safe to sieve the deposit would be abandoned.

Archaeological assessment would involve placing the tubes in order of depth, opening the tubes, and investigating and photographing each section.

14.4.5 Sieving

Push tubes would be opened and recorded prior to sieving. The section containing estuarine deposits with archaeological potential would be sieved in 100 millimetre spits.

Only those sediments identified as having archaeological potential will be sieved. It is understood that given the likely depth of the potential archaeological deposit these sediments will be groundwater affected. These sediments will be wet sieved through a three millimetre mesh. That is, already wet sediments will be clean washed through the sieve so that archaeological material can be observed. Phase 3 tubes may need to be sieved through a finer mesh (3-1 millimetres) to identify charcoal, knapping debitage, etc.

A water source will be required to wash sediments through the sieves. It is proposed that sieving will occur over a large metal container that will collect the sediments and groundwater. The handling and disposal of contaminated material would be in accordance with the management plans of the investigating contractor. It is likely that special wire mesh trays will need to be constructed that will fit over the mouth of the container for the purpose of sieving.

Appropriate personal protective equipment will be required. The wet sieve would be set up in close proximity to excavations.

All recovered archaeological material would be cleaned, dried and bagged with a brief analysis conducted in the field. This analysis would include logging artefact type, raw material, and dimensions. These items would then be taken off site to be analysed in detail by relevant specialists in consultation with the RAPs.

All material, excluding material that will be retained for analysis, would be placed into suitable receptacles and removed from site for disposal at a suitable licensed waste facility. The investigations contractor will collect the excavated material and remove from site for disposal.

14.4.6 Excavation recording

All excavated units would be recorded in detail, including a photographic record and context sheets for each excavation unit. Context sheets will document information regarding depth (measured from

the current ground surface), spit number, and spit characteristics (colour, compaction, moisture, inclusions, context interface, texture, soil structure and preliminary identification).

A resealable bag and paper tag would be prepared for each excavation unit and annotated with details of test area, pit grid reference, spit context, date and excavators.

14.4.7 Soil sampling method

Palaeo-environmental samples for potential OSL dating, radiocarbon ¹⁴C dating, pollen analysis or particle analysis will be undertaken if suitable material is identified during excavations. Any samples will be decided by the supervising archaeologist, in consultation with the RAP representatives on site. A geomorphologist would also be consulted in regard to soil sampling and characterisation.

Pollen analysis samples will be taken from any suitable natural soil deposits that contain a high humic content. Samples will be collected in a resealable labelled bag.

Particle analysis provides higher-level characterisation than simple visual description and would substantially increase the degree to which the stratigraphic process can be determined. Samples for particle analysis will be taken from a representative section at one push tube location (more if changes in stratigraphy are evident across the salvage area) at 50 millimetre increments. Samples will be collected in resealable labelled bags.

At the AFG held on 12 December 2018, Gordon Workman mentioned that he would like samples to be collected for OSL dating. The procedure requires that the samples are extracted in the absence of green-blue spectrums of light. Where stratigraphic layers are identified suitable for OSL dating, these samples must be extracted under a red light.

The validity of processing samples will be determined on site.

14.4.8 Human remains

The Roads and Maritime Unexpected Heritage Finds Procedure would be followed.

This requires that if suspected human skeletal remains are uncovered at any time throughout the excavation program, the following actions will be followed:

- Cease all excavation activity.
- Do not further disturb or move the remains.
- Notify NSW Police.

An Aboriginal community representative must be present where it is reasonably suspected burials or human remains may be encountered. If human remains are unexpectedly encountered and they are thought to be Aboriginal, the Aboriginal community must be immediately notified.

Recording of Aboriginal ancestral remains must be undertaken, or reviewed by, a specialist physical anthropologist or a suitable qualified person.

Archaeological reporting of Aboriginal ancestral remains must be undertaken, or reviewed by, a specialist physical anthropologist, or other suitable qualified person, with the intent of using respectful and appropriate language and treating the ancestral remains of Aboriginal people rather than as scientific specimens.

14.5 Excavation Logistics

14.5.1 Access

It is assumed that ready access to sites will be provided by the proponent and that no night time works will be required. The proponent will be responsible for securing any open area excavations conducted.

14.5.2 Operational safety

In addition to standard safety considerations associated with excavation, handling of contaminated sediments and groundwater will need to be addressed by the proponent and investigations contractor. These safeguards will be in accordance with SafeWork NSW technical guidelines.

14.5.3 Management of open excavation units

The investigations contractor would ensure that access to the excavation locations is adequately restricted. Upon completion, each excavation location would be immediately backfilled by the investigation's contractor with an inert material, such as bentonite, to prevent collapse and avoid ongoing safety risks.

14.6 Aboriginal objects

All Aboriginal objects retrieved during excavation would be cleaned following initial microscopic analysis to detect residues if present and placed in resealable bags for further analysis and recording. Once excavation is completed, the artefact assemblage would be recorded and stored appropriately. This includes recording key attributes of material, artefact type, platform type, termination type and dimensions, as well as photographic and drawn records of representative artefacts. All recorded information would be entered into a Microsoft Excel table with detail linked to the provenance of each artefact. Once entered into the Excel table, the data can be readily supplied with the salvage excavation report to the registered Aboriginal parties in both electronic and hard-copy form.

All artefacts would be given a unique number and stored in double resealable snap lock bags. A permanent marker will be used to record the provenance and unique number of artefacts in each bag in writing on the outside of the bag and on an archival grade tag such as Dupont™ Tyvek® paper.

The long term care and management of all Aboriginal archaeological material retrieved will need to be discussed with the RAPs during the ACHAR process.

14.7 Reporting

An Aboriginal archaeological salvage excavation report detailing the results of the archaeological excavation program would be prepared once excavation, artefact recording, and any other analytic activities are concluded.

The excavation report would provide details on the established extent and scientific significance of any Aboriginal archaeological material retrieved during the excavation process.

14.7.1 Changes to proposed impact area

Where changes to the proposed impact area are made after the completion of the archaeological salvage excavation program, further assessment will need to be completed. The necessity for further salvage will be determined based on the nature of changes to the proposal.

14.7.2 Site impact recording form

An Aboriginal site recording form will be completed and submitted to the Aboriginal Heritage Management Systems database register to document any Aboriginal objects found during excavation.

14.8 Temporary and long-term care and management of retrieved Aboriginal objects

The temporary repository of any retrieved artefacts will be in a locked cupboard on the premises of the archaeological consultant.

Appendix B –Unexpected Heritage Items Procedure



Transport
Roads & Maritime
Services

Unexpected Heritage Items

Heritage Procedure 02

November 2015

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Appendix F	Archaeological Advice Checklist
Appendix G	Template Notification Letter
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Please note

This procedure applies to all development and activities concerning roads, road infrastructure and road related assets undertaken by Roads and Maritime.

For advice on how to manage unexpected heritage items as a result of activities related to maritime infrastructure projects, please contact the Senior Environmental Specialist (Heritage).

1 Purpose

This procedure has been developed to provide a consistent method for managing unexpected heritage items (both Aboriginal and non-Aboriginal) that are discovered during Roads and Maritime activities. This procedure includes Roads and Maritime's heritage notification obligations under the *Heritage Act 1977* (NSW), *National Parks and Wildlife Act 1974* (NSW), *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* (Cth) and the *Coroner's Act 2009* (NSW).

This document provides relevant background information in Section 3, followed by the technical procedure in Sections 6 and 7. Associated guidance referred to in the procedure can be found in Appendices A-H.

2 Scope

This procedure assumes that an appropriate level of Aboriginal and non-Aboriginal heritage assessment has been completed before work commences on site. In some cases, such as exempt development, detailed heritage assessment may not be required.

Despite appropriate and adequate investigation, unexpected heritage items may still be discovered during maintenance and construction works. When this happens, this procedure must be followed. This procedure provides direction on when to stop work, where to seek technical advice and how to notify the regulator, if required.

This procedure applies to all Road and Maritime construction and maintenance activities

This procedure **applies to**:

- The discovery of any unexpected heritage item (usually during construction), where Roads and Maritime does not have approval to disturb the item or where safeguards for managing the disturbance (apart from this procedure) are not contained in the environmental impact assessment.
- All Roads and Maritime projects that are approved or determined under Part 3A (including Transitional Part 3A Projects), Part 4, Part 5 or Part 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act), or any development that is exempt under the Act.

This procedure must be followed by Roads and Maritime staff, alliance partners (including local council staff working under Road Maintenance Council Contracts, [RMCC]), developers under works authorisation deeds or any person undertaking Part 5 assessment for Roads and Maritime.

This procedure **does not** apply to:

- The legal discovery and disturbance of heritage items as a result of investigations being undertaken in accordance with OEH's *Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW* (2010); an Aboriginal Heritage Impact Permit (AHIP) issued under the *National Parks and Wildlife Act 1974*; or an approval issued under the *Heritage Act 1977*¹.
- The legal discovery and disturbance of heritage items as a result of investigations (or other activities) that are required to be carried out for the purpose of complying with any environmental assessment requirements under Part 3A (including Transitional Part 3A Projects) or Part 5.1 of the EP&A Act.
- The legal discovery and disturbance of heritage items as a result of construction related activities, where the disturbance is permissible in accordance with an AHIP²; an approval issued under the *Heritage Act 1977*; the Minister for Planning's conditions of project approval; or safeguards (apart from

¹ RMS' heritage obligations are incorporated into the conditions of heritage approvals.

² RMS *Procedure for Aboriginal cultural heritage consultation and investigation* (2011) recommends that Part 4 and Part 5 projects that are likely to impact Aboriginal objects during construction seek a whole-of-project AHIP. This type of AHIP generally allows a project to impact known and potential Aboriginal objects within the entire project area, without the need to stop works. It should be noted that an AHIP may exclude impact to certain objects and areas, such as burials or ceremonial sites. In such cases, the project must follow this procedure.

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this procedure) that are contained in the relevant environmental impact assessment.

All construction environment management plans (CEMPs) must make reference to and/or include this procedure (often included as a heritage sub-plan). Where approved CEMPs exist they must be followed in the first instance. Where there is a difference between approved CEMPs and this procedure, the approved CEMP must be followed. Where an approved CEMP does not provide sufficient detail on particular issues, this procedure should be used as additional guidance. When in doubt always seek environment and legal advice on varying approved CEMPs.

3 Types of unexpected heritage items and their legal protection

The roles of project, field and environmental staff are critical to the early identification and protection of unexpected heritage items. **Appendix A** illustrates the wide range of heritage discoveries found on Roads and Maritime projects and provides a useful photographic guide. Subsequent confirmation of heritage discoveries must then be identified and assessed by technical specialists (usually an archaeologist).

An 'unexpected heritage item' means any unanticipated discovery of an actual or potential heritage item, for which Roads and Maritime does not have approval to disturb³ or does not have a safeguard in place (apart from this procedure) to manage the disturbance.

These discoveries are categorised as either:

- (a) Aboriginal objects
- (b) Historic (non-Aboriginal) heritage items
- (c) Human skeletal remains.

The relevant legislation that applies to each of these categories is described below.

3.1 Aboriginal objects

The *National Park and Wildlife Act 1974* protects *Aboriginal objects* which are defined as:

*"any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales, being habitation before or concurrent with (or both) the occupation of that area by persons of non Aboriginal extraction, and includes Aboriginal remains"*⁴.

Examples of Aboriginal objects include stone tool artefacts, shell middens, axe grinding grooves, pigment or engraved rock art, burials and scarred trees.

IMPORTANT!

All Aboriginal objects, regardless of significance, are protected under law.

If any impact is expected to an Aboriginal object, an Aboriginal Heritage Impact Permit (AHIP) is usually required from the Office of Environment and Heritage (OEH)⁵. Also, when a person becomes aware of an Aboriginal object they must notify

³ Disturbance is considered to be any physical interference with the item that results in it being destroyed, defaced, damaged, harmed, impacted or altered in any way (this includes archaeological investigation activities).

⁴ Section 5(1) *National Park and Wildlife Act 1974*.

⁵ Except when Part 3A, Division 4.1 of Part 4 or Part 5.1 of the *EP&A Act* applies.

the Director-General of OEH about its location⁶. Assistance on how to do this is provided in Section 7 (Step 5).

3.2 Historic heritage items

Historic (non-Aboriginal) heritage items may include:

- Archaeological ‘relics’
- Other historic items (i.e. works, structures, buildings or movable objects).

3.2.1 Archaeological relics

The *Heritage Act 1977* protects *relics* which are defined as:

“any deposit, artefact, object or material evidence that relates to the settlement of the area that comprises NSW, not being Aboriginal settlement; and is of State or local heritage significance”⁷.

Relics are archaeological items of local or state significance which may relate to past domestic, industrial or agricultural activities in NSW, and can include bottles, remnants of clothing, pottery, building materials and general refuse.

IMPORTANT!

All relics are subject to statutory controls and protections.

If a relic is likely to be disturbed, a heritage approval is usually required from the NSW Heritage Council⁸. Also, when a person discovers a relic they must notify the NSW Heritage Council of its location⁹. Advice on how to do this is provided in Section 7 (Step 5).

3.2.2 Other historic items

Some historic heritage items are not considered to be ‘relics’; but are instead referred to as works, buildings, structures or movable objects. Examples of these items that Roads and Maritime may encounter include culverts, historic road formations, historic pavements, buried roads, retaining walls, tramlines, cisterns, fences, sheds, buildings and conduits. Although an approval under the *Heritage Act 1977* (NSW) may not be required to disturb these items, their discovery must be managed in accordance with this procedure.

As a general rule, an archaeological relic requires discovery or examination through the act of excavation. An archaeological excavation permit under Section 140 of the *Heritage Act* is required to do this. In contrast, ‘other historic items’ either exist above the ground’s surface (e.g. a shed), or they are designed to operate and exist beneath the ground’s surface (e.g. a culvert).

⁶ This is required under s89(A) of the *National Park and Wildlife Act 1974* (NSW) and applies to **all projects** assessed under Part 3A, Part 4, Part 5 and Part 5.1 of the *EP&A Act*, including exempt development.

⁷ Section 4(1) *Heritage Act 1977*.

⁸ Except when Part 3A, Division 4.1 of Part 4 or Part 5.1 of the *EP&A Act* applies.

⁹ This is required under s146 of the *Heritage Act 1977* and applies to **all projects** assessed under Part 3A, Part 4, Part 5 and Part 5.1 of the *EP&A Act*, including exempt development.

Despite this difference, it should be remembered that relics can often be associated with 'other heritage items', such as archaeological deposits within cisterns and underfloor deposits under buildings.

3.3 Human skeletal remains

Human skeletal remains can be classed as:

- Reportable deaths
- Aboriginal objects
- Relics

Where it is suspected that less than 100 years has elapsed since death, human skeletal remains come under the jurisdiction of the State Coroner and the *Coroners Act 2009* (NSW). Under s 35(2) of the Act, a person must report the death to a police officer, a coroner or an assistant coroner as soon as possible. This applies to all human remains less than 100 years old¹⁰ regardless of ancestry. Public health controls may also apply.

Where remains are suspected of being more than 100 years old, they are considered to be either Aboriginal objects or non-Aboriginal relics depending on the ancestry of the individual. Aboriginal human remains are protected under the *National Parks and Wildlife Act 1974*, while non-Aboriginal remains are protected under the *Heritage Act 1977*.

The approval and notification requirements of these Acts are described above in sections 3.1 and 3.2. Additionally, the discovery of Aboriginal human remains also triggers notification requirements to the Commonwealth Minister for the Environment under s 20(1) of the *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* (Cth).

IMPORTANT!

All human skeletal remains are subject to statutory controls and protections.

All bones must be treated as potential human skeletal remains and work around them must stop while they are protected and investigated urgently.

Guidance on what to do when suspected human remains are found is in **Appendix E**.

¹⁰ Under s 19 of the *Coroners Act 2009*, the coroner has no jurisdiction to conduct an inquest into reportable death unless it appears to the coroner that (or that there is reasonable cause to suspect that) the death or suspected death occurred within the last 100 years.

4 Responsibilities

The following roles and responsibilities are relevant to this procedure:

Role	Definition/responsibility
Aboriginal Cultural Heritage Advisor (ACHA)	Provides Aboriginal cultural heritage advice to project teams. Acts as Aboriginal community liaison for projects on cultural heritage matters. Engages and consults with the Aboriginal community as per the Roads and Maritime <i>Procedure for Aboriginal Cultural Heritage Consultation and Investigation</i> .
Aboriginal Sites Officer (ASO)	Is an appropriately trained and skilled Aboriginal person whose role is to identify and assess Aboriginal objects and cultural values. For details on engaging Aboriginal Sites Officers, refer to Roads and Maritime <i>Procedure for Aboriginal Cultural Heritage Consultation and Investigation</i> .
Archaeologist (A)	Professional consultant, contracted on a case-by-case basis to provide heritage and archaeological advice and technical services (such as reports, heritage approval documentation etc). Major projects with complex heritage issues often have an on call Project archaeologist.
Project Manager (PM)	Ensures all aspects of this procedure are implemented. The PM can delegate specific tasks to a construction environment manager, Roads and Maritime site representatives or regional environment staff, where appropriate.
Regional Environment Staff (RES)	Provides advice on this procedure to project teams. Ensuring this procedure is implemented consistently by supporting the PM. Supporting project teams during the uncovering of unexpected finds. Reviewing archaeological management plans and liaising with heritage staff and archaeological consultants as needed.
Registered Aboriginal Parties (RAPs)	RAPs are Aboriginal people who have registered with Roads and Maritime to be consulted about a proposed Roads and Maritime project or activity in accordance with OEH's Aboriginal cultural heritage consultation requirements for proponents (2010).
Senior Environmental Specialist (Heritage) (SES(H))	Provides technical assistance on this procedure and archaeological technical matters, as required. Reviewing the archaeological management plans and facilitating heritage approval applications, where required. Assists with regulator engagement, where required.
Team Leader - Regional Maintenance Delivery (TL-RMD)	Ensures Regional Maintenance Delivery staff stop work in the vicinity of an unexpected heritage item. Completes Unexpected Heritage Item Recording Form 418 and notifies WS-RMD.
Technical Specialist	Professional consultant contracted to provide specific technical advice that relates to the specific type of unexpected heritage find (eg a forensic or physical anthropologist who can identify and analyse human skeletal

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	remains).
Works Supervisor - Regional Maintenance Delivery (WS-RMD)	Ensures Regional Maintenance Delivery staff are aware of this procedure. Supports the Team Leader - Regional Maintenance Delivery during the implementation of this procedure and ensures reporting of unexpected heritage items through environment management systems.

5 Acronyms

The following acronyms are relevant to this procedure:

Acronym	Meaning
A	Archaeologist
ACHA	Aboriginal Cultural Heritage Advisor
AHIP	Aboriginal Heritage Impact Permit
ASO	Aboriginal Site Officer
CEMP	Construction Environment Management Plan
OEH	Office of Environment and Heritage.
PACHCI	Procedure for Aboriginal Cultural Heritage Consultation and Investigation
PM	Project Manager
RAP	Registered Aboriginal Parties
RES	Regional Environmental Staff
SES(H)	Senior Environmental Specialist (Heritage)
TL-RMD	Team Leader – Regional Maintenance Division
RMD	Regional Maintenance Delivery
RMS	Roads and Maritime
WS-RMD	Works Supervisor - Regional Maintenance Division

6 Overview of the Procedure

On discovering something that could be an unexpected heritage item ('the item'), the following procedure must be followed. There are eight steps in the procedure. These steps are summarised in **Figure 1** below and explained in detail in Section 7.

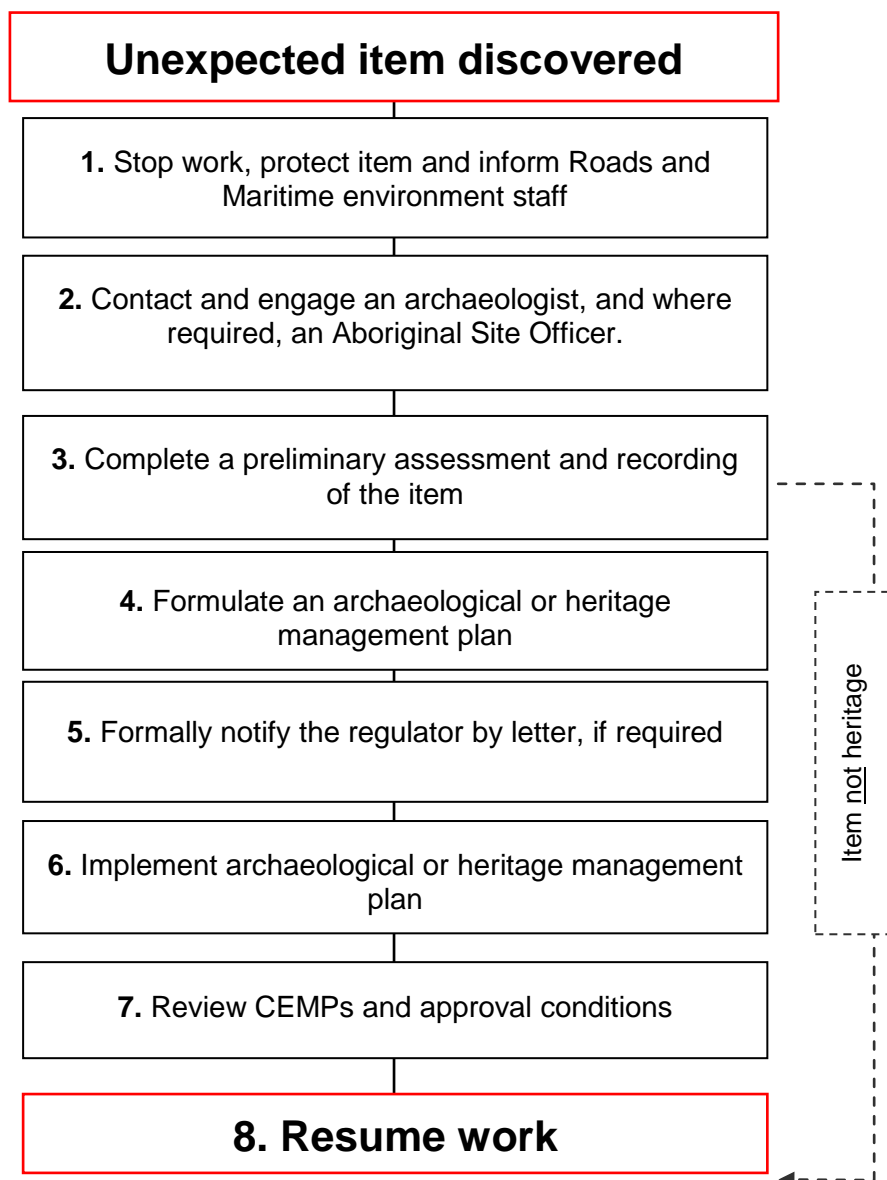


Figure 1: Overview of steps to be undertaken on the discovery of an unexpected heritage item.

IMPORTANT!

RMS may have approval or specific safeguards in place (apart from this procedure) to impact on certain heritage items during construction. If you discover a heritage item and you are unsure whether an approval or safeguard is in place, STOP works and follow this procedure.

7 Unexpected heritage items procedure

Table 1: Specific tasks to be implemented following the discovery of an unexpected heritage item.

Aboriginal Cultural Heritage Advisor (ACHA); Aboriginal Sites Officer (ASO); Archaeologist (A); Project Manager (PM); Regional Environment Staff (RES); Registered Aboriginal Parties (RAPs); Senior Environmental Specialist (Heritage) (SES(H)); Team leader – Roads and Maintenance Division (TL - RMD); Works supervisor – Roads and Maintenance Division (WS - RMD).

Step	Task	Responsibility	Guidance & Tools
1	Stop work, protect item and inform Roads and Maritime environment staff		
1.1	Stop all work in the immediate area of the item and notify the Project Manager or Team Leader-RMD. (For maintenance activities, the Team Leader is to also notify the Works Supervisor-RMD)	All	Appendix A (Identifying Unexpected Heritage items)
1.2	Establish a 'no-go zone' around the item. Use high visibility fencing, where practical.	PM or TL-RMD	
1.3	Inform all site personnel about the no-go zone. No further interference, including works, ground disturbance, touching or moving the item must occur within the no-go zone.	PM or TL-RMD	
1.4	Inspect, document and photograph the item using 'Unexpected Heritage Item Recording Form 418'.	PM or TL-RMD	Appendix B (Unexpected Heritage Item Recording Form 418) Appendix C (Photographing Unexpected Heritage items)

Step	Task	Responsibility	Guidance & Tools
1.5	<p>Is the item likely to be bone?</p> <p>If yes, follow the steps in Appendix E – ‘Uncovering bones’. Where it is obvious that the bones are human remains, you must notify the local police by telephone immediately. They may take command of all or part of the site.</p> <p>If no, proceed to next step.</p>	PM or WS-RMD	Appendix E (Uncovering Bones)
1.6	<p>Is the item likely to be:</p> <ul style="list-style-type: none"> a) A relic? (A relic is evidence of past human activity which has local or state heritage significance. It may include items such as bottles, utensils, remnants of clothing, crockery, personal effects, tools, machinery and domestic or industrial refuse) and/or b) An Aboriginal object? (An Aboriginal object may include a shell midden, stone tools, bones, rock art or a scarred tree). <p>If yes, proceed directly to Step 1.8</p> <p>If no, proceed to next step.</p>	PM or WS-RMD	Appendix A (Identifying heritage items)
1.7	<p>Is the item likely to be a “work”, building or standing structure? (This may include tram tracks, kerbing, historic road pavement, fences, sheds or building foundations).</p> <p>If yes, can works avoid further disturbance to the item? (E.g. if historic road base/tram tracks have been exposed, can they be left in place?) If yes, works may proceed without further disturbance to the item. Complete Step 1.8 within 24 hours.</p> <p>If works cannot avoid further disturbance to the item, works must not recommence at this time. Complete the remaining steps in this procedure.</p>	PM or WS-RMD	Appendix A (Identifying heritage items)

Step	Task	Responsibility	Guidance & Tools
1.8	Inform relevant Roads and Maritime Regional Environmental Staff of item by providing them with the completed 'Form 418'.	PM or WS-RMD (RES)	Appendix D (Key Environmental Contacts)
1.9	<p>Regional Environmental Staff to advise Project Manager or Works Supervisor whether RMS has an approval or safeguard in place (apart from this procedure) to impact on the 'item'. (An approval may include an approval under the <i>Heritage Act</i>, the <i>National Parks and Wildlife Act</i> or the <i>Planning and Assessment Act</i>).</p> <p>Does RMS have an approval, permit or appropriate safeguard in place to impact on the item?</p> <p>If yes, work may recommence in accordance with the approval, permit or safeguard. There is no further requirement to follow this procedure.</p> <p>If no, continue to next step.</p>		
1.10	Liaise with Traffic Management Centre where the delay is likely to affect traffic flow.	PM or WS-RMD	
1.11	Report the item as a 'Reportable Event' in accordance with the Roads and Maritime <i>Environmental Incident Classification and Reporting Procedure</i> . Implement any additional reporting requirements related to the project's approval and CEMP, where relevant.	PM or WS-RMD	<u>RMS Environmental Incident Classification and Reporting Procedure</u>
2	Contact and engage an archaeologist and, where required, an Aboriginal site officer		
2.1	<p>Contact the Project (on-call) Archaeologist to discuss the location and extent of the item and to arrange a site inspection, if required. The project CEMP may contain contact details of the Project Archaeologist.</p> <p>OR</p>	PM or WS-RMD (A; RES; SES(H))	Also see Appendix D (Key Environmental Contacts)

Step	Task	Responsibility	Guidance & Tools
	Where there is no project archaeologist engaged for the works, engage a suitably qualified and experienced archaeological consultant to assess the find. A list of heritage consultants is available on the RMS contractor panels on the Buyways homepage. Regional environment staff and Roads and Maritime heritage staff can also advise on appropriate consultants.		<u>Buyways</u>
2.2	Where the item is likely to be an Aboriginal object, speak with your Aboriginal Cultural Heritage Advisor to arrange for an Aboriginal Sites Officer to assess the find. Generally, an Aboriginal Sites Officer would be from the relevant local Aboriginal land council. If an alternative contact person (ie a RAP) has been nominated as a result of previous consultation, then that person is to be contacted.	PM or WS-RMD (ACHA; ASO)	
2.3	If requested, provide photographs of the item taken at Step 1.4 to the archaeologist, and Aboriginal Sites Officer if relevant.	PM or WS-RMD (RES)	Appendix C (Photographing Unexpected Heritage items)
3	Preliminary assessment and recording of the find		
3.1	In a minority of cases, the archaeologist (and Aboriginal Sites Officer, if relevant) may determine from the photographs that no site inspection is required because no archaeological constraint exists for the project (<i>eg the item is not a 'relic', a 'heritage item' or an 'Aboriginal object'</i>). Any such advice should be provided in writing (eg via email) and confirmed by the Project Manager or Works Supervisor - RMD.	A/PM/ASO/ WS-RMD	Proceed to Step 8
3.2	Arrange site access for the archaeologist (and Aboriginal Sites Officer, if relevant) to inspect the item as soon as practicable. In the majority of cases a site inspection is required to conduct a preliminary assessment.	PM or WS-RMD	
3.3	Subject to the archaeologist's assessment (and the Aboriginal Sites Officer's assessment, if relevant), work may recommence at a set distance from the item. This is to protect any other archaeological material that may exist in the vicinity, which has not yet been uncovered. Existing protective fencing established in Step 1.2 may need to be adjusted to	A/PM/ASO/ WS-RMD	

Step	Task	Responsibility	Guidance & Tools
	reflect the extent of the newly assessed protective area. No works are to take place within this area once established.		
3.4	The archaeologist (and Aboriginal Sites Officer, if relevant) may provide advice after the site inspection and preliminary assessment that no archaeological constraint exists for the project (<i>eg the item is not a 'relic', a 'heritage item' or an 'Aboriginal object'</i>). Any such advice should be provided in writing (eg via email) and confirmed by the Project Manager or Works Supervisor - RMD.	A/PM/ASO/ WS-RMD	Proceed to Step 8
3.5	Where required, seek additional specialist technical advice (such as a forensic or physical anthropologist to identify skeletal remains). Regional environment staff and/or Roads and Maritime heritage staff can provide contacts for such specialist consultants.	RES/SES(H)	Appendix D (Key Environmental Contacts)
3.6	Where the item has been identified as a 'relic', 'heritage item' or an 'Aboriginal object' the archaeologist should formally record the item.	A	
3.7	The regulator can be notified informally by telephone at this stage by the archaeologist, Project Manager (or delegate) or Works Supervisor - RMD. Any verbal conversations with regulators must be noted on the project file for future reference.	PM/A/WS-RMD	
4	Prepare an archaeological or heritage management plan		
4.1	The archaeologist must prepare an archaeological or heritage management plan (with input from the Aboriginal Sites Officer, where relevant) shortly after the site inspection. This plan is a brief overview of the following: (a) description of the feature, (b) historic context, if data is easily accessible, (c) likely significance, (d) heritage approval and regulatory notification requirements, (e) heritage reporting requirements, (f) stakeholder consultation requirements, (g) relevance to other project approvals and management plans etc.	A/ASO	Appendix F (Archaeological/ Heritage Advice Checklist)
4.2	In preparing the plan, the archaeologist with the assistance of regional environment staff must review the CEMP, any heritage sub-plans, any conditions of heritage approvals, conditions of project approval (and or Minister's Conditions of Approval) and heritage assessment documentation (eg Aboriginal Cultural Heritage Assessment Report). This will outline if the unexpected item is consistent with previous heritage/project approval(s)	A/RES/PM	Appendix F (Archaeological/ Heritage Advice Checklist)

Step	Task	Responsibility	Guidance & Tools
	and/or previously agreed management strategies. The Project Manager and regional environment staff must provide all relevant documents to the archaeologist to assist with this. Discussions should occur with design engineers to consider if re-design options exist and are appropriate.		
4.3	The archaeologist must submit this plan as a letter, brief report or email to the Project Manager outlining all relevant archaeological or heritage issues. This plan should be submitted to the Project Manager as soon as practicable. Given that the archaeological management plan is an overview of all the necessary requirements (and the urgency of the situation), it should take no longer than two working days to submit to the Project Manager.	A	
4.4	The Project Manager or Works Supervisor must review the archaeological or heritage management plan to ensure all requirements can reasonably be implemented. Seek additional advice from regional environment staff and Roads and Maritime heritage staff, if required.	PM/RES/SES(H)/ WS-RMD	
5	Notify the regulator, if required.		
5.1	Review the archaeological or heritage management plan to confirm if regulator notification is required. Is notification required? If no , proceed directly to Step 6 If yes , proceed to next step.	PM/RES/SES(H)/ WS-RMD	
5.2	If notification is required, complete the template notification letter.	PM or WS-RMD	Appendix G (Template Notification Letter)
5.3	Forward the draft notification letter, archaeological or heritage management plan and the site recording form to regional environment staff and Senior Environmental Specialist (Heritage) for review, and consider any suggested amendments.	PM/RES/SES(H)/ WS-RMD	

Step	Task	Responsibility	Guidance & Tools
5.4	Forward the signed notification letter to the relevant regulator (ie notification of relics must be given to the Heritage Division, Office of Environment and Heritage (OEH), while notification for Aboriginal objects must be given to the relevant Aboriginal section of OEH). Informal notification (via a phone call or email) to the regulator prior to sending the letter is appropriate. The archaeological management plan and the completed site recording form must be submitted with the notification letter. For Part 3A and Part 5.1 projects, the Department of Planning and Environment must also be notified.	PM or WS-RMD	Appendix D (Key Environmental Contacts)
5.5	A copy of the final signed notification letter, archaeological or heritage management plan and the site recording form should be kept on file by the Project Manager or Works Supervisor- RMD and a copy sent to the Senior Environmental Specialist (Heritage).	PM or WS-RMD	
6	Implement archaeological or heritage management plan		
6.1	Modify the archaeological or heritage management plan to take into account any additional advice resulting from notification and discussions with the regulator.	A/PM or WS-RMD (RES)	
6.2	Implement the archaeological or heritage management plan. Where impact is expected, this would include such things as a formal assessment of significance and heritage impact assessment, preparation of excavation or recording methodologies, consultation with registered Aboriginal parties, obtaining heritage approvals etc, if required.	PM or WS-RMD (RAPs and RES)	PACHCI Stage 3
6.3	Where heritage approval is required contact regional environment staff for further advice and support material. Please note time constraints associated with heritage approval preparation and processing. Project scheduling may need to be revised where extensive delays are expected.	PM/RES/WS-RMD	
6.4	For Part 3A/Part 5.1 projects, assess whether heritage impact is consistent with the project approval or if project approval modification is required from the Department of Planning and Environment. Seek advice from regional environment staff and Environment Branch specialist staff if unsure.	PM/RES	

Step	Task	Responsibility	Guidance & Tools
6.5	Where statutory approvals (or project approval modification) are required, impact upon relics and/or Aboriginal objects must not occur until heritage approvals are issued by the appropriate regulator.	PM or WS-RMD	
6.6	Where statutory approval (or Part 3A/Part 5.1 project modification) is not required and where recording is recommended by the archaeologist, sufficient time must be allowed for this to occur.	PM or WS-RMD	
6.7	Ensure short term and permanent storage locations are identified for archaeological material or other heritage material is removed from site, where required. Interested third parties (eg museums or local councils) should be consulted on this issue. Contact regional environment staff and Senior Environmental Specialist (Heritage) for advice on this matter, if required.	PM or WS-RMD	
7	Review CEMPs and approval conditions		
7.1	Check whether written notification is required to be sent to the regulator before re-commencing work. Where this is not explicit in heritage approval conditions, expectations should be clarified directly with the regulator.	PM	
7.2	Update the CEMP, site mapping and project delivery program as appropriate with any project changes resulting from final heritage management (eg retention of heritage item, salvage of item). Updated CEMPs must incorporate additional conditions arising from any heritage approvals, and Aboriginal community consultation if relevant. Include any changes to CEMP in site induction material and update site workers during toolbox talks.	PM	
8	Resume work		
8.1	Seek written clearance to resume project work from regional environment staff and the archaeologist (and regulator, if required). Clearance would only be given once all archaeological excavation and/or heritage recommendations (where required) are complete. Resumption of project work must be in accordance with the all relevant project/heritage approvals/determinations.	RES/A/PM/WS-RMD	
8.2	If required, ensure archaeological excavation/heritage reporting and other heritage	PM/A/WS-RMD	

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Step	Task	Responsibility	Guidance & Tools
	approval conditions are completed in the required timeframes. This includes artefact retention repositories, conservation and/or disposal strategies.		
8.3	Forward all heritage/archaeological assessments, heritage location data and its ownership status to the Senior Environmental Specialist (Heritage). They will ensure all heritage items in Roads and Maritime ownership and/or control are considered for the Roads and Maritime S170 Heritage and Conservation Register.	PM/SES(H)/ WS-RMD	
8.4	If additional unexpected items are discovered this procedure must begin again from Step 1.	PM/TL-RMD	

8 Seeking advice

Advice on this procedure should be sought from Roads and Maritime regional environment staff in the first instance. Contractors and alliance partners should ensure their own project environment managers are aware of and understand this procedure. Regional environment staff can assist non-Roads and Maritime project environment managers with enquires concerning this procedure.

IMPORTANT!

Roads and Maritime Services staff and contractors are not to seek advice on this procedure directly from the Office of Environment and Heritage without first seeking advice from regional environment staff and heritage policy staff.

Technical archaeological or heritage advice regarding an unexpected heritage item should be sought from the contracted archaeologist. Technical specialist advice can also be sought from heritage policy staff within Environment Branch to assist with the preliminary archaeological identification and technical reviews of heritage/archaeological reports.

9 Related information

Contact details: Senior Environmental Specialist (Heritage), Environment Branch, 02 8588 5754

Effective date: 01 February 2015

Review date: 01 February 2016

This procedure should be read in conjunction with:

- Roads and Maritimes' *Heritage Guidelines 2015*.
- Roads and Maritime Services *Environmental Incident Classification and Reporting Procedure*
- Roads and Maritime's *Procedure for Aboriginal Cultural Heritage Consultation and Investigation*
- RTA *Environmental Impact Assessment Guidelines*.

This procedure replaces:

- Procedure 5.5 ("*unexpected discovery of an archaeological relic or Aboriginal object*") outlined in the RTA's *Heritage Guidelines 2004*.

Other relevant reading material:

- NSW Heritage Office (1998), *Skeletal remains: guidelines for the management of human skeletal remains*.
- Department of Environment and Conservation NSW (2006), *Manual for the identification of Aboriginal remains*.
- Department of Health (April 2008), *Policy Directive: Burials - exhumation of human remains*¹¹.

¹¹ http://www.health.nsw.gov.au/policies/pd/2008/pdf/PD2008_022.pdf

Appendix A

Identifying Unexpected Heritage Items

The following images can be used to assist in the preliminary identification of potential unexpected items (both Aboriginal and non-Aboriginal) during construction and maintenance works. Please note this is not a comprehensive typology.



Top left hand picture continuing clockwise: Stock camp remnants (Hume Highway Bypass at Tarcutta); Linear archaeological feature with post holes (Hume Highway Duplication), Animal bones (Hume Highway Bypass at Woomargama); Cut wooden stake; Glass jars, bottles, spoon and fork recovered from refuse pit associated with a Newcastle Hotel (Pacific Highway, Adamstown Heights, Newcastle area).



Top left hand picture continuing clockwise: Woodstave water pipe with tar and wire sealing (Horsley Drive); Tram tracks (Sydney); Brick lined cistern (Clyde); Retaining wall (Great Western Highway, Leura).



Top left hand picture continuing clockwise: Road pavement (Great Western Highway, Lawson); Sandstone kerbing and guttering (Parramatta Road, Mays Hill); Telford road (sandstone road base, Great Western Highway, Leura); Ceramic conduit and sandstone culvert headwall (Blue Mountains, NSW); Corduroy road (timber road base, Entrance Road, Wamberai).



Alignment pin



Survey tree



Alignment stone



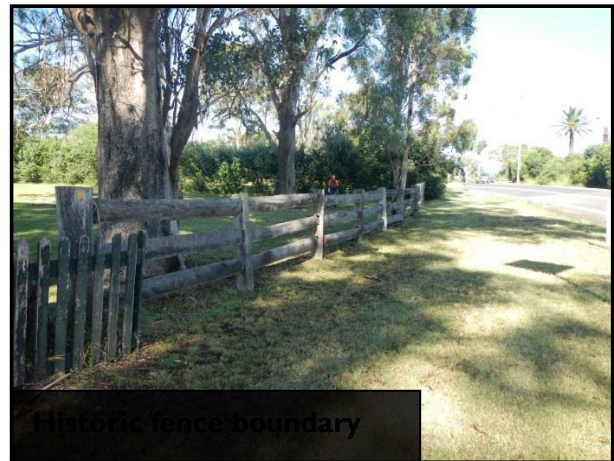
Survey tree



Milestone



Top left hand corner continuing clockwise: Alignment Pin (Great Western Highway, Wentworth Falls); Survey tree (MR7, Albury); Survey tree (Kidman Way, Darlington Point, Murrumbidgee); Survey tree (Cobb Highway, Deniliquin); Milestone (Great Western Highway, Kingswood, Penrith); Alignment Stone (near Guntawong Road, Riverstone). Please note survey marks may have additional statutory protection under the *Surveying and Spatial Information Act 2002*.



Top left hand corner continuing clockwise: Remnant bridge piers (Putty Road, Bulga); Wooden boundary fence (Campbelltown Road, Denham Court); Dairy shed (Ballina); Golden Arrow Mine Shaft.



Top left hand corner: Culturally modified stone discovered on Main Road 92, about two kilometres west of Sassafras. The remaining images show a selection of stone

artefacts retrieved from test and salvage archaeological excavations during the Hume Highway Duplication and Bypass projects from 2006-2010.

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Appendix B

Unexpected Heritage Item Recording Form 418



Unexpected heritage item recording form

Date:		Recorded by: (Include name and position)	
Project name:			
Description of works being undertaken (eg Removal of failed pavement by excavation and pouring concrete slabs in 1m x 1m replacement sections).			
Description of exact location of item (eg Within the road formation on Parramatta Road, east bound lane, at the corner of Johnston Street, Annandale, Sydney).			
Description of item found (What type of item is it likely to be? Tick the relevant boxes).			
A. A relic	<input type="checkbox"/>	A 'relic' is evidence of a past human activity relating to the settlement of NSW with local or state heritage significance. A relic might include bottles, utensils, plates, cups, household items, tools, implements, and similar items.	
B. A 'work, building or structure'	<input type="checkbox"/>	A 'work' can generally be defined as a form infrastructure such as tram tracks, a culvert, road base, a bridge pier, kerbing, and similar items.	
C. An Aboriginal object	<input type="checkbox"/>	An 'Aboriginal object' may include stone tools, stone flakes, shell middens, rock art, scarred trees and human bones.	
D. Bone	<input type="checkbox"/>	Bones can either be human or animal remains. Remember that you must contact the local police immediately by telephone if you are <u>certain</u> that the bone(s) are <u>human remains</u>.	
E. Other	<input type="checkbox"/>		

Provide short description of item (eg Metal tram tracks running parallel to road alignment. Good condition. Tracks set in concrete, approximately 10cms (100 mm) below the current ground surface).	
Sketch (Provide a sketch of the item's general location in relation to other road features so its approximate location can be mapped without having to re-excavate it. In addition, please include details of the location and direction of any photographs of the item taken).	
Action taken (Tick either A or B)	
A. Unexpected item would not be further impacted on by works <input type="checkbox"/>	
Describe how works would avoid impact on the item. (eg The tram tracks will be left <i>in situ</i> , and recovered with road paving).	
B. Unexpected item would be further impacted on by works <input type="checkbox"/>	
Describe how works would impact on the item. (eg Milling is required to be continued to 200 mm depth to ensure road pavement requirements are met. Tram tracks will need to be removed).	
Project manager / works supervisor signature	

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Appendix C

Photographing Unexpected Heritage Items

Photographs of unexpected items in their current context (*in situ*) may assist heritage staff and archaeologists to better identify the heritage values of the item. Emailing good quality photographs to specialists can allow for better quality and faster heritage advice. The key elements that must be captured in photographs of the item include its position, the item itself and any distinguishing features. All photographs must have a scale (ruler, scale bar, mobile phone, coin) and a note describing the direction of the photograph.

Context and detailed photographs

It is important to take a general photograph (Figure 1) to convey the location and setting of the item. This will add much value to the subsequent detailed photographs also required (Figure 2).

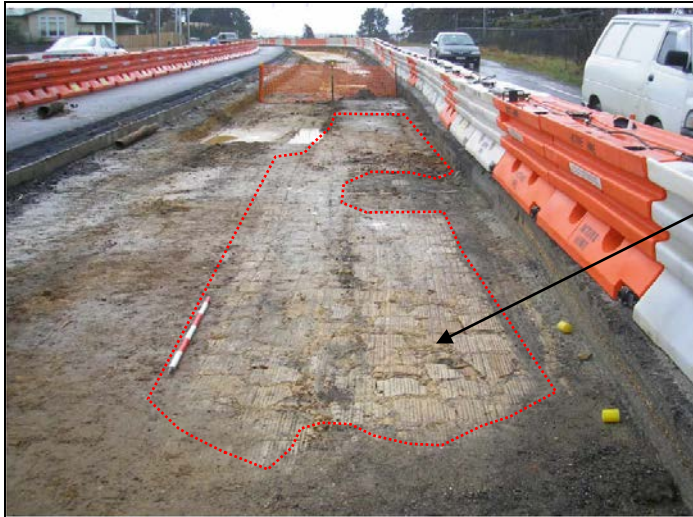


Figure 2: Close up detail of the sandstone surface showing material type, formation and construction detail. This is essential for establishing date of the feature.

Figure 1: Telford road uncovered on the Great Western Highway (Leura) in 2008.

Photographing distinguishing features

Where unexpected items have a distinguishing feature, close up detailed photographs must be taken of this, where practicable. In the case of a building or bridge, this may include diagnostic details architectural or technical features. See Figures 3 and 4 for examples.



Figure 3: Ceramic bottle artefact with stamp.

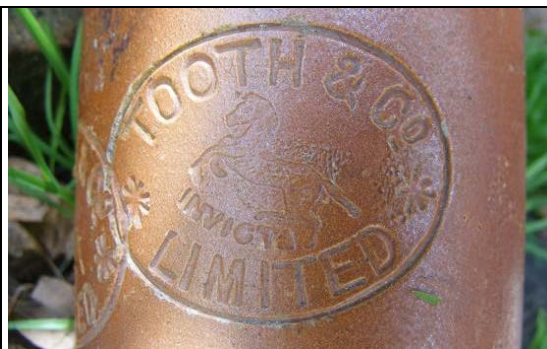


Figure 4: Detail of the stamp allows 'Tooth & Co Limited' to be made out. This is helpful to a specialist in gauging the artefact's origin, manufacturing date and likely significance.

Photographing bones

The majority of bones found on site will be those of recently deceased animal bones often requiring no further assessment (unless they are in archaeological context). However, if bones are human, Roads and Maritime must contact the police immediately (see Appendix F for detailed guidance). Taking quality photographs of the bones can often resolve this issue quickly. Heritage staff in Environment Branch can confirm if bones are human or non-human if provided with appropriate photographs.

Ensure that photographs of bones are not concealed by foliage (Figure 5) as this makes it difficult to identify. Minor hand removal of foliage can be undertaken as long as disturbance of the bone does not occur. Excavation of the ground to remove bone(s) should not occur, nor should they be pulled out of the ground if partially exposed. Where sediment (adhering to a bone found on the ground surface) conceals portions of a bone (Figure 6) ensure the photograph is taken of the bone (if any) that is not concealed by sediment.



Figure 5: Bone concealed by foliage.



Figure 6: Bone covered in sediment

Ensure that all close up photographs include the whole bone and then specific details of the bone (especially the ends of long bones, the *epiphysis*, which is critical for species identification). Figures 7 and 8 are examples of good photographs of bones that can easily be identified from the photograph alone. They show sufficient detail of the complete bone and the epiphysis.



Figure 7: Photograph showing complete bone.



Figure 8: Close up of a long bone's epiphysis.

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Appendix C

Key Environmental Contacts

Key environmental contacts

Hunter region	Environmental Manager (Hunter)	4924 0440
	Aboriginal Cultural Heritage Advisor	4924 0383
Northern region	Environment Manager (North)	6640 1072
	Aboriginal Cultural Heritage Advisor	6604 9305
Southern region	Environmental Manager (South)	6492 9515
	Aboriginal Cultural Heritage Advisor	4221 2767
South West region	Environment Manager (South West)	6937 1634
	Aboriginal Cultural Heritage Advisor	6937 1647
Sydney region	Environment Manager (Sydney)	8849 2516
	Aboriginal Cultural Heritage Advisor	8849 2583
Western region	Environment Manager (West)	6861 1628
	Aboriginal Cultural Heritage Advisor	6861 1658
Pacific Highway Office	Environment Manager	6640 1375
Regional Maintenance Delivery	Environment Manager	9598 7721
Environment Branch	Senior Environmental Specialist (Heritage)	8588 5754

Heritage Regulators

Heritage Division Office of Environment and Heritage Locked Bag 5020 Parramatta NSW 2124 Phone: (02) 9873 8500	Department of the Environment (Clth) GPO Box 787 Canberra ACT 2601 Phone: (02) 6274 1111
Office of Environment and Heritage (Sydney Metropolitan) Planning and Aboriginal Heritage Section PO Box 668 Parramatta NSW 2124 Phone: (02) 9995 5000	Office of Environment and Heritage (North Eastern NSW) Planning and Aboriginal Heritage Section Locked Bag 914 Coffs Harbour NSW 2450 Phone: (02) 6651 5946
Office of Environment and Heritage (North Western NSW) Environment and Conservation Programs PO Box 2111 Dubbo NSW 2830 Phone: (02) 6883 5330	Office of Environment and Heritage (Southern NSW) Landscape and Aboriginal Heritage Protection Section PO Box 733 Queanbeyan NSW 2620 Phone: (02) 6229 7188

Project-Specific Contacts

Position	Name	Phone Number
Project Manager		
Site/Alliance Environment Manager		
Regional Environmental Officer		
Aboriginal Cultural Heritage Advisor		
Consultant Archaeologist		
Local Police Station		
OEI: Environment Line		131 555

Appendix E

Uncovering Bones

This appendix provides Project Managers with (1) advice on what to do when bones are discovered; (2) guidance on the notification pathways; and (3) additional considerations and requirements when managing the discovery of human remains.

1. First uncovering bones

Stop all work in the vicinity of the find. All bones uncovered during project works should be **treated with care and urgency** as they have the potential to be human remains. Therefore they must be identified as either human or non-human as soon as possible by a qualified forensic or physical anthropologist. These specialist consultants can be sought by contacting regional environment staff and/or heritage staff at Environment Branch.

On the very rare occasion where it is *instantly obvious* from the remains that they are human, the Project Manager (or a delegate) should **inform the police by telephone** prior to seeking specialist advice. It will be obvious that it is human skeletal remains where there is no doubt, as demonstrated by the example in Figure 1. Often skeletal elements in isolation (such as a skull) can also clearly be identified as human. Note it may also be obvious that human remains have been uncovered when soft tissue and clothing are present.

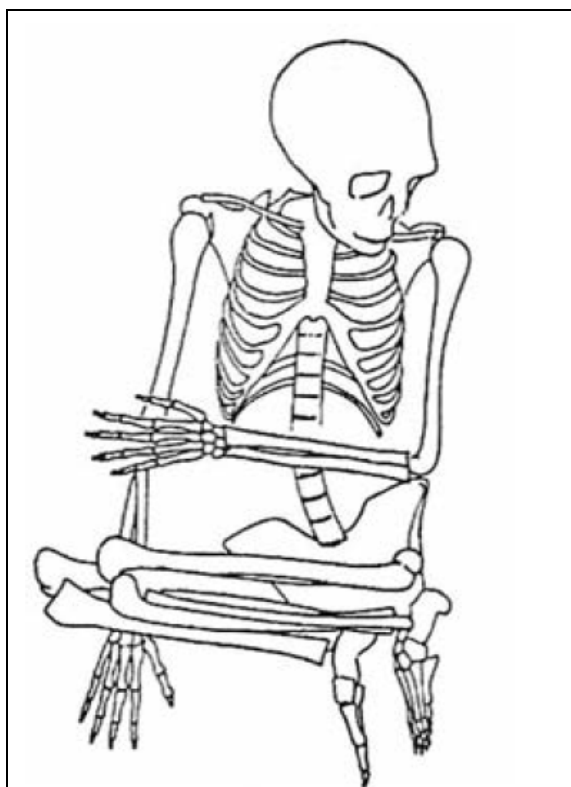


Figure 1: Schematic of a complete skeleton that is 'obviously' human¹².



Figure 2: Disarticulated bones that require assessment to determine species.

This preliminary phone call is to let the police know that Roads and Maritime is undertaking a specialist skeletal assessment to determine the approximate date of death which will inform legal jurisdiction. The police may wish to take control of the site at this stage. If not, a forensic or physical anthropologist must be requested to make an on-site assessment of the skeletal remains.

¹² After Department of Environment and Conservation NSW (2006), *Manual for the identification of Aboriginal Remains*: 17.

Where it is not 'obvious' that the bones are human (in the majority of cases, illustrated by Figure 2), specialist assessment is required to establish the species of the bones. Photographs of the bones can assist this assessment if they are clear and taken in accordance with guidance provided in Appendix C. Good photographs often result in the bones being identified by a specialist without requiring a site visit; noting they are nearly always non-human. In these cases, non-human skeletal remains must be treated like any other unexpected archaeological find.

If the bones are identified as human (either by photographs or an on-site inspection) a technical specialist must determine the likely ancestry (Aboriginal or non-Aboriginal) and burial context (archaeological or forensic). This assessment is required to identify the legal regulator of the human remains so **urgent notification** (as below) can occur. Preliminary telephone or verbal notification by the Project Manager or regional environment staff is considered appropriate. This must be followed up later by Roads and Maritime's formal letter notification as per Appendix G when a management plan has been developed and agreed to by the relevant parties.

2. Range of human skeletal notification pathways

The following is a summary of the different notification pathways required for human skeletal remains depending on the preliminary skeletal assessment of ancestry and burial context.

A. Human bones are from a recently deceased person (*less than 100 years old*).

☒ Action

A police officer must be notified immediately as per the obligations to report a death or suspected death under s35 of the *Coroners Act 2009* (NSW). It should be assumed the police will then take command of the site until otherwise directed.

B. Human bones are archaeological in nature (*more than 100 years old*) and are likely to be **Aboriginal** remains.

☒ Action

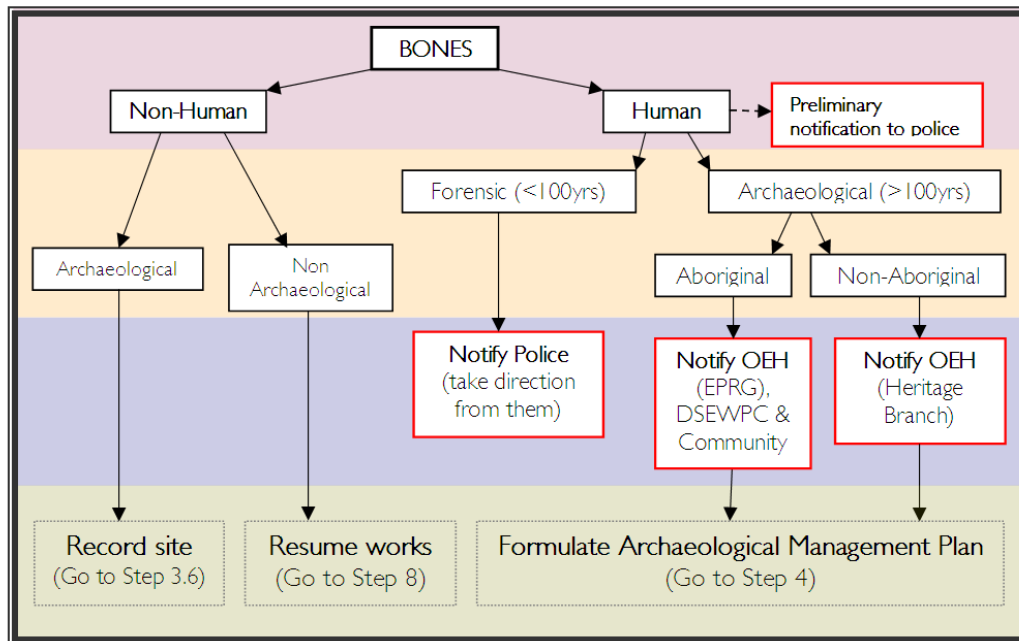
The OEH and the RMS Aboriginal Cultural Heritage Advisor (ACHA) must be notified immediately. The ACHA must contact and inform the relevant Aboriginal community stakeholders who may request to be present on site. Relevant stakeholders are determined by the RTA's *Procedure for Aboriginal Cultural Heritage Consultation and Investigation*.

C. Human bones are archaeological in nature (*more than 100 years old*) and likely to be **non-Aboriginal** remains.

☒ Action

The OEH (Heritage Branch, Conservation Team) must be notified immediately.

The simple diagram below summarises the notification pathways on finding bones.



After the appropriate verbal notifications (as described in B and C), the Project Manager must proceed through the *Unexpected Heritage Items Procedure* to formulate an archaeological management plan (Step 4). Note no archaeological management plan is required for forensic cases (A), as all future management is a police matter. Non-human skeletal remains must be treated like any other unexpected archaeological find and so must proceed to recording the find as per Step 3.6.

3. Additional considerations and requirements

Uncovering archaeological human remains must be managed intensively and needs to consider a number of additional specific issues. These issues might include facilitating culturally appropriate processes when dealing with Aboriginal remains (such as repatriation and cultural ceremonies). Roads and Maritime's ACHA can provide advice on this and how to engage with the relevant Aboriginal community. Project Managers, more generally, may also need to consider overnight site security of any exposed remains and may need to manage the onsite attendance of a number of different external stakeholders during assessment and/or investigation of remains. Project Managers may also be advised to liaise with local church/religious groups and the media to manage community issues arising from the find. Additional investigations may be required to identify living descendants, particularly if the remains are to be removed and relocated.

If exhumation of the remains (from a formal burial or a vault) is required, Project Managers should also be aware of additional approval requirements under the *Public Health Act 1991* (NSW). Specifically, Roads and Maritime is required to apply to the Director General of NSW Department of Health for approval to exhume human remains as per Clause 26 of the *Public Health (Disposal of Bodies) Regulation 2002* (NSW)¹³. Further, the exhumation of such remains needs to consider health risks such as infectious disease control, exhumation procedures and reburial approval and registration. Further guidance on this matter can be found at the NSW Department of Health [website](#).

In addition, due to the potential significant statutory and common law controls and prohibitions associated with interfering with a public cemetery, project teams are

¹³ This requirement is in addition to heritage approvals under the *Heritage Act 1977*.

advised, when works uncover human remains adjacent to cemeteries, to confirm the cemetery's exact boundaries.

Appendix F

Archaeological Heritage Advice Checklist

The following checklist can be used by the Project Manager and the archaeologist to ensure all relevant archaeological issues are considered when developing the management plan required at Step 4 of this procedure.

An archaeological or heritage management plan can include a range of activities and processes, which differ depending on the find and its significance.

	Required	Outcome/notes
Assessment and investigation		
• Assessment of significance	Yes/No	
• Assessment of heritage impact	Yes/No	
• Archaeological excavation	Yes/No	
• Archival photographic recording	Yes/No	
Heritage approvals and notifications		
• AHIPs, Section 140, S139 exceptions etc	Yes/No	
• Regulator relics/objects notification	Yes/No	
• Roads and Maritime's S170 Heritage and Conservation Register listing requirements	Yes/No	
• Compliance with CEMP or other project heritage approvals	Yes/No	
Stakeholder consultation		
• Aboriginal stakeholder consultation requirements and how it relates to RTA <i>Procedure for Aboriginal Cultural Heritage Consultation and Investigation</i> (PACHCI).	Yes/No	
• Advice from regional environmental staff, Aboriginal Cultural Heritage Advisor, Roads and Maritime heritage team.	Yes/No	
Artefact/ heritage item management		
• Retention or conservation strategy (eg items may be subject to long conservation and interpretation)	Yes/No	
• Disposal strategy (eg former road pavement)		
• Short term and permanent storage locations (interested third parties should be consulted on this issue).		
• Control Agreement for Aboriginal objects.	Yes/No	
Program and budget		
• Time estimate associated with archaeological or heritage conservation work.		
• Total cost of archaeological/heritage work.		

Appendix G

Template Notification Letter

PASTE INTO RMS LETTER TEMPLATE

"[Select and type date]"

[Select and type reference number]

[Select and type file number]

[Insert recipient's name and address, see **Appendix D**]

[Select and type salutation and name],

Re: Unexpected heritage item discovered during Roads and Maritime Services project works.

I write to inform you of an unexpected [select: relic, heritage item or Aboriginal object] found during Roads and Maritime Services construction works at [insert location] on [insert date]. [Where the regulator has been informally notified at an earlier date by telephone, this should be referred to here].

This letter is in accordance with the notification requirement under [select: Section 146 of the *Heritage Act 1977* (NSW) or Section 89(A) of the *National Parks and Wildlife Act 1974* (NSW)] **NB:** There may be not be statutory requirement to notify of the discovery of a 'heritage Item that is not a relic or Aboriginal object].

NB: On finding Aboriginal human skeletal remains this letter must also be sent to the Commonwealth Minister for Sustainability, Environment, Water, Populations and Communities (SEWPC) in accordance with notification requirements under Section 20(1) of the *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* (Cth).

[Provide a brief overview of the project background and project area. Provide a summary of the description and location of the item, including a map and image where possible. Also include how the project was assessed under the *Environmental Planning and Assessment Act 1979* (NSW) (eg Part 5). Also include any project approval number, if available].

Roads and Maritime Services [or contractor] has sought professional archaeological advice regarding the item. A preliminary assessment indicates [provide a summary description and likely significance of the item]. Please find additional information on the site recording form attached.

Resulting from these preliminary findings, Roads and Maritime Services [or contractor] is proposing [provide a summary of the proposed archaeological/heritage approach (eg develop archaeological research design (where relevant), seek heritage approvals, undertake archaeological investigation or conservation/interpretation strategy). Also include preliminary justification of such heritage impact with regard to project design constraints and delivery program].

The proposed approach will be further developed in consultation with a nominated Office of Environment and Heritage staff member.

Please contact me if you have any input on this approach or if you require any further information.

Yours sincerely

[Sender name and position]

[Attach the archaeological/heritage management plan and site recording form].

About this release

Reference number	RMS 12.003 PN 285 P02
Title	Unexpected Heritage Items Procedure
Parent procedure	RMS Heritage Guidelines
Prepared by	Environment Officer (Heritage) Gretta Logue Environment Officer (Heritage) Daniel Percival
Approved by	Manager Environmental Policy, Planning and Assessment Michael Crowley
Document location	Objective - SF2013/153770 / Unexpected heritage items procedure.doc
Document status	Version 1.0, 16 March 2015

Version	Date	Revision description
1.0	01/11/11	First issue
Revised	23 July 2012	Amended to reflect that (a) unexpected finds do not include items covered by a relevant approval; (b) Aboriginal people must be consulted where an unexpected find is likely to be an Aboriginal object; (c) the Department of Planning and Environment must be notified in accordance with Step 5 of this procedure for Part 3A and Part 5.1 projects.
Revised	09 October 2013	Amended to clarify that the procedure applies to all types of unexpected heritage items, not just archaeological items. The procedure introduces the term 'Historic Items' to cover both 'archaeological relics' and 'other historic items' such as works, structures, buildings and movable objects. The title of the document has been amended to better reflect this clarification.
Revised	16 March 2015	The procedure was streamlined to address all project types including maintenance works. The separate maintenance procedure (formerly Appendix B) was removed. Names and titles updated throughout.

Your comments and suggestions to improve this or any of the Heritage Guidelines and associated documents may be sent to:

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Transport
Roads & Maritime
Services

Appendix B8. Contaminated Aquatic Sediments in Alexandra Canal -plan

Appendix B9.

Soil and Water Quality Management Plan

Appendix B10. Noise and Vibration Management Plan

Appendix B11. Traffic and Access Management Plan