

Pollution Incident Response Management Plan

Western Harbour Tunnel and Warringah Freeway Upgrade
SSI-8863
Stage 2 – Warringah Freeway Upgrade

July 2026

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Contents

Contents	i
WFU Environmental Contacts.....	iii
Glossary/ Abbreviations	iv
1 Overview and Scope	1
1.1 Objectives.....	1
1.2 Scope	1
1.3 Roles and responsibilities	2
2 Implementation.....	4
2.1 Immediate response	4
2.2 Notification.....	4
2.3 Incident Reporting Protocol.....	8
2.4 Community Notification Protocol	8
3 Potential Impacts	11
3.1 Pollution Incident Planning.....	11
3.2 Pre-emptive Action	12
3.3 Incident / Emergency Response Procedures	12
4 Mitigation	15
4.1 Inventory of Potentially Hazardous materials	15
4.2 Minimising Harm to Persons on the Premises.....	15
4.3 Management Plans and Procedures	15
4.4 Staff Training	16
5 PIRMP	18
5.1 Continual Improvement.....	18
5.2 Availability of the PIRMP.....	19
Appendix A-1 EPL Premises Maps	20
Appendix A-2 Consequence & Likelihood Criteria	21
Appendix A-3 Environmental Risk Register.....	26
Appendix A-4 Inventory of Potential Pollutants.....	41
Appendix A-5 PIRMP Testing History and Outcomes	45

Version Control

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6	3 July 2026	Updated contacts list in Table 2-2: Project personnel notifications	Howard Chemney
7	21 July 2026	Updated to further align with EPA PIRMP Guideline (2026), including risk assessment, pollutant inventory, mapping, testing records, incident recovery, public availability and continual improvement requirements.	Howard Chemney

WFU Environmental Contacts

Title	Name	Phone number
CPB DTI JV Representatives		
Environment and Sustainability Manager	Howard Chemney	0410 542 009
Project Director	Steven Clark	0420 977 416
Community Relations Manager	Anne Learmonth	0417 142 167
Transport for NSW Representatives		
Environment Manager	Rob Owens	0435 578 294
Environmental Representative		
Independent Environmental Representative	Maurice Pignatelli	0407 493 176
External contacts		
Fire and Rescue NSW		000 (emergency) 02 9908 1258 (Neutral Bay Fire Station) 02 9493 1036 (Crows Nest Fire Station)
EPA		131 555 (Environment Hotline) 02 9995 5000 (general switchboard)
Ministry of Health Northern Sydney Public Health Unit		02 9391 9000 (Ministry of Health switchboard) 02 9462 9955 (Northern Sydney PHU switchboard)
SafeWork NSW		131 050
North Sydney Council		02 9936 8100

Glossary/ Abbreviations

Acronym / Term	Definition
ASS	Acid Sulphate Soils
CEMP	Construction Environmental Management Plan
CoA	The Planning Minister's Conditions of Approval of the Infrastructure Approval
CSSI	The Critical State Significant Infrastructure as described in Schedule 1 of the Western Harbour Tunnel and Warringah Freeway Upgrade 1 Infrastructure Approval (Application No. SSI 8863)
CPB DTI JV	CPB DTI Joint Venture
DPHI	Department of Planning, Housing and Infrastructure (NSW)
EMS	Environmental Management System
EPA	NSW Environment Protection Authority
EPL	Environment Protection License under the POEO Act
ER	The Environmental Representative for the CSSI: Must be a suitably qualified and experienced person(s) who is independent from the design and construction personnel for the CSSI and those involved in the delivery of it.
Material harm	Is harm that: a) Involves actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial, or b) Results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding \$10,000 (such loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment).
PIRMP	Pollution Incident Response Management Plan
POEO Act	Protection of the Environment Operations Act 1997 (NSW)
Pollution Incident	Has the meaning as defined in the Dictionary to the POEO Act: An incident or set of circumstances during or as a consequence of which there is or is likely to be a leak, spill or other escape or deposit of a substance, as a result of which pollution has occurred, is occurring or is likely to occur. It includes an incident or set of circumstances in which a substance has been placed or disposed of on premises, but it does not include an incident or set of circumstances involving only the emission of any noise.
Premises	Areas as shown on the EPL Premise Area Maps (https://www.cpbcon.com.au/en/our-projects/2021/warringah-freeway-upgrade).
TfNSW	Transport for NSW
WFU	Warringah Freeway Upgrade

1 Overview and Scope

1.1 Objectives

The Pollution Incident Response Management Plan (PIRMP) details the requirements for responding to a pollution incident as required by the *Protection of the Environment Operations Act 1997* (POEO Act). The CPB Downer Joint Venture (CPB DTI JV) has prepared this PIRMP in accordance with the legal requirements and with reference to the NSW Environment Protection Authority's (EPA) *Environmental guidelines: Pollution Incident Response Management Plans* (EPA 2026P4673, April 2026)

The objectives of the PIRMP are to:

- ensure comprehensive and timely communication about a pollution incident to staff at the Premises, the EPA, other relevant authorities specified in the POEO Act, and people in the vicinity of the premises who may be impacted by the pollution incident. The premises are the areas shown on the EPL Premise Area Maps (refer **Appendix A-1** and project website, <https://www.cpbcon.com.au/en/our-projects/2021/warringah-freeway-upgrade>).
- minimise and control the risk of a pollution incident at the premises by requiring identification of risks and the development of planned actions to minimise and manage those risks.
- ensure that the PIRMP is properly implemented by trained staff, identifying persons responsible for implementing it, and ensuring that the PIRMP is regularly tested for accuracy, currency and suitability.

1.2 Scope

This PIRMP applies to the Warringah Freeway Upgrade. These works are being undertaken by the CPB DTI JV. This PIRMP applies to all activities undertaken by these parties at the premises and all personnel undertaking such activities.

This PIRMP is interrelated with other CPB DTI JV Plans:

- Construction Environmental Management Plan and Sub-Plans
- Traffic Transport, and Access Management sub-plan
- Ancillary Site Establishment Management Sub-Plan
- Environmental Incident Classification and Reporting Procedure
- Incident Response Plan
- Emergency Response Plan
- Incident and Crisis Communications Plan

1.3 Roles and responsibilities

All project personnel are responsible for protecting the environment and preventing incidents. The roles and responsibilities relevant to this PIRMP are identified in Table 1-1. If the relevant person is not available, the role will be performed by the next most senior representative in the same discipline.

Table 1-1 Roles and responsibilities

Title	Roles and responsibilities relevant to the PIRMP
Project Director	- Oversee the preparation and implementation of this PIRMP. - Notify TfNSW if this plan is activated. - Report to CPB and DTI corporate personnel as appropriate if this plan is activated. - Ensure specific resources are identified, provided, and maintained for the duration of the project to implement this PIRMP, including incident response measures and clean-up activities.
Environment & Sustainability Manager	- Ensure this PIRMP satisfies the legal requirements of the POEO Act. - Assess any pollution incident to determine if there is a risk of material harm to the environment and notify the Project Director if activation of this plan is required. - Notify relevant authorities in accordance with this plan if required to do so. - Point of contact with EPA and other environmental authorities in the event of an environmental incident. - Ensure this plan is regularly reviewed and tested to ensure information included in the plan is accurate and up to date.
Communications Manager	- Assist the Environment and Sustainability Manager to identify stakeholders who require notification of the pollution incident. - Notify TfNSW communications and media teams of the pollution incident. - Coordinate community / stakeholder notification in the event of an incident, with agreed TfNSW approvals. - Notify community / stakeholders of clean-up activities where appropriate.
Construction Director	- Ensure specific resources (including personnel, plant, equipment and materials) are identified, provided and maintained for the duration of the project to implement this PIRMP, including incident response measures and clean-up activities. - Ensure the provisions of this PIRMP are implemented, e.g. training requirements, resource allocations, desktop and mock rehearsals.
Construction Manager	- In consultation with the Environment and Sustainability Manager, determine if this PIRMP is to be activated. - Assist the Construction Director to ensure specific resources are identified, provided and maintained for the duration of the project to implement this PIRMP, including incident response measures and clean-up activities. - Assist the Construction Director to ensure that the provisions of this PIRMP are implemented, e.g. training requirements, resource allocations, desktop and mock rehearsals. - Notify environmental personnel immediately in the event of an

Title	Roles and responsibilities relevant to the PIRMP
	environmental incident
Site Superintendent / Supervisor	- Assist the Construction Director to ensure that the provisions of this PIRMP are implemented, e.g. desktop and mock rehearsals. - Notify environmental personnel immediately in the event of an environmental incident - The most senior Project Superintendent / Site Supervisor for an area or shift on site during an incident also serves the role of the Emergency response Team Leader as defined in the Incident Response Plan
WHS Manager	- Implement notification protocol for relevant agencies. - Point of contact with Emergency Services and SafeWork NSW in the event of an incident. - The WHS Manager is a member of the Emergency Response Team as defined in the Incident Response Plan.
All project personnel	- Understand environmental management and notification requirements. - Notify supervisor immediately in the event of an environmental incident. - Implement pollution controls when necessary / as directed by supervisor or environmental staff.
Transport for NSW Representative	- Notified in the event of an environmental incident. - Notify DPHI in the event of an environmental incident.
Environmental Representative	Notified in the event of an environmental incident.

2 Implementation

2.1 Immediate response

Personnel encountering an actual or potential pollution incident are to immediately notify their supervisor. In accordance with the Incident Response Plan, the Site Superintendent / Supervisor will call emergency services if required and will notify the Construction Director and/or Environment and Sustainability Manager, who in turn will notify the key project personnel as listed in Table 2-2.

The immediate response to all incidents is to stop work and undertake actions to:

- Protect persons or environment from immediate harm;
- Save lives, relieve suffering or treat injured persons; and
- Prevent further property or environmental damage.

If safe to do so, efforts will be made to contain, reduce or suppress the cause of the incident. In the event of an environmental incident, the Site Superintendent / Supervisor in consultation with the Environment and Sustainability Manager, will undertake (or direct) the management of the incident. Resources (e.g. labour, excavators, vacuum trucks, etc.) may be required to assist in the management of the incident.

Where possible, the immediate incident scene (approximately 4m surrounding the incident) may need to be closed to all personnel except emergency services and/or police. Preserving the scene maximises opportunities for collecting accurate evidence and data on the incident with minimal contamination.

2.2 Notification

A pollution incident is required to be notified to relevant agencies and authorities if, in the course of any activity at the Premises, there is a risk of 'material harm to the environment'. This is defined in section 147 of the POEO Act as follows:

(a) harm to the environment is material 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 (or such other amount as is prescribed by the regulations), and

(b) loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment.

This PIRMP must be implemented immediately if a pollution incident occurs resulting in actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial.

If there is a risk of material harm to the environment, the procedure in Table 2-1 must be implemented and notifications made in accordance with Table 2-2,

Table 2-3 and Table 2-4. Incidents that do not constitute material harm to the environment do not trigger implementation of this plan. Under such circumstances, the requirements of the relevant incident management procedure shall apply.

The EPA may also direct that an incident is notified to others, either in writing or otherwise, and may specify the manner or form of such a notification.

Table 2-1: Action to be taken in response to a notifiable pollution incident

Step	Action	Responsibility	Reference
Step 1	Immediately advise key project contacts that pollution has occurred or is occurring. Direct verbal contact must be made; sending an SMS/text/email and/or leaving a voicemail message does not constitute contact. Where a person is not able to be contacted, the worker is to attempt to contact the next listed person until contact is made.	All workers	Table 2-2

Step	Action	Responsibility	Reference
Step 2	Immediately notify key CPB DTI JV / TfNSW contacts that pollution has occurred or is occurring.	CPB DTI JV Environment and Sustainability Manager or Environment Advisors	Table 2-2
Step 3	Immediately notify Agencies of the pollution incident.	CPB DTI JV Environment and Sustainability Manager in consultation with TfNSW	

Table 2-3

Step 4	Implement actions to minimise and control any pollution and ensure the safety of site personnel, neighbours and the community.	CPB DTI JV Environment Team and Safety personnel with Site Superintendent / Supervisor	Section 4
Step 5	Implement action to clean up pollution and dispose of waste appropriately.	Environment /Safety personnel with Site Superintendent/ Supervisors (including subcontractor's personnel)	Section 4
Step 6	Determine if neighbours or the community are affected and method of community notification.	CPB DTI JV Communications Manager and TfNSW Community Engagement Manager	Section 2.4 Community Communication Strategy
Step 7	Notify neighbours and the community of the pollution incident (if required).	TfNSW Community Engagement Manager CPB DTI JV Communications Manager	Section 2.4
Step 8	Notify other parties where requested to do so by the EPA.	CPB DTI JV Environment and Sustainability Manager in consultation with TfNSW	Section 2.2

Table 2-2: Project personnel notifications (to be notified of all notifiable pollution incidents)

Position	Mobile
Environment and Sustainability Manager, Howard Chemney	0410 542 009
Project Director, Steve Clark	0420 977 416
Construction Director, Travis Hinks	0433 693 907
General Superintendent (Project), Anthony Ryan	0429 377 297
Nightshift Superintendent, Myles Ball	0409 654 153
Superintendent (North), Tomo Dikic	0429 633 577
Superintendent (South), Stuart Sweeney	0408 621 037
Communications and Engagement Manager, Anne Learmonth	0417 142 167
TfNSW Environment and Planning Manager, Rob Owens	0435 578 294
Environmental Representative, Maurice Pignatelli	0407 493 176

Table 2-3: Agency notifications (must be notified)

Relevant Authority	Name / Location/Purpose	Contact No.
Emergency Services (Ambulance / Police / Fire and Rescue)	*Only ring 000 if the incident presents an immediate threat to human health or property and response by an emergency services agency is warranted. If the incident does not require an initial combat agency, or once	000*

	the 000 call has been made, notify as listed below.	
Fire and Rescue NSW	Crows Nest Fire Station	02 9493 1036
	Neutral Bay Fire Station	02 9908 1258
EPA Pollution Line	Environment Line	131 555
NSW Ministry of Health	General switchboard	02 9391 9000
SafeWork NSW	Incident notification (including After Hours), information, advice and assistance	131 050
Local Council	North Sydney Council	02 9936 8100
	Willoughby City Council	02 9777 1000
	Notify relevant council for location of incident (may need to notify more than one)	
Department of Planning, TfNSW to notify of all incidents* Major Projects website Housing and Infrastructure (NSW).		

* The Planning Secretary must be notified via the Major Projects Website immediately after the Proponent becomes aware of an incident. The notification must identify the CSSI (including the application number and the name of the CSSI if it has one) and set out the location and nature of the incident.

Table 2-4: Other agencies that may be notified as relevant

Relevant Authority	Name / Location/Purpose	Contact No.
NSW Ambulance	North Sydney	02 9317 8600
Police Service	North Sydney	02 9956 3199
Sydney Water		132 090
Jemena (Gas)		131 909
Electricity – Endeavour Energy		131 003

2.3 Incident Reporting Protocol

In consultation with the TfNSW Senior Manager, Planning and Environment and the Environmental Representative, the CPB DTI JV Environment and Sustainability Manager shall immediately notify the relevant Regulatory Authority and Other Authorities (Table 3-1).

Table 2-5: Authority Notification Protocol

Relevant Information required to be given to the Relevant Authorities when making a notification (Section 150 of the POEO Act) as follows:

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

The CPB DTI JV Environment and Sustainability Manager is required to report the information as known at the time of the notification. If the information required by (c), (d) or (e) above is not known at the time of initial notification but becomes known afterwards it must be reported to each authority immediately after it becomes known.

Following notification of a pollution incident, the Environment and Sustainability Manager shall maintain communication with relevant authorities as additional information becomes available. Updates shall include the progress of clean-up activities, monitoring, identified environmental impacts and the status of remediation works where required.

2.4 Community Notification Protocol

The Communications Manager, in consultation with TfNSW Senior Community Liaison Officer, coordinates all community and stakeholder communications and interactions for the Warringah Freeway Upgrade works. The process for notification of stakeholders of an emergency or incident relates directly to the nature of the hazard. Community stakeholder notification of an environmental incident will be required for events that:

- Will result in unacceptable health risk to community and stakeholders immediately and at the time of the pollution incident, where community stakeholders are present (e.g. residing in their houses or using adjacent recreational facilities at the time of the incident); or
- Will result in an unacceptable health risk to the community for instances where pollution of an area that is to be used by community members in the days and weeks following the incident (until such time when the pollution hazard is removed). These community stakeholders may not be present during the incident but might be present following the incident.

An unacceptable impact is defined as one which has the potential to adversely affect the health of a member of the community. This takes into consideration immediate health impacts (that occur during the incident) and health risks in the period following the incident.

The Communications Manager, in consultation with the relevant Construction Manager, the Environment and Sustainability Manager and TfNSW, will determine if community notification is recommended and the mechanisms by which the notification is made, the extent of the notification and the need for any ongoing updates. If appropriate, notification will include specific information to minimise the risk of harm, e.g. instructions to close windows and doors, or avoid contact with creeks/waterways.

The Communications Manager will consult with TfNSW on the agreed notification strategy and will coordinate the approvals and notification of surrounding premises and residents. Communication methods will vary depending on the audience (e.g. drivers, nearby park users, etc.) and may include:

- Door knock of residents, businesses and others (e.g. schools) potentially impacted by the incident.
- Phone contact/messages/email/social media networks.
- Distribution of advice to residents, businesses and vehicle owners, pedestrians, commuters and schools as required.
- Publication of information on the TfNSW/project website.
- Dissemination of information to local and metropolitan media via TfNSW.
- Liaison with local council and other government stakeholders.
- Liaison with utilities providers.
- Installation of temporary directional signage.
- Provide protective fencing and barricading to prevent community stakeholders from entering into an affected area
- Use of technology such as variable message signs and other signage and radio communications.

Notification to any residents, businesses or other premises that may be affected by the pollution incident will include the following information:

- Details of the pollution incident and extent of impact (as known at the time).
- Safety warnings and recommendations to prevent/minimise impacts, if required.
- Potential impacts on the operation of local businesses, if required.

The area which may be affected by a pollution incident is dependent on the transport vector (water, air or land), pollutant (type, concentration and concentration) and meteorological conditions. The Environment and Sustainability Manager, in consultation with the Communications Manager, will determine an appropriate geographical extent of the public notification and details to be provided in the notification.

In accordance with the Project Community Communications Strategy, the following steps will be undertaken to notify the community of an emergency or incident.

Table 2-6: Community Notification Requirements in Event of Emergency or Incident

Step	Action
Step 1	The Communication Manager will be notified of the incident by the Environment and Sustainability Manager.
Step 2	The Communication Manager and the Environment and Sustainability Manager will determine if the community is at risk from the emergency or incident.
Step 3	If it is determined that the emergency or incident does not impact the community no further action is required.
Step 4	If it is determined that members of the community will be impacted, the Communications Manager will prepare an appropriate notification to the community (dependent upon the circumstances) in consultation with the Environment and Sustainability Manager, the Construction Manager and TfNSW.
Step 5	Should a media response be required, it is the responsibility of CPB DTI JV to provide the appropriate information with technical input from the Construction Manager / Project Director.
Step 6	No staff member has authority to speak with the media.
Step 7	If the emergency or incident is unable to be contained or managed in a safe manner using site resources and intervention by an Emergency Service is required, the relevant emergency service will direct and control the response to the incident including any evacuation or rescue of any community stakeholders.
Step 8	Any further follow up required after the incident will be undertaken by the Communication Manager.

3 Potential Impacts

3.1 Pollution Incident Planning

3.1.1 Risk Matrix

The risk matrix outlined in **Appendix A-2** provides a tool for the assessment of hazards on the project and the potential risks to the environment if an incident were to occur. It also provides a process for the identification of any areas where the management controls are not sufficient to address the identified risk. The risk assessment takes into account:

- The location of the hazard and its proximity to sensitive receivers,
- The volume of the hazard (if applicable) at that location,
- The type of hazard, and
- Its potential consequence on the receiving environment.

The risk assessment assessed the hazards on the project in regard to their consequence and likelihood. Of the risks assessed they could be divided into a number of different types, relating to safety or environment. The consequence categories for the risks in relation to environment are:

- **Insignificant:** No appreciable change to environment or highly localised event.
- **Minor:** Change from normal conditions but within environmental regulatory limits. Environmental effects are within site boundaries.
- **Moderate:** Short lived environmental effect. Effects to environment but experienced mostly within boundary. Minor remedial actions probably required. Breach of environmental law or regulation.
- **Major:** Impacting external ecosystem. Considerable remediation required. Serious breach of environmental law or regulation with investigation or report to authority with prosecution and/or moderate fine possible.
- **Critical:** Long-term environmental impairment felt in neighbouring or valued ecosystem functions. Long term remediation required. Major breach of environmental law or regulation with likely major litigation.
- **Catastrophic:** Irreversible large-scale environmental impact. Loss of valued ecosystem. Violation of environmental law or regulation such that very serious litigation, fines and prosecution may result.

3.1.2 Environmental Risk Register

Project activities are assessed using the CPB DTI JV 'Environmental Risk Register' (refer to **Appendix A-3**) which identifies pollution hazards, the likelihood of occurrence, potential impacts to human health and the environment, environmental receptors that may be affected and the controls required to minimise the risk of a pollution incident. For each environmental aspect, within the 'Environmental Risk Register' there is a stated:

- Environmental impact,
- Risk analysis (inherent risk) - the likelihood and consequence of an environmental hazard/impact occurring in the absence of any control measures,

- Objective and targets to be achieved,
- Control measures including environmental monitoring where required - to be implemented to meet management objectives,
- Level of residual risk - the likelihood and consequence of an environmental hazard occurring following the implementation of control measures.

For any subcontracted works, the nominated Subcontractor is expected to implement the stated environmental controls and undertake monitoring in accordance with contract requirements.

3.1.3 Sensitive Receivers

The Environmental Risk Register has taken into account the sensitive receivers located along the Warringah Freeway Upgrade alignment. The CPB DTI JV Geographic Information System (GIS) tool incorporates key features of the alignment and relevant environmental constraints. The features include waterways, heritage, biodiversity, contamination and sensitive receivers amongst other site relevant features. The GIS forms the basis of the EPL Premises Maps and other project mapping used to identify environmental constraints, sensitive receivers and pollution incident response measures.

- Additional controls are in place for works around sensitive receivers and this includes:
- Stockpiles in sensitive areas to be stabilised with polymer or covered.
- Erosion and Sediment Control Plans to be submitted to ER/TfNSW prior to sensitive area works.

3.2 Pre-emptive Action

Pre-emptive measures focus on the carrying out of construction activities in a controlled manner. This includes detailed construction planning and the CPB DTI JV environmental management system (EMS), which provides a framework to define how CPB DTI JV will minimise impacts to the environment and to prevent pollution incidents from occurring on the project. It comprises a combination of governance documentation, the construction environmental management plan (CEMP) and issue-specific sub-plans, procedures and tools. Pre-emptive actions, identified as issue-specific management measures, are included in the CEMP sub-plans.

Environmental risks and appropriate controls are captured within the Construction Area Plans and associated Activity Method Statements. EWMS will be prepared for works in or near environmental sensitive areas and will be included in the appropriate Activity Method Statements, which contain relevant information for site engineers and foremen to manage and construct the works in a safe and environmentally responsible manner.

Compliance with the CPB DTI JV CEMP and conditions of the project approvals is assessed and reviewed through routine monitoring, inspection, reporting, review and audit as identified in the CEMP.

3.3 Incident / Emergency Response Procedures

3.3.1 Potential Incidents/Emergencies and Response Procedures

Reflecting the Environmental Risk Register, significant environmental incidents and emergencies have been identified and detailed in Table 4-3 together with appropriate response actions.

Workers are responsible for responding to environmental incidents under the direction of the Environment and Sustainability Manager.

In the event of an environmental emergency, the incident response shall be directed by the CPB DTI JV Project Director or nominated delegate in accordance with the CPB DTI JV Emergency Response Plan.

Where an environmental incident or other event results on the need for emergency construction works, the Environment and Sustainability Manager must notify the TfNSW Environment and Planning Manager and the ER of the need for those activities or works (SMS or email). The Communications Manager must also use best endeavours to notify all affected sensitive receivers of the likely impact and duration of those works as outlined in section 3.

Table 3-1: Notifiable Events

Type	Description	Response Procedures
Land/ Water	- Leak, spill or escape of any substance in a manner that harms or is likely to harm the environment. - Examples include: - Watermain strike (loss of sediment and water to stormwater) - Generator leak - Fuel spill - Spill of NDD material during transfer	- Contact 000 to mobilise the NSW Fire Brigade or HAZMAT where the incident cannot be controlled with onsite resources. - Contact Sydney Water in the event of a watermain strike and follow instructions. - Notify in accordance with Table 2-1. - Establish and/or strengthen controls around stormwater drains including drain wardens and sandbags around the drain perimeter. - Mobilise a vacuum truck to remove excess water/liquid from the site and dispose to an appropriately licensed facility. - Deploy spill kit materials to contain and absorb the spill. - Remove used spill kit materials from the site and dispose to an appropriately licensed facility. - Ensure spill kits are restocked following the event.
Noise	- Excessive or intrusive noise emissions arising from: - Inadequate controls - poorly maintained plant/equipment - failure to comply with Out of Hours Works Permit	- Cease noise generating activity if an approved Out of Hours Works Permit is not in place. - Notify in accordance with Table 2-1. - Review controls and revise as necessary. - Ensure noise barriers are installed and there are no gaps between barriers. - Switch off any equipment that is not in use for extended periods (e.g. heavy vehicles). - Avoid unnecessary noise (e.g. swearing, shouting, loud stereos/radios, dropping of materials from height, throwing of metal items and slamming of doors). - Avoid simultaneous use of high noise impact equipment. - Conduct noise monitoring to determine if noise levels are in accordance with predicted levels. - Ensure equipment is adequately maintained.

Air	Gas main strike resulting in loss of gas	• Evacuate the worksite and move to a well-ventilated area. • Notify in accordance with Table 2-1. • Contact the gas main operator and if required contact the Fire Brigade Service (000); follow instructions of the asset owner. • Ensure no naked flames or smoking. • Do not touch or operate electrical equipment. • Ensure no mobile phones are used in the vicinity of the leak.
Air	Excessive and intrusive dust emissions	• Cease dust generating activity. • Notify in accordance with Table 2-1. • Apply dust suppression (water cart, hose, etc). • Review the adequacy of controls (e.g. dust suppression, site barriers). • Recommence works following implementation of controls; monitor effectiveness. • In the event of high winds, reschedule works if dust cannot be controlled to reasonable levels.

3.3.2 Post-Incident Recovery, Monitoring and Investigation

Following the immediate response to, and stabilisation of, a pollution incident, the Environment and Sustainability Manager shall coordinate recovery activities to minimise ongoing environmental impacts and verify the effectiveness of response actions.

Recovery activities may include:

- Assessment of the extent and severity of actual or potential environmental harm.
- Environmental monitoring and sampling of potentially affected land, stormwater systems, waterways and other environmental receptors, where required.
- Ongoing inspection of containment controls and remediation measures.
- Removal and lawful disposal of contaminated materials and wastes generated during the incident response.
- Consultation with relevant regulatory authorities regarding clean-up requirements and environmental monitoring programs.
- Implementation of corrective actions to prevent recurrence of the incident.
- Restoration of affected areas where necessary.
- Verification that the pollution incident has been effectively contained and that there is no ongoing risk to human health or the environment.
- The Environment and Sustainability Manager shall determine the need for additional environmental monitoring based on the nature, scale and location of the incident.

Mitigation

The CEMP and associated sub-plans detail the management measures, controls and responsibilities required to carry out the environmental objectives of the Warringah Freeway Upgrade works, prevent pollution incidents and to minimise impacts to the environment. The CEMP and associated sub-plans apply to all parties working on Warringah Freeway Upgrade works.

4.1 Inventory of Potentially Hazardous materials

A Materials Register is maintained by the Warringah Freeway Upgrade Project works, which includes potential pollutants held on site. The Materials Register is a live document, which is revised regularly as materials are used or brought to the works site. Appendix A-4 provides a list of potential pollutants on site.

Potential pollutants may be released to the environment through a variety of pathways including direct discharge to land, stormwater systems, waterways, groundwater infiltration, airborne dispersion, erosion and sediment transport, or migration through contaminated materials. The potential environmental pathways and impacts associated with the pollutants stored on site are identified in Appendix A-4 and have been considered in the development of pollution prevention and response measures.

4.2 Minimising Harm to Persons on the Premises

Any mitigation, clean up, corrective or preventative actions are to be undertaken in accordance with the TfNSW Chemical Storage and Spill Response Guidelines, the CEMP (and associated sub-plans) and relevant safety related emergency management plans and procedures. The Safety Manager/Advisor determines and coordinates the response actions to be taken to prevent or minimise any safety or health impacts to site personnel, neighbours or the community.

4.3 Management Plans and Procedures

Specific environmental and incident management plans detailing mitigation measures are outlined below:

- TfNSW Chemical Storage and Spill Response Guidelines
- CEMP and associated sub-plans
- EPL Premises Maps (Appendix A-1 and project website)

4.3.1 Safety Equipment

The following equipment is provided to prevent or control and assist with pollution incidents. The locations of these equipment are spread across the worksite and main site compounds and indicated in the SAPs, where applicable:

- Spill Kits – in key locations across the Project.
- Safety Data Sheets - in designated chemical storage containers/main site compounds.
- Sediment control equipment including sand bags, gravel, geofabric and sediment fences.

Other plant and equipment present at the site or sourced externally may be used in the management of any pollution incident, including for example excavators, sucker trucks etc. The equipment required to be utilised in response to a pollution incident would be determined by the Site Superintendent in consultation with the Environment Advisor / Manager and Safety Manager/ Advisor.

Emergency Response Plans and maps are displayed in strategic locations within the Site Compound Offices/ notice boards, identifying safety equipment locations on-site (e.g. fire extinguishers, hose reels), assembly and evacuation points. Safety Data Sheets (SDSs) of materials are maintained in the CPB DTI JV's Materials (including Hazardous Substance) Register and in chemical/material containers on-site.

4.3.2 Maps

A number of maps are available that illustrate the location of the Warringah Freeway Upgrade works, the potential receivers and impacts, and provide information relevant to pollution incident planning and response. These include:

- EPL Premises Maps (refer project website <https://www.cpbcon.com.au/en/our-projects/2021/warringah-freeway-upgrade>. Refer Appendix A-1.

Premise maps will be updated on an ongoing basis as the project work area changes. The project website should be referred to for the most up to date set of maps.

4.4 Staff Training

The Environment and Sustainability Manager will establish an annual environmental training and awareness program to support implementation of the CEMP and sub-plans and maintain a high level of awareness among all workers, including subcontractors. All relevant CPB DTI JV personnel, subcontractors and visitors will receive emergency response training to ensure that they are fully aware of their roles and responsibilities in the event of an emergency arising, and to ensure the environmental impacts associated with an emergency are minimised. This training will generally be provided through:

- Warringah Freeway Upgrade Project Induction (including environmental induction):
 - Provided to all workers & subcontractors before commencement of works.
 - Content includes basic emergency procedures, incident reporting and environmental requirements.
 - Provided with information about the arrangements that will apply if a site emergency occurs, and an evacuation is necessary.
 - Short-term visitors to site will be required to attend a visitor's 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.

- **Toolbox Talks:**

Toolbox talks will inform environmental risks and controls to workers. Relevant issues addressed in toolbox talks include:

- Erosion and sedimentation controls.
 - Hours of work, out of hours work permits and restrictions on high noise intensive works.
 - Emergency and spill response and incident reporting.
 - Management of emissions from plant and vehicles.
 - Dust control and stop work procedure.
 - Wet weather shutdown procedure and responsibilities.
 - Community awareness.
 - Recent incidents, near misses, and potential issues relating to upcoming works.
- Daily Pre-Start Meeting:
 - Outline environmental issues that could potentially impact activities during the day.

Records of inductions and training will be maintained by the CPB DTI JV Safety and Environment Teams including the topic of the training carried out, dates, names and trainer details. Inductees will be required to sign-off that they have been informed of the environmental issues and that they understand their responsibilities. The Environment and Sustainability Manager will review training requirements and monitor program implementation on an ongoing basis.

5 PIRMP

5.1 Continual Improvement

5.1.1 Testing and review of this Plan

Testing of the PIRMP may be integrated into other emergency and incident testing and training programs and may include a desktop simulation, practical exercise or drill. The Environment team shall determine the method and date of testing, and shall coordinate the test, including advising all relevant personnel as required prior to the test. As a minimum the PIRMP shall be tested at least once every 12 months or whenever there is a significant change to site activities. Additional testing may be required at the discretion of the Environment and Sustainability Manager and in response to notifiable pollution incidents.

The testing will be carried out in such a manner as to ensure the information included in the plan is accurate and up to date and that each plan is capable of being implemented in a workable and effective manner. The testing will be undertaken:

- On an annual basis as part of a mock exercise.
- Within 1 month following an incident that results in activation of the PIRMP (may be desktop-based review).

This is to ensure lessons are captured and any improvements implemented to ensure the plan is being implemented in an effective manner.

The mock exercise will involve personnel responsible for the implementation of the PIRMP. This will include (but not be limited to) the following persons:

- Project Manager
- Project Superintendent
- Project Environment and Sustainability Manager
- Project Area Manager

A report detailing a record of the testing of the PIRMP will be prepared by the CPB DTI JV Environment team after each test of the PIRMP is undertaken. The report shall recommend amendments to the PIRMP, if required, to ensure that the PIRMP is workable and effective in achieving the stated objectives. The PIRMP Test Report may also recommend amendment to other plans and procedures associated with the test. The dates on which the plan has been tested and the name of the person who carried out the test will be included in future updates to this Plan.

Refer to Appendix A-5 for a record of PIRMP testing outcomes.

5.1.2 Updating the PIRMP

The PIRMP will be updated by the CPB DTI JV Environment and Sustainability Manager in response to the following:

- Any recommendation made in the PIRMP test report.
- Any changes in law that necessitate amendment to the PIRMP.
- Whenever this plan has been used to conduct an exercise or drill, details shall be recorded and retained on file. Identified improvements will be included in future revisions of this plan.

5.2 Availability of the PIRMP

Electronic and hard copies of the PIRMP shall be maintained at the following locations so that it is readily available to those responsible for its implementation:

- On the Premises at locations as determined by the CPB DTI JV Environment and Sustainability Manager.
- At the Head Office in North Sydney as determined by the CPB DTI JV Environment and Sustainability Manager.
- The PIRMP must be made available to an authorised officer (of the EPA) at their request.
- The PIRMP will also be made publicly available in accordance with the Protection of the Environment Operations Act 1997 and associated regulations.
- The publicly available version of the PIRMP is published on the CPB Contractors website for the Warringah Freeway Upgrade project and can be accessed via:
<https://www.cpbcon.com.au/our-projects/2021/warringah-freeway-upgrade>

Appendix A-1 EPL Premises Maps

NB. Current premise maps are located at <https://www.cpbcon.com.au/en/our-projects/2021/warringah-freeway-upgrade>

The EPL Premises Maps form part of this PIRMP by reference and identify the current licensed premises boundaries and environmental features relevant to pollution incident planning and response

Appendix A-2 Consequence & Likelihood Criteria

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 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, REMM, and review of the environmental risks identified by the EA and subsequent Submissions Report.

The following risk assessment process has been implemented, together with a review of proposed activities and known risks based on past project experience.

Risk Assessment Process

The following tables outline the risk assessment process using 3 steps to identify the appropriate management measures required.

Table 1 is used to determine the likelihood that the aspect will have an impact on the environment.

Table 2 is used to determine the potential consequence rating of the risk identified

From these two tables, a risk rating can then be assigned by using Table 3 to determine how severe the potential impact may be and what level of management each type of risk will require.

Table 2: Likelihood criteria

Score	Description		Percentage	Expected Frequency
5	Almost Certain	Common / Frequent Occurrence	Can be expected to occur 75% - 99%	More than 1 event per month
4	Likely	Is known to occur or "It has happened regularly"	Can quite commonly occur 50% - 75%	More than 1 event per year
3	Possible	Could occur or "I've heard of it happening"	May occasionally occur 25% - 50%	1 event per 1 to 10 years
2	Unlikely	Not likely to occur very often	May infrequently occur 10% - 25%	1 event per 10 to 100 years
1	Rare	Conceivable but only in exceptional circumstances	May occur in exceptional circumstances 0% – 10%	Less than 1 event per 100 years

Table 3: Consequence criteria

Consequence Rating	1	2	3	4	5
	Negligible	Minor	Moderate	Major	Substantial
Safety and Health	First Aid Treatment (or No treatment)	Medical Treatment Injury	Lost Time Injury	Permanent Injury (Paraplegia, Amputation)	Fatality (Single or multiple)
Environment and Heritage	Small, contained localised impact / Low level repairable damage	Short lived, well contained environmental impact / Minor remedial action required	Medium term, contained impact / Significant remedial action required	Impacts extend off-site / external ecosystem. Considerable remediation required	Long Term irreversible damage / Long Term Remediation required
Plant Damage	Little or No Damage	Damage less than \$15,000	Damage between \$15,000 and \$50,000	Damage between \$50,000 and \$100, 000	Damage greater than \$100, 000
Reputation	Brief local negative media coverage.	Local negative media coverage. Site or project problem.	Regional/short negative media coverage. Loss of Client / project.	Sustained national negative media coverage. Loss of long term key client.	International negative media coverage. Loss of business from key sector.
Time	Delay / Business interruption <1% of program days	Delay / Business interruption between 1%-3% of program days	Delay / Business interruption between 4%-6% of program days	Delay / Business interruption between 7%-10% of program days	Delay / Business interruption >10% of program days
Cost	Additional cost to the business / project <1% revenue	Additional cost to the business / project between 1%-3% revenue	Additional cost to the business / project between 4%-6% of revenue	Additional cost to the business / project between 7%-10% of revenue	Additional cost to the business / project >10% of revenue

Table 4: Risk severity

Consequence		Negligible	Minor	Moderate	Major	Substantial
Likelihood	Rating	1	2	3	4	5
Almost Certain	5	5 (Low)	10 (Moderate)	18 (Very High)	23 (Extreme)	25 (Extreme)
Likely	4	4 (Low)	9 (Moderate)	17 (Very High)	20 (Very High)	24 (Extreme)
Possible	3	3 (Low)	8 (Moderate)	13 (High)	19 (Very High)	22 (Very High)
Unlikely	2	2 (Low)	7 (Low)	12 (High)	15 (High)	21 (Very High)
Rare	1	1 (Low)	6 (Low)	11 (Moderate)	14 (High)	16 (High)

Appendix A-3 Environmental Risk Register

Issue	Construction activity/aspect	Potential Impacts to Human Health and the Environment	Risk level prior to mitigation	Indicative Mitigation Measures	Risk level following mitigation	Management Documents / Training Required
Air quality	- General earthworks - Vegetation clearing - Open excavation works - Spoil handling - Stockpiling - Vehicular movements on unsealed roads - Material haulage - Vehicle emissions - Handling of chemicals, waste and hazardous goods.	Reduced air quality resulting in nuisance dust, loss of amenity and potential respiratory irritation to workers, neighbouring residents and other sensitive receivers. Deposition of dust on vegetation, waterways, property and receiving environments.	Likelihood – 5 Consequence – 2 Risk – 10 (Moderate)	- Induct personnel on air quality issues and safeguards - Use water carts on unsealed surfaces and stockpiles - Utilise safe dust suppressants to reduce dust generation - Use street sweepers to reduce dust in areas of dust build up - Modify or cease operations during high winds	Likelihood – 3 Consequence – 1 Risk – 3 (Low)	Air Quality Management Sub Plan (AQMP) Environmental Work Method Statements (EWMS) Soil and Water Management Sub Plan (SWMP) Complaints Procedure Project induction
		Exposure of workers and members of the public to dust, fumes, smoke or airborne contaminants resulting in potential respiratory and other health impacts.	Likelihood – 3 Consequence – 2 Risk – 8 (Moderate)	- All trucks on public roads to cover loads - Vehicles, equipment, machinery used and all facilities – designed, operated and maintained to control the emission of smoke, dust, odours and fumes	Likelihood – 2 Consequence – 2 Risk – 7 (Low)	
		Deposition of airborne contaminants to land and waterways resulting in degradation of water quality, impacts to ecosystems and potential	Likelihood – 3 Consequence – 2 Risk – 8 (Moderate)	- All disturbed areas stabilised, revegetated and/or landscaped as soon as practicable - Minimise tracked mud/dust on public roads	Likelihood – 2 Consequence – 2 Risk – 7 (Low)	

Issue	Construction activity/aspect	Potential Impacts to Human Health and the Environment	Risk level prior to mitigation	Indicative Mitigation Measures	Risk level following mitigation	Management Documents / Training Required
		indirect human health impacts.		- No burning or incineration of any material at any time - Dust monitoring - Avoid “hot-work” during total fire bans and obtain any necessary permits/exemptions from the Rural Fire Service		
		Risk to worker and public health from release of gases, vapours or smoke, including potential injury, respiratory effects, evacuation requirements and localised environmental impacts.	Likelihood – 3 Consequence – 2 Risk – 8 (Moderate)	- WorkCover licensing requirements will be complied with for the storage of hazardous substances and dangerous goods - Appropriately stocked spill kits will be readily available at all chemical storage locations and during chemical use - Material Safety Data Sheets (MSDSs) will be obtained, complied with and retained on site for all required chemicals - Pesticide use will be in accordance with the Pesticides Act, 1999	Likelihood – 1 Consequence – 2 Risk – 6 (Low)	
Biodiversity	- Clearing of native vegetation. - Tree removal	Loss of habitat for threatened species beyond minimum clearing footprint.	Likelihood – 3 Consequence – 2 Risk – 8 (Moderate)	- Induct personnel on biodiversity issues and mitigation measures. - Verify vegetation clearing boundaries prior to clearing	Likelihood – 2 Consequence – 2 Risk – 7 (Low)	Flora and Fauna Management Plan (FFMP) EWMS

Issue	Construction activity/aspect	Potential Impacts to Human Health and the Environment	Risk level prior to mitigation	Indicative Mitigation Measures	Risk level following mitigation	Management Documents / Training Required
	- Stockpile / haul road construction near vegetation. - General earthworks near vegetation. - Vehicular movements. - Open excavation works. - Bushfires	Weed infestation	Likelihood – 5 Consequence – 2 Risk – 10 (Moderate)	- Ensure vegetation clearing boundaries clearly marked and visible as per FFMP - Consult with affected communities prior to removing large trees - Prior to construction – identify and fence all flora and fauna habitat areas required to be protected as identified in the FFMP. - Minimise clearing of all vegetation and undertake progressive revegetation. - Pre-clearing inspections by Project Ecologist to review weeds and other threatened species - Implement ongoing weed monitoring and management programs. - Disturbed areas will be monitored for effective soil stabilisation and restoration / rehabilitation. - Implement a staged clearing process and undertake fauna rescue during clearing as required. - Project Arborist to provide advice on habitat tree health and provide ongoing advice. - Undertake threatened species management as required under the FFMP and detailed design documentation / Approval.	Likelihood – 3 Consequence – 1 Risk – 3 (Low)	Vegetation Clearing procedure Fauna handling procedure Project induction
		Potential longer term impacts associated with increased habitat fragmentation.	Likelihood – 2 Consequence – 2 Risk – 7 (Low)		Likelihood – 1 Consequence – 2 Risk – 6 (Low)	
		Direct impact to flora or fauna during construction.	Likelihood – 2 Consequence – 2 Risk – 7 (Low)		Likelihood – 1 Consequence – 2 Risk – 6 (Low)	

Issue	Construction activity/aspect	Potential Impacts to Human Health and the Environment	Risk level prior to mitigation	Indicative Mitigation Measures	Risk level following mitigation	Management Documents / Training Required
				- Undertake monitoring as required. - Spark arresters on plant prevent fires. - Obtain permits from Fire authorities during high risk fire season.		
Aboriginal heritage	- Initial clearing and/or grubbing of vegetation. - Initial removal of topsoil. - Construction of site compounds and material or equipment stockpile areas. - Temporary access roads	Impact to undiscovered or undocumented heritage sites	Likelihood – 2 Consequence – 3 Risk – 12 (High)	- Induct personnel on heritage issues and mitigation measures. - For ancillary sites, identify and assess Aboriginal heritage items and predict potential impacts. - Implement unexpected find procedures as required.	Likelihood – 1 Consequence – 2 Risk – 6 (Low)	Heritage Management Sub Plan (HMP) Unexpected Heritage Items Procedure Project induction
		Finding / disturbing burials or human remains	Likelihood – 2 Consequence – 2 Risk – 7 (Low)		Likelihood – 1 Consequence – 2 Risk – 6 (Low)	
Non-Aboriginal heritage	- Initial clearing and/or grubbing of vegetation. - Initial removal of topsoil. - Construction of site compounds and spoil / mulch and / or equipment stockpile areas.	Impact to identified heritage items.	Likelihood – 3 Consequence – 3 Risk – 13 (High)	- Pre-construction surveys to identify and assess non- Aboriginal heritage items. - Induct personnel on heritage issues and safeguards. - Protect identified heritage items with protective fencing or flagging from being disturbed during construction. - Undertake archival recording as required	Likelihood – 2 Consequence – 2 Risk – 7 (Low)	Heritage Management Sub Plan (HMP) Noise and Vibration Management Sub Plan (NVMP) Unexpected Heritage Items Procedure Project induction
		Vibration damage during the construction period to identified sites.	Likelihood – 3 Consequence – 2 Risk – 8 (Moderate)		Likelihood – 2 Consequence – 2 Risk – 7 (Low)	

Issue	Construction activity/aspect	Potential Impacts to Human Health and the Environment	Risk level prior to mitigation	Indicative Mitigation Measures	Risk level following mitigation	Management Documents / Training Required
	- Temporary access roads during construction - Excavations and earthworks. - Pile driving causing vibration. - Use of other vibratory equipment such as rollers.	Impact to undiscovered or undocumented heritage sites. Change in visual integrity of heritage sites.	Likelihood – 3 Consequence – 3 Risk – 13 (High) Likelihood – 2 Consequence – 2 Risk – 7 (Low)	- Implement unexpected find procedures - Landholder consultation.	Likelihood – 2 Consequence – 2 Risk – 7 (Low) Likelihood – 2 Consequence – 1 Risk – 2 (Low)	
Noise and vibration	- Regular out of hour works (OOHW) - Potentially noisy and vibration impact generating works: - Site establishment. - Earthworks - Piling - Paving - Saw cutting	Noise impacts on sensitive receivers during construction. Vibration impacts on nearby receptors, including heritage.	Likelihood – 5 Consequence – 3 Risk – 18 (Very High) Likelihood – 4 Consequence – 2	- Consult with local communities and affected residents. - Liaison AA and permits detailing justification for OOHW - Construction Noise and Vibration Impact Statements (CNVIS) to be prepared to determine impact and consultation requirements - Adherence to working hours in NVMP unless otherwise approved. - Respite periods for particularly noisy/ short duration activities (in accordance with NVMP) or offers of respite as documented in CNVIS. - Construction equipment selected, operated and maintained to minimise noise impacts and where necessary	Likelihood – 4 Consequence – 2 Risk – 9 (Moderate) Likelihood – 3 Consequence – 2	NVMP EWMS OOHW protocol Negotiated agreements Complaints procedure Project induction

Issue	Construction activity/aspect	Potential Impacts to Human Health and the Environment	Risk level prior to mitigation	Indicative Mitigation Measures	Risk level following mitigation	Management Documents / Training Required
			Risk – 9 (Moderate)	fitted with non-tonal reversing alarms. - Minimise impacts from saw cutting/ use effective shielding. - Regular noise monitoring to monitor predicted verses actual levels. - Implementing management measures where regenerated noise is found to be excessive and agreements are not in place. - Managing construction vehicle routes and speed of vehicles. - Modelling vibration impacts and monitoring where impacts are predicted. - Establish and maintain complaints management system. - Building condition reports on potentially impacted buildings and structures as required by Project approval. - review monitoring results and implement corrective actions as appropriate, such as for example revising mitigation measures, revising predictions. - Implement any additional feasible and reasonable mitigation measures, identified from the review of	Risk – 8 (Moderate)	

Issue	Construction activity/aspect	Potential Impacts to Human Health and the Environment	Risk level prior to mitigation	Indicative Mitigation Measures	Risk level following mitigation	Management Documents / Training Required
				monitoring results, for minimising noise and vibration impacts Discuss noise and vibration monitoring results at each ERG.		
Soil and water quality	- Clearing and grubbing. - Earthworks and stockpile management. - Storage of fuels and chemicals - Maintenance of plant and equipment, including servicing and refuelling - Sediment basin management - Drainage works - Concrete works	Sediment migration causing degradation of water quality, impacts to aquatic ecosystems, blockage of drainage infrastructure and potential impacts to recreational users of waterways.	Likelihood – 5 Consequence – 3 Risk – 18 (Very High)	- Appropriately designed erosion control structures (e.g. rock checks, sedimentation basins, silt fences and sand bags) will be installed, maintained and cleaned regularly. - Locate spoil stockpiles, plant and equipment away from drainage lines, watercourses or stormwater drains in accordance with established criteria.	Likelihood – 3 Consequence – 2 Risk – 8 (Moderate)	SWMP EWMS Basin management procedure Project induction Targeted ERSED training
		Release of sediment laden or contaminated water causing impacts to receiving waters, aquatic habitats and downstream users.	Likelihood – 4 Consequence – 3 Risk – 17 (Very High)	- Install clean water diversions to ensure clean and dirty water are not mixed on site. - Storage, compound access and parking areas sealed, as early during works as practicable. - Chemical storage meets bunding requirements.	Likelihood – 3 Consequence – 2 Risk – 8 (Moderate)	

Issue	Construction activity/aspect	Potential Impacts to Human Health and the Environment	Risk level prior to mitigation	Indicative Mitigation Measures	Risk level following mitigation	Management Documents / Training Required
	- Temp access road construction - Bridge construction. - Landscaping - Landscaping maintenance	Uncontrolled discharge of polluted water resulting in contamination of waterways, environmental harm and potential impacts to public health and amenity..	Likelihood – 4 Consequence – 3 Risk – 17 (Very High)	- Wheel mud reduction/ cleaning measures at exit of all sites where required. - Buffer zones of vegetation will be maintained adjacent to waterways for as long as practical. - Rehabilitation and landscaping works of disturbed areas undertaken as soon as the works are completed and/or progressively where possible.	Likelihood – 3 Consequence – 2 Risk – 8 (Moderate)	
		Transport of sediment and contaminants to surrounding land and waterways causing environmental harm and potential safety risks to workers and the public.	Likelihood – 3 Consequence – 2 Risk – 8 (Moderate)	- Implement concrete washout process within bunded areas. - Provide and maintain spill kits. - Establish clean water catch drains/ diversion early in Project before topsoil stripping. - Design drainage to maximise dirty water to sediment basins. - Establish dedicated ERSED crews for the Project. - Install signage at discharge points to assist workers to understand implications of dirty water release in sensitive areas. - Meet TfNSW Dewatering guidelines.	Likelihood – 2 Consequence – 2 Risk – 7 (Low)	
Flooding	Transverse drainage.	Flooding of adjacent properties, work areas or infrastructure resulting in safety risks to workers	Likelihood – 4 Consequence – 3	Design drainage structures to cope with design flood events and	Likelihood – 3 Consequence – 2	SWMP EWMS

Issue	Construction activity/aspect	Potential Impacts to Human Health and the Environment	Risk level prior to mitigation	Indicative Mitigation Measures	Risk level following mitigation	Management Documents / Training Required
	Haul roads and Freeway.	and the community and environmental damage..	Risk – 17 (Very High)	Environmental Assessment commitments. - Locate compounds / plant / storage above 1 in 20 years flood level events. - Design and build temporary crossings to be stabilised and minimise scour / erosion during flood events. - Install scour protection as early as possible. - Look at predicting flood events from gauges or rainfall predictions. - Design and construct Project in accordance with CoA .	Risk – 8 (Moderate)	
		Increased flood impacts to properties, infrastructure, sensitive receivers and ecosystems resulting in environmental, safety and community impacts.	Likelihood – 3 Consequence – 4 Risk – 19 (Very High)		Likelihood – 2 Consequence – 2 Risk – 7 (Low)	
		Contamination of clean stormwater resulting in polluted discharges to receiving environments and potential impacts to downstream users and aquatic ecosystems.	Likelihood – 5 Consequence – 3 Risk – 18 (Very High)		Likelihood – 3 Consequence – 2 Risk – 8 (Moderate)	
		Release of fuels, chemicals or contaminated materials during flooding resulting in pollution of land and waterways and potential safety risks..	Likelihood – 3 Consequence – 3 Risk – 13 (High)		Likelihood – 2 Consequence – 2 Risk – 7 (Low)	
		Sediment discharge and infrastructure damage resulting in environmental impacts and risks to worker and public safety.	Likelihood – 3 Consequence – 2 Risk – 8 (Moderate)		Likelihood – 2 Consequence – 2 Risk – 7 (Low)	

Issue	Construction activity/aspect	Potential Impacts to Human Health and the Environment	Risk level prior to mitigation	Indicative Mitigation Measures	Risk level following mitigation	Management Documents / Training Required
Spoil and Fill	- Cuts - Fill areas - Haulage of spoil and fill - Stockpiling - Spoil areas - Site establishment utility - Service relocations - Earthworks - Drainage works	Demand on local resources – local quarries / suppliers.	Likelihood – 4 Consequence – 1 Risk – 4 (Low)	- Design for balanced earthworks. - Offsite spoil movements to be monitored and tracked on the site waste disposal register to ensure spoil movements meet EPA guidelines, including characterisation of the spoil to determine correct disposal locations and volumes. - Spoil to be beneficially reused, on or off site, where applicable and meeting environmental requirements. Includes reuse of excavated material, either as fill, or as earth mounds for noise control, or beautification, shielding or revegetation mounds on site. - All loads accessing public roads to be covered to prevent any loss of material, which may cause driver safety issues. - Only locate stockpiles in accordance with criteria in CEMP/SWMP - Classify and dispose of any contaminated land in accordance with EPA guidelines.	Likelihood – 3 Consequence – 1 Risk – 3 (Low)	SWMP EWMS and Work Packs AQMP CEMP Contaminated Land Management Procedure
		Sediment runoff from exposed surfaces causing impacts to waterways, aquatic ecosystems and neighbouring land uses.	Likelihood – 4 Consequence – 2 Risk – 9 (Moderate)		Likelihood – 3 Consequence – 2 Risk – 8 (Moderate)	
		Sensitive area damage from stockpiling causing pollution, habitat disturbance or contamination of environmentally sensitive areas resulting in impacts to ecosystems and biodiversity values.	Likelihood – 3 Consequence – 2 Risk – 8 (Moderate)		Likelihood – 2 Consequence – 2 Risk – 7 (Low)	
		Exposure of workers and the community to contaminated materials and contamination of soil, groundwater, surface water and ecosystems.	Likelihood – 3 Consequence – 3 Risk – 13 (High)		Likelihood – 2 Consequence – 2 Risk – 7 (Low)	

Issue	Construction activity/aspect	Potential Impacts to Human Health and the Environment	Risk level prior to mitigation	Indicative Mitigation Measures	Risk level following mitigation	Management Documents / Training Required
Waste Management	Generation of waste during construction activities including building materials, excess unsuitable spoil material, vegetation material.	Excessive waste being directed to landfill.	Likelihood – 3 Consequence – 1 Risk – 3 (Low)	- Apply waste hierarchy principles – avoid-reduce-reuse-recycle. - Waste materials contained in waste bins or other suitable containers, and collected for recycling, reuse or disposal by the licensed waste contractor.	Likelihood – 2 Consequence – 1 Risk – 2 (Low)	Waste and Energy Management Plan (WEMP) EWMS Waste register
		Incorrect disposal of contaminated waste causing contamination of land, groundwater and surface water, exposure of workers and the public to hazardous materials and potential long-term environmental harm.	Likelihood – 3 Consequence – 4 Risk – 19 Very High	- Separate, contain, manage and dispose contaminated waste to prevent migration and further contamination whilst maintaining compliance with EPA requirements. - Label and store all liquid waste containers in a bunded area prior to removal off-site.	Likelihood – 2 Consequence – 2 Risk – 7 (Low)	
		Inappropriate reuse, storage or disposal of materials resulting in land contamination, environmental harm, regulatory non-compliance and potential exposure risks to workers and the community.	Likelihood – 3 Consequence – 3 Risk – 13 (High)	- Undertake inspections of the worksite and waste storage areas to ensure litter / debris is regularly cleaned up and contained on site. - Establish recycling system early on in Project. - Establish good segregation areas for concrete and waste concrete is not to be transported off site for land disposal. - Section 143 Notices Under the POEO Act and provision of a letter to landholder highlighting the need for a “s.143 Notice”, the Contractor’s role and the respective roles of the TfNSW	Likelihood – 2 Consequence – 2 Risk – 7 (Low)	

Issue	Construction activity/aspect	Potential Impacts to Human Health and the Environment	Risk level prior to mitigation	Indicative Mitigation Measures	Risk level following mitigation	Management Documents / Training Required
				and the landholder in ensuring that the waste is appropriately managed. Consider types of waste, how each waste type will be used as a beneficial use and address in the approvals that no other type of waste will be used.		
Traffic and transport	- Haulage of material. - Import of material / plant / equipment. - Travel to / from site. - Loss of street parking	Accidents - Safety of commuters, pedestrians, cyclists, contractors and subcontractors. Delays Noise Vibrations and Dust nuisance to residents on haul routes Unapproved use of local roads	Likelihood – 4 Consequence – 4 Risk – 20 (Very High)	- Develop and update Traffic Control Plans for all stages of work. - Identify and assess roads likely to be affected by Project construction and develop methods to minimise traffic increases. - Undertake before and after dilapidation surveys on local roads - Traffic controllers and / or signage for both egress and ingress off the work sites. - All vehicles carrying materials to be adequately covered to prevent any loss of material, which may cause driver safety issues. - Toolbox workforce on approved access routes - Consult with affected communities prior to removing spaces for street parking	Likelihood – 3 Consequence – 3 Risk – 13 (High)	Traffic Management Plan (TMP) EWMS AQMP WEMP Project induction Toolbox talks
Visual Impact,		General public aesthetic impacts	Likelihood – 3	Landscape and rehabilitation plan including extensive seeding planting	Likelihood – 2	Urban Design and Landscape

Issue	Construction activity/aspect	Potential Impacts to Human Health and the Environment	Risk level prior to mitigation	Indicative Mitigation Measures	Risk level following mitigation	Management Documents / Training Required
Landscaping and Rehabilitation	- Cuttings and cut finishes. - Bridge design Revegetation / landscaping. - Removal of visually prominent native vegetation. - Evening / night works.		Consequence – 1 Risk – 3 (Low)	in required areas will be developed and implemented. - Landscape treatments will incorporate the surrounding landscape types and vegetation patterns and address view scapes. - Embankments and cuttings will be stabilised by the use of appropriate landscape treatments. - The use of night-lighting will be minimised where possible during the construction phase and directed away from residential areas. - Site compounds and areas surrounding them will be kept tidy and be regularly cleaned and maintained. - Undertake landscaping and revegetation works in accordance with the approved Urban Design and Landscape Management Plan.	Consequence – 1 Risk – 2 (Low)	Management Plan (UDLMP) FFMP
		Heritage related visual	Likelihood – 2 Consequence – 2 Risk – 7 (Low)		Likelihood – 1 Consequence – 2 Risk – 6 (Low)	
Contamination	- Discovery of contaminated soils/ asbestos - Management of known contamination	Pollution of land, groundwater, stormwater systems and waterways from contaminated materials, hazardous substances or asbestos, resulting in environmental harm and potential human health impacts.	Likelihood – 4 Consequence – 3 Risk – 17 (Very High)	- Implement unexpected finds contamination management measures - Undertake Detailed Site Investigations to determine location and extent of contamination	Likelihood – 2 Consequence – 2 Risk – 7 (Low)	Contaminated Land Management Procedure EPA guidelines

Issue	Construction activity/aspect	Potential Impacts to Human Health and the Environment	Risk level prior to mitigation	Indicative Mitigation Measures	Risk level following mitigation	Management Documents / Training Required
General Environmental Management	- Environmental management / supervision - Incident response	Poor environmental culture leading to poor environment outcomes.	Likelihood – 4 Consequence – 2 Risk – 9 (Moderate)	- Ensure all environmental personnel are trained in the CEMP and all associated documents. - Environment team diligence in including requirements from CEMP and procedures into EWMS and training. - Regular review of environmental management documents. - Regular environment team and ERG meetings. - Environmental Manager to be involved in design and construction meetings. - Training in environmental emergency response. - Ensure NCR process is followed. - Early consultation with regards to proposed upcoming works and approvals to be sought. - Implementation of high operating standards & in accordance with accepted industry standards.	Likelihood – 2 Consequence – 2 Risk – 7 (Low)	CEMP Procedures (in CEMP and sub-plans) TfNSW Incident Management procedures EWMS Compliance Tracking Program Internal / external audits ERG
		Non-compliance with CEMP, EPL, MCoA and legislative requirements.	Likelihood – 4 Consequence – 2 Risk – 9 (Moderate)		Likelihood – 2 Consequence – 2 Risk – 7 (Low)	
		Failure to follow requirements of strategies / procedures.	Likelihood – 4 Consequence – 2 Risk – 9 (Moderate)		Likelihood – 2 Consequence – 2 Risk – 7 (Low)	
		Failure to report environmental issues and incidents.	Likelihood – 4 Consequence – 2 Risk – 9 (Moderate)		Likelihood – 2 Consequence – 2 Risk – 7 (Low)	
		Inconsistent advice to construction personnel.	Likelihood – 4 Consequence – 2 Risk – 9 (Moderate)		Likelihood – 2 Consequence – 2 Risk – 7 (Low)	
		Inadequate response to environmental incident/emergency.	Likelihood – 3 Consequence – 2		Likelihood – 2 Consequence – 2	

Issue	Construction activity/aspect	Potential Impacts to Human Health and the Environment	Risk level prior to mitigation	Indicative Mitigation Measures	Risk level following mitigation	Management Documents / Training Required
			Risk – 8 (Moderate)		Risk – 7 (Low)	
Planning Approvals	Approvals/ Legislative Compliance	Lost opportunities to implement innovations leading to better environmental outcomes	Likelihood – 4 Consequence – 2 Risk – 9 (Moderate)	- Early consultation in preparing approvals and CEMP. - Ensure all environmental personnel are trained in the CEMP and all associated documents. - Environment team diligence in including requirements from CEMP and procedures into EWMS and training. - Regular review of environmental management documents. - Regular review of compliance with environmental management documents, MCoA etc. - Regular environment team and ERG meetings. - Early consultation with regards to proposed upcoming works and approvals to be sought.	Likelihood – 2 Consequence – 2 Risk – 7 (Low)	CEMP Compliance Tracking Program Internal / external audits ERG
		Poor working relationships with regulators	Likelihood – 3 Consequence – 2 Risk – 8 (Moderate)		Likelihood – 2 Consequence – 2 Risk – 7 (Low)	
		Delays due to receipt of approvals (e.g. CEMP, Planning Modifications, Environment Assessments for Ancillary Facilities)	Likelihood – 4 Consequence – 2 Risk – 9 (Moderate)		Likelihood – 1 Consequence – 2 Risk – 6 (Low)	

Appendix A-4 Inventory of Potential Pollutants

Chemicals / hazardous substances	Estimated maximum quantity at each construction compound	Location / Storage	Potential Environmental Pathway	Potential Environmental Impact
Spoil (including potentially contaminated spoil)	50,000 T	Temporary stockpiles, controls as per SWMP	Stormwater runoff, erosion, leaching to soil and groundwater, windborne dust	Sedimentation of waterways, contamination of land and groundwater, impacts to aquatic ecosystems
Asbestos Containing Material	1,000 T	Temporary stockpiles (if not able to be directly removed from site), covered and in exclusion zone	Airborne fibres, stormwater runoff, improper disposal	Human health risk from inhalation, contamination of land and waterways
Acetylene (G size cylinder)	20	Secure storage area	Atmospheric release from damaged cylinders	Fire/explosion risk, localised air quality impacts
Bitumen emulsion	60,000 L	Supply truck	Spills to land, stormwater drainage, waterways	Smothering of aquatic habitat, contamination of soil and water

Cement and grout products, dry form	1000 kg	Covered storage area	Stormwater runoff, wash water discharge, soil infiltration	Elevated pH in soils and waterways, impacts to aquatic organisms
Cleaning products, detergents, degreasers	100 L	Bunded storage area	Stormwater runoff, spills to soil, sewer or drainage systems	Toxicity to aquatic life, water quality degradation
Concrete washout water	5000 L	Impermeable washout basins or tanks	Surface water runoff, discharge to stormwater systems, infiltration to soil	Highly alkaline pollution causing significant aquatic ecosystem impacts
Curing compounds	600 L	Bunded storage area	Spills to land and stormwater systems	Water quality impacts and contamination of receiving environments
Diesel	60,000 L	Fuel truck, bunded storage area	Spills to soil, stormwater drains, waterways, groundwater infiltration	Toxicity to aquatic life, soil contamination, hydrocarbon pollution
Greases e.g. plant & equipment grease, mould oils & other greases	3000 kg	Bunded storage area	Surface runoff, spills to soil and drainage systems	Hydrocarbon contamination of land and waterways
Hydraulic oil, engine oil, form oil	20,000 L	Bunded storage area	Surface runoff, stormwater transport, groundwater infiltration	Toxicity to aquatic ecosystems, persistent soil contamination
Oxygen (G size cylinder)	20	Secure storage area	Atmospheric release	Minimal environmental impact, however increased combustion risk during fire events

Paints and surface coatings	100 L	Bunded storage area	Stormwater runoff, soil contamination, overspray to environment	Chemical contamination of land and water, toxicity to aquatic organisms
Petrol	500 L	Bunded storage area	Spills, vapour releases, stormwater transport, groundwater infiltration	Fire risk, groundwater contamination, aquatic toxicity
Primers, sealants	100 L	Bunded storage area	Soil contamination, runoff to stormwater systems	Chemical contamination of land and receiving waters
Sediment laden water	5,000 kL	Sediment basins, sumps, excavations	Direct discharge, overflow from basins, stormwater runoff	Increased turbidity, sedimentation, smothering of aquatic habitat
Sodium hydroxide	10,000 L	Bunded storage area	Spills to soil, stormwater systems and waterways	Significant pH increase causing environmental harm and aquatic toxicity
Soil stabilisers	4,000 L	Bunded storage area	Runoff during rainfall, spills during handling	Water quality impacts, potential aquatic toxicity depending on product type
Sulphuric acid	10,000 L	Bunded storage area	Soil infiltration, stormwater runoff, direct waterway release	Severe acidification of soils and waterways, ecological damage

Transformer oils (at HV transformers and kiosks)	20,000 L	Bunded storage area	Leaks from transformers, soil infiltration, stormwater runoff	Soil contamination, water pollution and potential long term environmental impacts
Water treatment chemicals eg gypsum	10 T	Bunded storage area	Runoff from storage areas, accidental spills	Water quality changes and impacts to aquatic ecosystems
Workshop materials (e.g. consumables, waste oil for collection or recycling)	6,000 L	Bunded storage area	Leaks, spills, stormwater runoff, improper waste storage	Soil and water contamination, potential toxicity to flora and fauna

Appendix A-5 PIRMP Testing History and Outcomes

A record of PIRMP testing undertaken for the Warringah Freeway Upgrade is maintained to demonstrate compliance with the Protection of the Environment Operations Act 1997. Testing outcomes are reviewed to confirm that the PIRMP remains accurate, current, workable and capable of being effectively implemented. Any improvement opportunities identified during testing are incorporated into future revisions of the PIRMP where required.

Test Date	Scenario	Tested by	Outcome
16 August 2022	Frac-out incident desktop exercise	Simon Lendrum (Environmental Operations Manager, CPB DTI JV)	Plan suitable
18 April 2023	Post-incident desktop review following overtopping event	Simon Lendrum (Environmental Operations Manager, CPB DTI JV)	Plan suitable
12 April 2024	Ground anchor grout spill desktop exercise.	Simon Lendrum (Environmental Operations Manager, CPB DTI JV)	Plan suitable
15 February 2025	Ground anchor grout spill desktop exercise	Simon Lendrum (Environmental Operations Manager, CPB DTI JV)	Plan suitable
21 November 2025	Wicks Road landfill fire mock drill	Simon Lendrum (Environmental Operations Manager, CPB DTI JV)	Plan suitable
16 July 2026	Major diesel spill practical exercise	Simon Lendrum (Environmental Operations Manager, CPB DTI JV)	Plan suitable with minor improvement opportunities