Public Transport Authority

METRONET on Swan Ferry Service Expansion: Perth to Applecross

Construction Environmental Management Plan

September 2025

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Abbreviations

Abbreviation	Expansion
ACH	Aboriginal Cultural Heritage
ALARP	As low as reasonably practicable
ANZG 2018	Australian and New Zealand Guidelines 2018
AOC	Area of Concern
AS	Australian Standards
BCH	Benthic Community Habitat
CEMP	Construction Environmental Management Plan
DBCA	Department of Biodiversity, Conservation and Attractions
DCA	Development Control Area
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DE	Development Envelope
DITRDCA	Department of Infrastructure, Transport, Regional Development, Communications and the Arts
DoT	Department of Transport and Major Infrastructure
DPLH	Department of Lands, Planning and Heritage
DFES	Department of Fire and Emergency Services
DWER	Department of Water and Environment Regulation
EMM	Emergency Management Manual
EMS	Environmental Management System
EPA	Environmental Protection Authority (WA)
ESB	Environmental Services Branch
ID	Identification
IMA	Invasive Marine Animals
IMO	International Marine Organisation
IP&LS	Infrastructure Planning and Land Services Division
LV	Light Vehicle
MEQ	Marine Environmental Quality
MNES	Matters of National Environmental Significance
MR	Medium Rigid
NCR	Non-Conformance Report
OFI	Opportunity for Improvement
OTI	Objectives, Targets and Indicators
PASS	Potential Acid Sulphate (forming) Soils
PDWSA	Public Drinking Water Source Areas
PTA	Public Transport Authority

Abbreviation	Expansion
SCRM	Swan Canning River Management
SCRMA	Swan Canning River Management Authority
SWALSC	South West Aboriginal Land and Sea Council
SWTC	Scope of Work Technical Criteria
SRT	Swan River Trust
T	Tonne
TSS	Total Suspended Solids
UWA	University of Western Australia
WAC	Whadjuk Aboriginal Corporation
WAPC	Western Australian Planning Commission

Terms and Definitions

Term	Definition
Environmental Incident	Means any unplanned event caused by acts or omissions resulting in or having the potential for environmental harm.
ISO14001	Australian / New Zealand Standard (AS/NZS) International Standards Organisation (ISO) 14001 Environmental Management Systems - Requirements with guidance for use, provides a structured framework for organisations looking to reduce their environmental footprint and improve operational efficiency.
Notifiable Environmental Incident	An Environmental Incident determined by the Environmental Manager to require notification to an external regulator.
Objective	PTA's electronic document and records management system. All employees are required to register their official records into Objective.
Physico-Chemical	Physico-chemical deals with the physical aspects of chemistry: the principles and methods used to understand the chemical properties and behaviours of substances.
SAI360	SAI360 is a cloud-based solution and integrated platform for managing and improving the Public Transport Authority's risk, audit, inspection, hazard and incident information.
Site Specific CEMP	A PTA-approved CEMP specific to each of the Development Envelope Sites: • Applecross • Matilda Bay • Elizabeth Quay

Contents

List of Tables

List of Figures

1. Purpose

The Public Transport Authority (PTA) of Western Australia plans, constructs, operates and maintains public transport infrastructure and services in Perth and regional Western Australia. This includes ferry infrastructure and the ferry service in the Perth metropolitan region, which currently operates on the Swan River between Elizabeth Quay and Mends Street jetty South Perth.

The PTA is expanding this existing service to include a Ferry service from Elizabeth Quay west to Matilda Bay and Applecross. This will require upgrading the existing Elizabeth Quay Ferry terminal and construction of new jetties and ferry terminals at Applecross and Matilda Bay (the Project).

Effective and responsible environmental management is an essential component of the PTA's business approach, which is increasingly important as the public transport network expands. To provide a systematic approach to environmental management, the PTA implements an Environmental Management System (EMS). The EMS is a framework used to:

- Identify, control, and raise awareness of significant environmental risks,
- Ensure compliance with legal obligations, and
- Have simple and well-supported processes and documents to guide activities and decision-making.

As an extension of the PTA EMS, a Construction Environmental Management Plan (CEMP) is required for any new projects involving construction.

The purpose of this CEMP is to provide an overview of environmental management measures that will be implemented throughout the Project construction period to ensure that potential impacts resulting from construction activities are effectively managed and risks mitigated. The CEMP will also support required regulatory approvals and aim to demonstrate to Decision-Making Authorities (DMAs) that potential impacts involving EPA Environmental Factors will be adequately managed in accordance with policy and agency expectations. As such this CEMP has been developed with relevant information and management strategies for key environmental issues relating to the following:

- **Benthic Communities and Habitat:** Minimisation of benthic habitat disturbance during construction.
- **Marine Environmental Quality:** Minimisation of disturbance and management of impacts to water quality during construction.
- **Marine Fauna:** Minimisation of disturbance and management of impacts through avoidance of direct impact on conservation significant species.
- **Social Surroundings:** Limit impact on Aboriginal cultural heritage and social surroundings including noise, dust, visual intrusion, and ensure local amenity is protected and public safety measures are undertaken.

This CEMP will also act as a reference document for Site-Specific CEMPs (Section 6), which will be created and issued prior to any ground engaging activities. This CEMP outlines any management controls relevant to the EPA Environmental Factors that have been deemed as relevant to the proposal. These controls will be considered by the PTA, contractors,

environmental regulators and stakeholders with a vested interest in understanding the PTA's approach to environmental management of the Project and in the development of site-specific management plans.

This CEMP outlines the following:

- Project Description outlining Construction Activities;
- Leadership, including Roles and Responsibilities;
- Legislative requirements;
- EPA Environmental Factors considering Environmental Aspects and Impacts;
- Construction Environmental Monitoring and Management;
- Measurement and Performance Evaluation; and
- Review and Improvement.

This is a live document that will be reviewed and updated throughout the Project lifecycle (Section 8.4).

The specific objectives of this CEMP are aligned with the environmental objectives presented within the EPA's statement of principles, environmental factors, objectives and aims of EIA, which are summarised below:

- To protect benthic communities and habitat (BCH) so that biological diversity and ecological integrity are maintained;
- To maintain the quality of water, sediment and biota so that environmental values are protected;
- To protect marine fauna so that biological diversity and ecological integrity are maintained; and
- To protect social surroundings from significant harm.

2. Project Description

The PTA is a State Government agency established under the *Public Transport Authority Act* 2003, responsible for providing public passenger transport services in Western Australia. The PTA's vision is to be recognised as a leader in providing world-class public transport services and solutions.

Expanding the ferry network presents a strategic, long-term, and sustainable transport solution. Establishing new ferry terminals at key waterfront locations would significantly enhance cross-river connectivity, support urban growth, and stimulate vibrant commercial and residential development. The Project is situated within in-river environments, with minimal terrestrial and landside works proposed in already developed and modified areas. The Project will feature five new ferries, potentially powered by water jet propulsion and electric power. The Project will include the expansion and operation of the existing Elizabeth Quay jetty to connect services to new ferry terminals at Matilda Bay and Applecross.

Key components of the Project to be covered by this CEMP will include:

- Expanding existing boarding facilities at the existing Elizabeth Quay terminal;

- Construction of a new jetty and ferry terminal at Matilda Bay with onshore electric charging infrastructure;
- Construction of a new jetty and ferry terminal at Applecross with associated pedestrian access;
- Modifying road access at Matilda Bay terminal (Hackett Drive) including a new roundabout, bus stands, and parking bays;
- Operating the new ferry service between Elizabeth Quay, Matilda Bay and Applecross;
- Berthing of new ferries at the redeveloped Barrack Square Jetty 1 facility (an existing Department of Transport project); and
- Removal and/or relocation of existing boat moorings at Matilda Bay.

Development approval is being sought via separate applications for each of the proposed ferry terminal sites.

Figures 2 to 4 outline the Development Envelope (DE) and Indicative Disturbance Footprint (IDF) in relation to the Swan Canning Development Control Areas (DCA) managed by the Department of Biodiversity, Conservation and Attractions (DBCA) Swan River Trust (SRT) which includes the two new jetties and terminal locations at Matilda Bay and Applecross. Elizabeth Quay terminal falls outside of the DCA. Proposed jetty construction activities include:

- Drilling and piling into the Swan River bed;
- Construction of landings from pilings;
- Clearing and grubbing for access to the sites and laydown areas;
- Excavation, terrestrial and aquatic (potential);
- Ground levelling;
- Fabrication (steel and aluminium);
- Concreting; and
- Fencing.

Construction for all three jetties is anticipated to require different approaches, equipment and timeframes and have different values and risks that will need to be managed. Therefore, future site-specific CEMPs that consider all potential environmental impacts from construction activities will be created to manage the risks associated with each site in consultation with relevant approval agencies such as DPLH and DBCA. These future CEMPS will be informed by the management approaches outlined in this document.

- Elizabeth Quay: The construction will predominantly be from the land and will mainly include laydown areas and expansion of existing infrastructure;
- Matilda Bay: The construction will predominantly be from the water via barge; however, initial works will begin from the land for laydown areas and the shore for preliminary piling works. Silt curtains will be used to minimise impacts to the marine environment; and

- Applecross: Construction will begin from the land and progressively work seaward using a mobile construction rig that is moved along the jetty as the structure is progressively built. Silt curtains will be used to minimise impacts to the marine environment.

Bridge segments for both Matilda Bay and Elizabeth Quay jetties will be installed using a land-based crane in conjunction with barge-based equipment. Proposed construction equipment includes:

- 700T Crane;
- Concrete Mixer Truck;
- LV and MR transport;
- Elevated Work Platform;
- Forklift;
- Mini Excavator;
- Front End Loader;
- Compactor;
- Piling Rig;
- Barge; and
- Mobile Construction Rig.

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Figure 1 - Proposal Locations and Proposed Ferry Route

LEGEND

- Development Envelopes
- Indicative Ferry Routes

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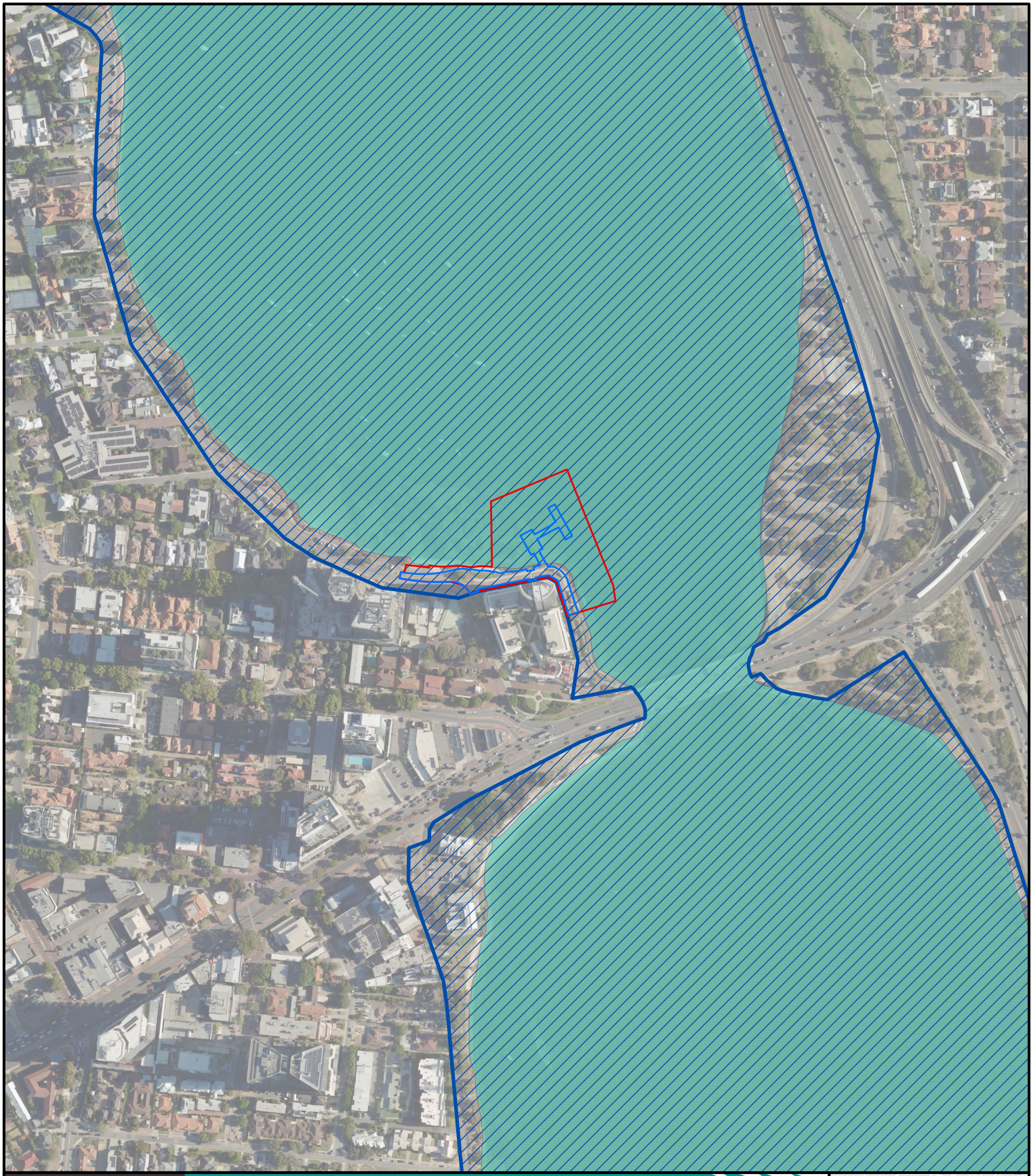

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METRONET on Swan Ferry Service Expansion: Perth to Applecross

Figure 2 - Conservation Reserves and Development Control Areas: Applecross Site

LEGEND

- Development Envelope
- Indicative Disturbance Footprint
- Swan and Canning River - Development Control Area (DBCA-028)

DBCA - Legislated Lands and Waters (DBCA-011)

- SCRM Act - River Reserve

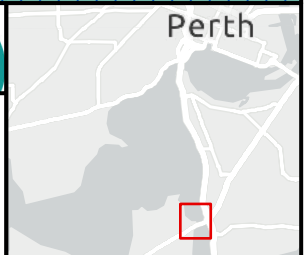

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Figure 3 - Conservation Reserves and Development Control Areas: Matilda Bay Site

LEGEND

- Development Envelope
- Indicative Disturbance Footprint
- Swan and Canning River - Development Control Area (DBCA-028)

DBCA - Legislated Lands and Waters (DBCA-011)

- Section 5(1)(g) Reserve
- Marine Park
- SCRM Act - River Reserve
- Botanic Gardens and Parks Auth. Reserve

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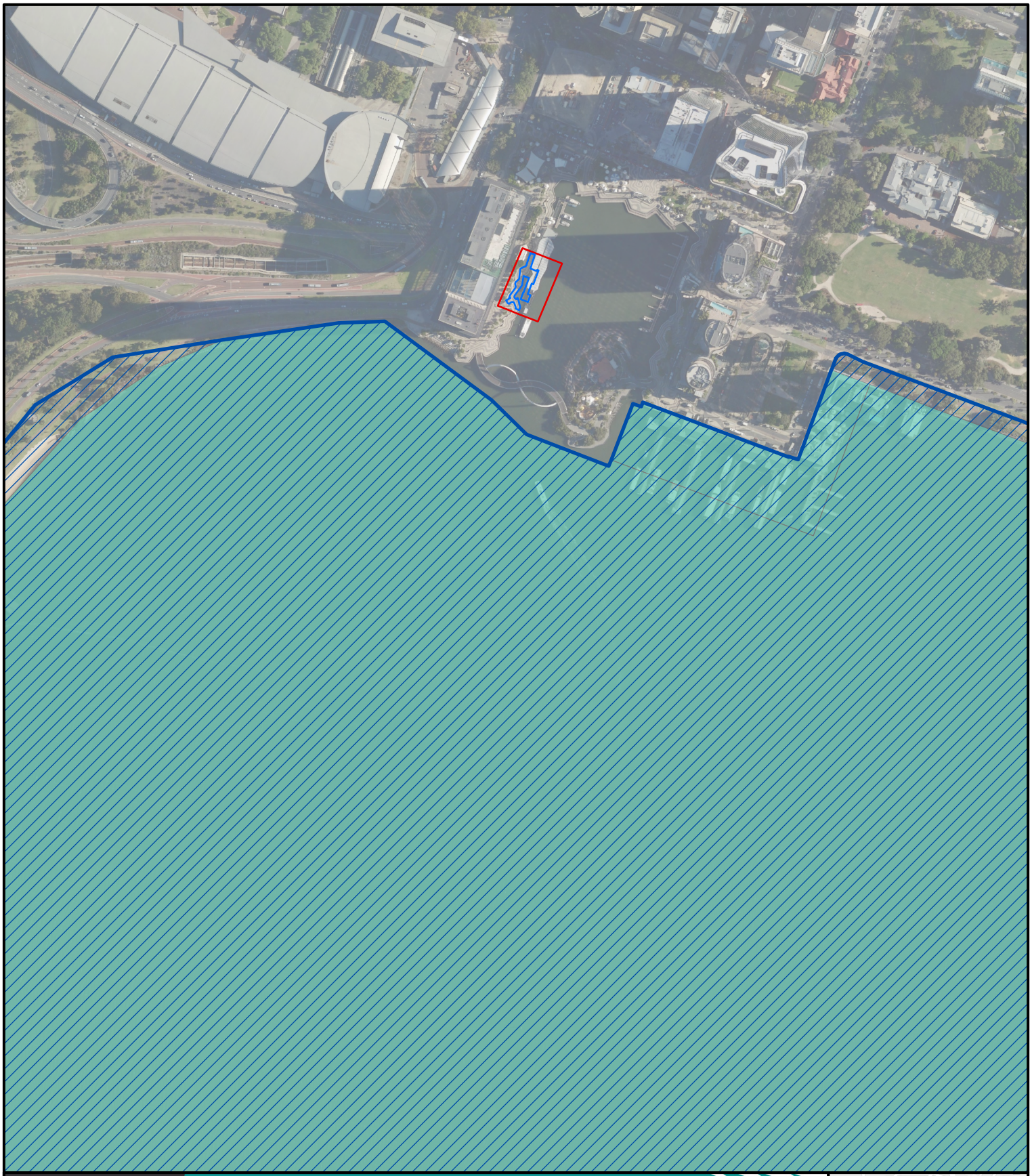

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METRONET on Swan Ferry Service Expansion: Perth to Applecross

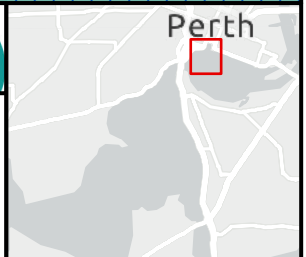
Figure 4 - Conservation Reserves and Development Control Areas: Elizabeth Quay Site

LEGEND

- Development Envelope
- Indicative Disturbance Footprint
- Swan and Canning River - Development Control Area (DBCA-028)

DBCA - Legislated Lands and Waters (DBCA-011)

- SCRM Act - River Reserve



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3. Leadership

1.1. Environmental Policy

The 9302-000-001 PTA Environment Policy (Appendix 1) outlines the PTA's commitment to environmental management principles and objectives that provide the overall intentions and direction of the PTA for environmental performance. It is set in the context of PTA's Strategic Plan and represents the essential environmental management requirements to which all actions and activities undertaken by the PTA and those working on PTA's behalf must comply.

The 9302-000-001 PTA Environment Policy is available to all employees via Transnet and to the public on the PTA's website. It is communicated to contractors and providers through the PTA's contract, project documentation, and the Vendor Communications Portal.

Contractors may also have their own Environment Policy relevant to their scope of works.

The purpose of the CEMP is to prevent any adverse impact on the ecological health and community benefits of the Swan River and associated River Reserves by providing an overarching guide for what is expected in site-specific CEMPs. It complies with PTA's Environment Policy commitment to managing activities in an environmentally responsible manner.

1.2. Environmental Management Commitment Statement

"*The Public Transport Authority is committed to managing its activities in an environmentally responsible manner to contribute to a sustainable transport system for the people of Western Australia.*" (Appendix 1).

1.3. Roles and Responsibilities

The PTA's business-wide environmental responsibilities and authorities are documented in the 9100-000-001 Organisational Responsibilities, Accountabilities and Authorities Manual for Health, Safety and the Environment. Responsibilities and accountabilities have been identified for the *Environmental Protection Act 1986* (EP Act) and other related acts and subsidiary regulations that inform the PTA's EMS. These Acts and regulations place duties for environmental management on the PTA and its employees, contractors, sub-contractors, and suppliers.

Table 1 below lists the roles and responsibilities relevant to the construction of the jetties and associated infrastructure within the Project boundaries.

Table 1: Responsibilities and Accountabilities

Position	Responsibilities and Accountabilities
Managing Director	• Accountable for environmental management within the PTA, and • Assigns the accountabilities and responsibilities to key positions throughout the organisation.
Divisional Executive	Divisional Executive have responsibility for: • Endorsing the PTA's Environment Policy; • Ensuring integration of the environmental management requirements into business processes;

Position	Responsibilities and Accountabilities
	• Meeting compliance obligations associated with activities under their control; and • Ensuring that potential environmental risks associated with relevant planning, construction, operation, or maintenance activities conducted by their Division are avoided, minimised, or mitigated.
Environmental Manager, Infrastructure, Planning & Land Services	The Environmental Manager, IP&LS is responsible for: • Developing, implementing, and continually improving the PTA's EMS; • Managing and leading the provision of environmental advice for the PTA; • Reporting and notification of environmental incidents to external regulators, including any incident or accident that has the potential to cause pollution or otherwise impact the river environment; • Providing high-level strategic and technical advice on environmental matters; and • Annual review and revision as required of this CEMP throughout the project lifetime.
Contract / Project Managers	Contract/ Project Managers are responsible for: • Including sufficient contract conditions to control environmental risks associated with the Project construction activities; • Monitoring and auditing compliance with this CEMP, and • Contract / project management.
All Employees	All employees are required to: • Comply with PTA's Environment Policy; • Understand roles and responsibilities, including requirements for hazard/incident reporting; • Comply with the requirements of the EMS; • Contribute to the implementation of the controls to minimise or mitigate the environmental risks; and • Comply with the requirements outlined in this CEMP.
Contractors	Contractors are required to: • Comply with PTA's Environment Policy; • Understand roles and responsibilities, including requirements for hazard/incident reporting; • Comply with the environmental and cultural heritage requirements embedded into contract documentation, including the requirements of this CEMP; and • Develop, implement maintain and continuously improve a standalone Construction Environmental Management Plan addressing operational controls for aspects and impacts relevant to the activities, products and services provided in accordance with this CEMP.

4. Legislative Requirements

The 9302-000-001 PTA Environment Policy (Appendix 1) commits the PTA to complying with environmental and Aboriginal cultural heritage legislation, policies and agreements. The 9010-000-018 Regulatory Compliance Procedure details how the PTA manages its compliance obligations (legal and other requirements) through the EMS.

The PTA uses SAI360 software, which is a cloud-based solution and integrated platform, to manage and improve risk, compliance, audit, inspection, hazard and incident information. The legal requirements applicable to the PTA's activities are recorded in the SAI360 Obligations module, which has links to current versions of Acts and regulations on the Western Australian Legislation webpage. Each record in the module contains a section on how the legal obligation applies to the PTA's activities.

The environmental cultural heritage legislation and regulations relevant to the construction activities associated with Elizabeth Quay Matilda Bay and Applecross jetties are listed in Table 2 below.

Table 2: Legislative requirements applicable to the construction of ferry infrastructure

Obligation ID	Legislation	Summary	Applicable / Not Applicable to this CEMP
OBL-0000023	*Aboriginal Heritage Act 1972* (WA)	Provides for the preservation of places and objects customarily used by or traditional to the original inhabitants of Australia or their descendants.	For any areas identified as being a 'lodged' or 'registered' Aboriginal cultural heritage site, a permit (Section 18 consent) will be sought from the Whadjuk Aboriginal Corporation in collaboration with the Minister of Aboriginal Affairs to work in and or around these areas. Construction activities will be undertaken in a manner that ensures the conservation and protection of Aboriginal cultural heritage and in compliance with all approvals, this CEMP and the site-specific CEMPs.
OBL-0000031	*Biosecurity and Agriculture Management Act* 2007	Protects Western Australia from plant and animal pests and diseases for farming, fisheries and forestry industries, as well as our unique environment and communities.	Construction activities will be undertaken in a manner that ensures conservation and protection of biodiversity, in compliance with all regulatory approvals, this CEMP and the site-specific CEMPs.
OBL-0000001	*Contaminated Sites Act 2003* (WA)	Provides for the identification, recording, management and remediation of contaminated sites.	Construction activities must be undertaken in accordance with this CEMP and the site-specific CEMPS to ensure PASS materials and any contaminated sites are avoided where possible.

Obligation ID	Legislation	Summary	Applicable / Not Applicable to this CEMP
			Areas that are known to be contaminated within the DE must also follow existing Contaminated Site Management Plans. These plans must also be considered and discussed within site-specific CEMPs.
OBL-0000011	*Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth)	Actions with a significant impact on listed threatened species including Matters of National Environmental Significance (MNES) or endangered communities are prohibited without approval.	Construction activities must be undertaken without any impacts on listed threatened species or endangered communities, in compliance with all approvals, this CEMP and the site-specific CEMPs.
OBL-0000010	*Environmental Protection Act 1986* (WA)	The primary legislation provides for the prevention, control and abatement of environmental harm and pollution, and the protection, conservation and management of the environment.	The Project will be referred to the EPA under s38 (Part IV) of the EP Act as potentially having a significant environmental impact. Construction activities must be undertaken in a manner that ensures environmental harm and pollution are avoided in compliance with all approvals, including this CEMP and the site-specific CEMPs.
OBL-0000005	*Environmental Protection (Clearing of Native Vegetation) Regulations 2004* (WA)	To regulate the clearing of native vegetation.	Construction activities to be undertaken in a manner to ensure that any potential clearing of native vegetation (terrestrial and/or marine) is undertaken within correct clearing boundaries, under clearing permit conditions and in compliance with all approvals, this CEMP and the site-specific CEMPs.
OBL-0000006	*Environmental Protection (Controlled Waste) Regulations 2004* (WA)	To regulate the transport and disposal of hazardous and controlled waste.	Construction activities to be undertaken in a manner to ensure discharges and pollution associated with PASS, Hazardous and Controlled Wastes are managed responsibly in compliance with all approvals, this CEMP and the site-specific CEMPs.
OBL-0000009	*Environmental Protection (Noise) Regulations 1997* (WA)	To minimise the environmental impact of noise emissions.	Works carried out between 0700 and 1900 on any day not a Sunday or public holiday do not require approval under the *Environmental Protection*

Obligation ID	Legislation	Summary	Applicable / Not Applicable to this CEMP
			(Noise) Regulations 1997 (WA), if it can be shown that: • Construction works are carried out in accordance with the controls of environmental noise practices set out in Section 4 of *AS 2436-2010, Guide to Noise and Vibration Control on Construction, Maintenance and Demolition Sites* (Standards Australia 2016), • The equipment used on the construction site is the quietest reasonably available, • The works are undertaken in accordance with a noise management plan if outside the hours specified above, and • Construction must be carried out in compliance with all approvals, including this CEMP and the site-specific CEMPs.
OBL-0000004	*Environmental Protection (Unauthorised Discharges) Regulations 2004* (WA)	To prevent unauthorised discharges to the environment that may cause pollution.	Construction activities to be undertaken in a manner to ensure discharges and pollution are avoided in compliance with all approvals, this CEMP and the site-specific CEMPs.
OBL-0000014	*Jetties Act 1926*	Regulates the construction, maintenance and preservation of jetties and similar structures.	The Project requires the construction and operation of new jetty structures in compliance with all approvals, including this CEMP and the site-specific CEMPs.
OBL-0000029	*Litter Act 1979*	To make provision for the abatement of litter, to establish, incorporate and confer powers upon the Keep Australia Beautiful Council (WA).	Construction activities must be undertaken to ensure littering is avoided in compliance with all approvals, including this CEMP and the site-specific CEMPs.
OBL-0000013	*Planning and Development Act 2005*	Metropolitan Region Scheme (MRS)	Matilda Bay and Applecross jetties are covered by this Act under the MRS, and approval must be sought through the Western Australian Planning Commission (WAPC) before any new jetty and terminal infrastructure is constructed.

Obligation ID	Legislation	Summary	Applicable / Not Applicable to this CEMP
			Construction must be compliant with all approvals, including this CEMP and the site-specific CEMPs.
OBL-0000013	Swan and Canning Rivers Management Act (WA) 2006	Provides for the protection of the Swan and Canning Rivers and associated land in the Swan-Canning catchment to ensure maintenance of ecological and community benefits and amenity. Of note, DBCA Policies pertaining to this Act are: • *DBCA Corporate Policy 42: Planning for Land Use, Development and Permitting Affecting the Swan Canning Development Control Area* (DCA) (DBCA 2016a), • *DBCA Policy 44: Planning for Jetties in the Swan Canning DCA* (DBCA 2023a), • *DBCA Policy 45: Planning for Miscellaneous Structures and Facilities in the Swan Canning DCA* (DBCA 2016b), and • *DBCA Policy 49: Planning for Stormwater Management Affecting the Swan Canning DCA* (DBCA 2023b).	Communication and consultation with the Swan River Trust (SRT) and DBCA will be sought to ensure the objectives of these policies are achieved during the construction activities described for Elizabeth Quay (neighbouring the DCA), Matilda Bay and Applecross jetties (within the DCA). Construction must be compliant with all approvals, including this CEMP and the site-specific CEMPs.

Additional environmental compliance requirements are recorded in the SAI360 Permits module. Legislative changes relevant to the PTA trigger updates of the records in the SAI360 Obligations Module. Changes are identified through:

- 'EnviroLaw Updates' email;
- Corporate Policy Notices;
- Review of regulator websites/ consultation hubs; and/or
- Periodic review of environmental legislative requirements.

Under standard contract clauses, contractors working for the PTA are required to comply with all applicable environmental laws, regulations, codes of practice and standards relevant to the services provided. Contractors must establish company-level procedures to access

and identify legal and other requirements applicable to the legislative context in which they operate.

5. Environmental Aspects and Impacts

Environmental aspects are elements of an organisation's activities, products, or services that interact with or can interact with the environment. An environmental aspect can cause a change to the environment, whether adverse or beneficial, which is called an environmental impact. Environmental impacts can occur at a local, regional, and global scale, and can be direct, indirect, or cumulative in nature. A significant environmental impact is one that has a high or very high-risk rating. A significant environmental aspect is one that has, or can have, one or more significant environmental impacts. This CEMP discusses the potential significant impacts to Key Environmental Factors and EPA objectives. Further aspects to environmental and heritage impacts outside of these factors will be identified, risk assessed and managed within site-specific CEMPs that will be prepared in consultation with DBCA.

5.1. Jetty Construction Environmental Factors, Risks and Objectives

The key environmental factors and objectives to be managed under this CEMP have been derived from the *Statement of environmental principles, factors, objectives and aims of EIA* (EPA 2021), which outlines objectives aimed at protecting all environments (Themes) including Sea, Land, Water, Air and People. The Key Environmental Factors and EPA Objectives to be managed under this CEMP are listed below:

- Benthic Communities and Habitats (BCH);
- Marine Environmental Quality (MEQ);
- Marine Fauna; and
- Social Surroundings.

Table 3 outlines the proposal-specific Environmental Protection Outcomes (EPOs) and Management Targets (MTs) for each of these key environmental factors.

Table 3: EPA Factors, Objectives, Impacts, Outcomes and Targets.

EPA Factor	EPA Objective	Potential Environmental Impact Pathway from Piling and Construction Activities	Environmental Protection Outcome (EPO)	Environmental Outcomes	Risk Management Strategy
Benthic Communities and Habitats	To protect benthic communities and habitats so that biological diversity and ecological integrity are maintained.	Direct loss of BCH from jetty installation and/or disturbance to the benthos. In particular, the removal of seagrass and/or available habitat for seagrass seasonal establishment.	BCH communities, seagrasses and associated ecological processes to have direct and cumulative impacts confined only to the DE.	• Maintain BCH ecological integrity to ensure that the structure, function, diversity, distribution, and viability of BCH are preserved. • Avoid significant residual impacts such as increases in TSS attributable to construction activities. • Direct disturbance of BCH from construction activities is confined to the maximum approved disturbance footprint within the development envelope.	Refer to Table 4
		Temporary or permanent shading of BCH under the jetty structure leads to decreased light availability and suitable sites for Benthic Primary Producer Habitat (BPPH) / seagrasses.			
		Mobilisation of sediment, causing Total Suspended Solids (TSS) levels to increase in the water column, leading to decreased growth and/or cover loss of BPPH as a result of decreased light availability for BCH outside of DE.			
		Increased smothering of BCH outside of DE, because of the settlement of TSS onto BCH. The result may include cover loss due to the inability of BPPH to recover from the smothering effects.			
		Loss of BCH outside of DE, due to increased toxicity of settled sediments originating from construction-related TSS plumes.			
	To maintain the quality of water,	Mobilisation of sediments temporarily causes increased TSS and reduced	Marine Environmental Quality have minimal	• Maintain post development water	Refer to Table 5

EPA Factor	EPA Objective	Potential Environmental Impact Pathway from Piling and Construction Activities	Environmental Protection Outcome (EPO)	Environmental Outcomes	Risk Management Strategy
Marine Environmental Quality	sediment and biota so that environmental values are protected.	water quality, including light reduction outside of DE boundaries	direct and cumulative impacts confined to only the DE.	clarity at pre-development levels to preserve ecosystem values. • Maintain water quality. • MEQ impacts as a result of construction activities are confined to the development envelope.	
		Mobilisation of sediments causes increased water toxicity from sediment toxicants in the water column, increasing the risk of toxicant harm to marine flora and fauna.			
		The mobilisation of sediments causes BPPH to be smothered at settlement affecting BPPH growth and/or survival.			
		Scouring of benthic habitat outside of berth pocket from propeller wash, causing mobilisation of sediments as TSS.			
		Mobilisation of sediments causing light reduction, affecting BPPH growth and/or survival in BIA's.			
		Increased water toxicity from hazardous chemical spills.			
Marine Fauna	To protect marine fauna so that biological diversity and ecological integrity are maintained.	Vessel strike or entanglement in equipment causing morbidity and or mortality and to marine fauna.	Marine fauna has negligible direct and cumulative impacts during construction activities.	• No population level impacts to marine fauna. • No reported behavioural changes, displacement, or injury to marine fauna and habitat, particularly cetaceans such as *Tursiops* sp.	Refer to Table 6
		Underwater noise impacts from piling/hammering activity during jetty construction may affect marine fauna behaviours and spatial ranging, with injury and death in extreme cases.			

EPA Factor	EPA Objective	Potential Environmental Impact Pathway from Piling and Construction Activities	Environmental Protection Outcome (EPO)	Environmental Outcomes	Risk Management Strategy
		Pollutants from construction vessels (such as sewage, waste or fuel) may lead to chemical toxins leaching into the waterways and being ingested by marine fauna, leading to sickness or potential deaths.		• No reported collisions or physical harm to marine fauna such as *Tursiops* sp. by construction vessels.	
		Alexandrium sp. may bloom under certain conditions within silt curtains, posing a health risk to marine fauna and humans. It is considered an irritant species.			
		Artificial lighting interferes with the natural behaviours of marine fauna.			
		Increased risk of introduction of Invasive Marine Species could change the local ecology, impacting marine fauna species.			
Social Surroundings	To protect social surroundings from significant harm.	Impact to the Swan River (ID 3536) Registered Aboriginal Heritage Site.	• Limited impact to the Swan River Registered Aboriginal Heritage site (ID3536). • Avoid any impact to Historic Heritage Places, Canning Bridge (ID 16178) and Raffles Hotel (ID1544).	• No disturbance of known Aboriginal and Historical Heritage values outside of approved site boundary. • Compliance with the Western Australia Environmental Protection (Noise) Regulations 1997. • Minimal disturbance to local residents and the	Refer to Table 7
		Vibrations from construction works that may affect the foundations and structural integrity of nearby Registered Historic Heritage Places: • Canning Bridge (ID 16178). • Raffles Hotel (ID 1544).			
		Adverse impacts on the health and quality of life of receptors, such as residents and users of the foreshore			

EPA Factor	EPA Objective	Potential Environmental Impact Pathway from Piling and Construction Activities	Environmental Protection Outcome (EPO)	Environmental Outcomes	Risk Management Strategy
		area, exposed to prolonged increased noise levels and the generation of dust. Potential impact to associated amenities and nearby stakeholders, notably the University of Western Australia, the Raffles Apartments and patrons of businesses around the Elizabeth Quay terminal Underwater noise impacts swimmers and divers up to 4.5 km from piling (based on the worst-case piling method).	• Short term construction impacts on Noise, Vibration and Visual Amenity experienced by the community are minimised • Loss of tourism income for businesses in and around Applecross, Elizabeth Quay and Matilda Bay to be negligible.	community during construction.	
		General impact on visual receptors, including residents and users of the foreshore area. There is a minor risk of the disturbance of sediment, resulting in runoff into the river, and dust during works, which could impact the amenity of the local area.			
		Visual impacts on Aboriginal and Historic Heritage places.			
		Loss of associated income from tourism for nearby businesses around Applecross, Matilda Bay and Elizabeth Quay.			

5.2. Monitoring and Management

Identified environmental receptors most susceptible to piling and other construction activities associated with the Project include:

- BCH.
- Marine environmental quality (MEQ).
- Marine fauna.
- Social surroundings.

The potential environmental impacts identified above in Table 3 have been assigned monitoring and management actions to measure compliance against the EPOs and MTs Management measures for each environmental factor (EPA 2023) are detailed below.

5.2.1. Benthic Communities and Habitats

Piling operations, mooring removal and the movement of construction vessels have the potential to impact BCH, as described in Table 3. The environmental management framework for BCH is outlined below.

Table 4: Benthic Communities and Habitats Monitoring and Risk Management

Environmental Outcomes	Management Actions	Responsible Party	Monitoring	Frequency/ Timing	Reporting
• Maintain BCH ecological integrity to ensure that the structure, function, diversity, distribution, and viability of BCH are preserved. • Avoid significant residual impacts such as increases in TSS	Actions include: • Utilise spatial data of the construction area at each Terminal location to ensure approved impact areas are adhered to, • Visual Monitoring on water and land during piling works, • Follow turbidity management controls outlined in *Guidance Note 1 – Construction Environmental Management Plan* (DBCA 2024b) • All incidents are to be investigated and mitigated immediately,	PTA / Contractor	Visual Monitoring of Seagrass and assessment against reference seagrass community. • Disturbance within DE only. • Monitoring of TSS on a daily basis during piling activities. • Monitoring TSS on a weekly basis during all other	Confirm design prior to construction commencing (PTA). Building certification reports as per contractor requirements and completion report (Contractor).	Monthly reporting to PTA with Attachments: • Visual Monitoring Records • Incident Log • Incident Investigation Reports

Environmental Outcomes	Management Actions	Responsible Party	Monitoring	Frequency/ Timing	Reporting
attributable to construction activities. • Direct disturbance of BCH from construction activities is confined to the maximum approved disturbance footprint within the development envelope.	• Major incidents are to be investigated, and outcomes are to be reported to the PTA.		construction activities outside of piling.		
	Use silt curtains during construction. • Place silt curtains within marine sections of the DE. • Follow the *Guidance Note – Algal sampling when using a silt curtain* (DBCA 2024a). • Implement shutdown thresholds if sediment plumes are observed outside the silt curtain and/or if severe weather conditions are forecast. • All incidents are to be recorded in an incident log and impacts investigated and mitigated immediately. • Major incidents are to be investigated and outcomes to be reported to PTA.	Contractor	• Water Quality monitoring (TSS) • Visual Monitoring, plumes. • Weather Monitoring. • Incident Log. Daily, and moderate weather events, recorded visual monitoring of silt curtain integrity.	Daily during piling or sediment disturbing works	
	Vessel operators are to adhere to navigational requirements in berthing areas. • Conduct Visual Monitoring. • All incidents are to be recorded in an incident log and impacts investigated and mitigated immediately. • Install navigational markers at the outer edge of the DE.	Contractor	• Visual Monitoring, evidence of scouring, plumes. • Incident Log.	Daily	
	Undertake post construction monitoring of BCH to ensure no long-term effects of construction activities.	PTA	Benthic habitat camera monitoring.	3 monitoring events in 12 months post-construction	BCH monitoring report following

Environmental Outcomes	Management Actions	Responsible Party	Monitoring	Frequency/ Timing	Reporting
					completion of monitoring.

5.2.2. Marine Environmental Quality

Piling operations and movement of construction vessels have the potential to impact MEQ as described in Table 3. The environmental management framework for MEQ is outlined in Table 5.

Table 5: Marine Environmental Quality Monitoring and Risk Management

Environmental Outcomes	Management Actions	Responsible Party	Monitoring	Frequency/ Timing	Reporting
• Maintain post development water clarity at pre-development levels to preserve ecosystem values. • Maintain water quality. • MEQ impacts as a result of construction activities are confined to the development envelope.	Use silt curtains during construction. • Place silt curtains within marine sections of the DE. • Implement shutdown thresholds if sediment plumes are observed outside the silt curtain and/or if severe weather conditions are forecast. • All incidents are to be investigated and mitigated immediately.	Contractor	• Water Quality monitoring (TSS) • Visual Monitoring, plumes. • Weather Monitoring. • Incident Log. • Daily, and moderate weather events, recorded visual monitoring of silt curtain integrity.	Daily during silt curtain use.	Monthly environmental reporting to PTA with Attachments: • Daily Monitoring Records • Incident Log • Incident Investigation Reports • Materials Tracking System and Summaries • Material characterisation records
	Waste management including: • All staff and sub-contractors advised of the requirement for strict waste management protocols.	Contractor	• Controlled Waste License register for receiving waste	As required.	

Environmental Outcomes	Management Actions	Responsible Party	Monitoring	Frequency/ Timing	Reporting
	• Sufficient and adequate waste disposal facilities supplied on-site. • A Materials Tracking System shall be prepared and implemented to document all materials brought to site, stockpiling, placement and removal of all materials offsite. • All controlled waste must have Controlled Waste Permits stored on site and recorded in the Waste Removal Register. • Controlled Waste License register to be kept on site, which contains copies of valid licenses for the receiving waste management facilities, transport vehicles and drivers. • All incidents are to be recorded in an incident log and mitigated immediately • Samples are to be collected on the day of the incident and daily over a week afterwards to ensure complete remediation. • All incidents are to be investigated and mitigated immediately		management facilities, transport vehicles and drivers. • Material characterisation records for material reuse or offsite disposal. • Imported material to have clean fill certification records. • Incident Log. • Incident Sampling and Monitoring.		• Clean fill certification records.
	Spill and pollution response including: • Spill response materials for terrestrial and marine spills should be available near all machinery operations and chemical and waste storage areas. • All incidents are to be investigated and mitigated immediately.	Contractor	• Incident Log. • Incident Sampling and Monitoring.	As required	

Environmental Outcomes	Management Actions	Responsible Party	Monitoring	Frequency/ Timing	Reporting
	• Samples are to be collected on the day of the incident and daily over a week afterwards to ensure complete remediation.				
	Manage *Alexandrium sp*. Outbreaks within silt curtains areas to ensure concentrations remain within acceptable thresholds, in accordance with monitoring and reporting protocols established by the DBCA for the Swan Canning River Park (DBCA 2025a). Actions include: • All incidents are to be investigated and mitigated immediately as per *Guidance Note – Algal sampling when using a silt curtain* (DBCA 2024).	Contractor	• Water Quality Monitoring as per DBCA guidance. • Monitor DBCA river water monitoring results as per Swan and Canning Quality Reports (released weekly) (DBCA 2025). • Visual Monitoring, plumes and blooms.	Daily during silt curtain use	
	Implement shut-down if sediment plumes are observed outside the silt curtain and/or if severe weather conditions are forecast.	Contractor	• Conduct Water Monitoring of TSS at nominated sites outside of curtain to Suspended Sediment Concentration (SSC) threshold levels.	• Daily TSS monitoring during piling activity. • Additional monitoring of plumes if/when they are observed.	

Environmental Outcomes	Management Actions	Responsible Party	Monitoring	Frequency/ Timing	Reporting
			• Visual Monitoring, plumes. • Weather Monitoring - daily, and moderate weather events, recorded visual monitoring of silt curtain integrity. • Tide and current monitoring		
	Treatment and disposal of Acid Sulfate Soils (ASS) including: • Undertake regular testing of pH as part of regular water monitoring. • If changes in pH indicate exposure of ASS then implement management and disposal of ASS and MBOs in accordance with *Treatment and management of soil and water in acid sulfate soil landscapes* (DER 2015) and *National Acid Sulfate Soils Guidance: Overview and management of monosulfidic black ooze (MBO) accumulations in waterways and wetlands* (Sullivan et al. 2018b).	Contractor	• Conduct Water Monitoring of pH at nominated sites around sediment disturbance sites (piling). • Undertake visual monitoring for black MBOs. • Implement stop work measures should ASS be encountered. • Undertake management and disposal of ASS as required	• Daily TSS monitoring during piling activity. • Additional monitoring of plumes if/when they are observed.	

Environmental Outcomes	Management Actions	Responsible Party	Monitoring	Frequency/ Timing	Reporting
			in consultation with DBCA.		

5.2.3. Marine Fauna

Piling operations and movement of construction vessels have the potential to impact Marine Fauna as described in Table 3. The environmental management framework for marine fauna is outlined in Table 6.

Table 6: Marine Fauna Monitoring and Risk Management

Environmental Outcomes	Management Actions	Responsible Party	Monitoring	Frequency/ Timing	Reporting
• No population level impacts to marine fauna. • No reported behavioural changes, displacement, or injury to marine fauna and habitat, particularly cetaceans such as Tursiops sp. • No reported collisions or physical harm to marine fauna such as Tursiops	To manage the risk of strikes to Marine Fauna: • Marine Mammal observers must be present during any construction activities that may result in fauna strikes. • Enforce speed restrictions as per current navigational conditions imposed by the Department of Transport and Major Infrastructure (DTMI) (8 knots) already significantly reduce the likelihood of vessel strikes on Marine Fauna.	Contractor	• Visual Monitoring by a designated vessel operator during construction. • Visual Monitoring from a designated spotter on land during piling activities in marine areas.	During transit of construction vessels	Monthly environmental reporting to PTA with Attachments: • Daily Monitoring Records • Incident Log
	Underwater noise impacts - a marine mammal noise management approach to be agreed with DBCA prior to works commencing, based on the piling method. Approach to include: • Marine Mammal observers must be present during any piling or any activities that may cause underwater noise.	Contractor	• Acoustic Monitoring during piling activities in marine areas. • Visual Monitoring by a designated vessel operator during operation	Daily during piling activity	

Environmental Outcomes	Management Actions	Responsible Party	Monitoring	Frequency/ Timing	Reporting
sp. by construction vessels.	• Piling shutdown procedure to be implemented if dolphins (*Tursiops* sp.) are observed within an agreed distance of the site, depending on expected daily hammer strike thresholds. Works cannot recommence until dolphins are observed to be more than 200m away from DE or not observed for more than 20 minutes in the vicinity of DE. • Implement a piling soft start procedure prior to piling works commencing at the start of any piling activity. • Speed restrictions as per current navigational conditions imposed by DTMI. • All incidents are to be recorded in an incident log and impacts investigated and mitigated immediately. • Major incidents are to be investigated, and outcomes are to be reported to the PTA.				
	Minimising TSS plumes during construction activity will avoid mobilising sediments outside of the DE. Vessel operators must adhere to navigational requirements in berthing areas. • Use of Silt Curtain. • Conduct Water Monitoring. • Implement shutdown thresholds if sediment plumes are observed outside	Contractor	• Visual Monitoring, plumes. • Water Quality monitoring. • Weather Monitoring. • Daily, and moderate weather events, recorded visual monitoring of silt curtain integrity.	Daily during piling activity	

Environmental Outcomes	Management Actions	Responsible Party	Monitoring	Frequency/ Timing	Reporting
	the silt curtain and/or if severe weather conditions are forecast. • All incidents are to be recorded in an incident log, and impacts investigated and mitigated immediately.		• Tide and current monitoring		
	Waste management including: • Advising all staff and subcontractors of the requirement for strict waste management protocols. • Sufficient waste disposal available facilities supplied on-site. • All controlled waste must have Controlled Waste Permits stored on site and recorded in the Waste Removal Register. • Controlled Waste License register to be kept on site, which contains copies of valid licenses for the receiving waste management facilities, transport vehicles and drivers. • All incidents are to be recorded in an incident log and mitigated immediately • Samples are to be collected on the day of the incident and daily over a week afterwards to ensure complete remediation. • All incidents are to be recorded in an incident log and impacts investigated and mitigated immediately • Major incidents are to be investigated and outcomes to be reported to PTA.	Contractor	• Controlled Waste License register for receiving waste management facilities, transport vehicles and drivers. • Incident Log. • Incident Sampling and Monitoring.	As required.	

Environmental Outcomes	Management Actions	Responsible Party	Monitoring	Frequency/ Timing	Reporting
	Spill, chemical storage and pollution response including: • Designated refuelling areas for terrestrial vehicles or machines in accordance with DWER Water Quality Protection Note (WQPN) 29 – Mobile mechanical servicing and cleaning. (DWER 2013). • Designated refuelling facilities at designated Swan and Canning River jetties managed by DoT (full list at: Swan and Canning River jetties | Transport WA) to be used for construction marine vessels refuelling and or service activities. • Spill response materials for terrestrial and marine spills should be available near all machinery operations and chemical and waste storage areas. • All spills are to be managed in accordance with the WQPN 10 – Contaminant spills – emergency response plan (DWER 2020). • All chemicals and tanks to be managed as per WQPN 56 – Tanks for fuel and chemical storage near sensitive water resources (DWER 2018). • All incidents are to be recorded in an incident log and impacts investigated and mitigated immediately. • Samples are to be collected on the day of the incident and daily over a week	Contractor	• Incident Log. • Incident Sampling and Monitoring.	As required	

Environmental Outcomes	Management Actions	Responsible Party	Monitoring	Frequency/ Timing	Reporting
	afterwards to ensure complete remediation. • Major incidents are to be investigated, and outcomes are to be reported to the PTA, DWER and DBCA. • Reporting of Swan and Canning River pollution incidents to DBCA on 08 9278 0900 (day) or 0419 192 845 (after hours) and DTMI (HMA Marine Pollution) Maritime Environmental Emergency Management Team 08 9480 9924				
	Manage *Alexandrium sp*. Outbreaks within silt curtains areas to ensure concentrations remain within acceptable thresholds, in accordance with monitoring and reporting protocols established by the DBCA for the Swan Canning River Park (DBCA 2025). • All incidents investigated and mitigated immediately as per DBCA guidelines.	Contractor	• Water Quality Monitoring as per DBCA guidance. • Monitor DBCA river water monitoring results as per Swan and Canning Quality Reports (released weekly) (DBCA 2025). • Visual Monitoring, plumes and blooms. • Daily, and moderate weather events, recorded visual monitoring of silt curtain integrity.	Daily during use of silt curtains	
	Manage Invasive Marine Animals (IMA) • Vessels will require clearance certificates to enter DE to avoid an IMA outbreak.	Contractor	• Vessel Checks and Monitoring. • Vessel Clearance Register.	As required	

Environmental Outcomes	Management Actions	Responsible Party	Monitoring	Frequency/ Timing	Reporting
	Copies to be kept on site in a Vessel Clearance Register. • Vessel clearance requires hull inspection for vessels entering the Swan River from regions outside of South-West WA • The vessel (s) must be registered in Vessel-Check. The Department of Primary Industries and Regional Development (DPIRD) manages these inspections through the Vessel-Check portal. Vessel-Check includes: • Assessment of risk of a vessel in relation to biofouling, according to the International Maritime Organisation (IMO) in their Biofouling Guidelines. • Biofouling inspection by DPIRD-certified inspectors.		• Incident Log.		

5.2.4. Social Surroundings

The environmental management framework for social surroundings is outlined in Table 7.

Table 7: Social Surroundings Monitoring and Risk Management

Environmental Outcomes	Management Actions	Responsible Party	Monitoring	Frequency/ Timing	Reporting
• No disturbance of known Aboriginal and Historical	Management controls will be required in accordance with any necessary approvals under the *Aboriginal Heritage Act 1972* and with the agreement of the Traditional Owners	Contractor	• Visual - Whadjuk Noongar Monitors as required in	Daily or as required during ground disturbing works.	Monthly Environmental

Environmental Outcomes	Management Actions	Responsible Party	Monitoring	Frequency/ Timing	Reporting
Heritage values outside of approved site boundary. • Compliance with the Western Australia Environmental Protection (Noise) Regulations 1997. • Minimal disturbance to local residents and the community during construction.	and DBCA. These management controls will need to be captured in future site-specific CEMP including implementation of the PTA's Unexpected Findings Procedure.		accordance with Aboriginal Heritage Act approval conditions. • Water Monitoring. • Incident Log. • Complaints Register.		Report to PTA with Attachments: • Incident Log • Monitoring Records • Complaints Log • Stakeholder engagement log
	Vibrations from construction works that may affect the foundations and structural integrity of nearby Registered Historic Heritage Places (Canning Bridge (ID 16178) and Raffles Hotel (ID 1544)): • Dilapidation Surveys. • Visual Monitoring. • Vibration Monitoring. • All incidents are to be recorded in an incident log and mitigated immediately.	Contractor	• Dilapidation Survey. • Visual Monitoring. • Vibration Monitoring. • Incident Log. • Complaints Log.	Prior to construction and daily during piling activity.	
	Impacts on the health and quality of life of receptors (residents and users of the foreshore area and the marine area) from exposure to increased dust generation, noise levels and vibration from construction works are to be managed through: • Carrying out construction works in accordance with the controls of environmental noise practices set out in Section 4 of *AS 2436-2010, Guide to*	Contractor	• Visual monitoring (Dust). • Visual Monitoring by a designated vessel and spotter during piling works in marine areas.	• Noise and Vibration prior to construction. • Vibration and Visual daily during piling activity.	

Environmental Outcomes	Management Actions	Responsible Party	Monitoring	Frequency/ Timing	Reporting
	Noise and Vibration Control on Construction, Maintenance and Demolition Sites (Australian Standards 2016). • A Noise and Vibration Management Plan to be prepared for approval by the Local Government Authority under delegated authority from DWER (not required if construction works are only carried out between 0700 hrs and 1900 hrs on any day which is not a Sunday or public holiday, which adheres to Section 4 of *AS 2436-2010*). • Carrying out construction works in accordance with the controls of environmental noise (Section 4 of *AS2436-2010*). • Using construction equipment that is the quietest reasonably available. • Carrying out construction in compliance with all approvals, including this CEMP and the site-specific CEMPs. • Dust to be visually monitored, and water trucks or sprinkler system using potable water to be used if required. • All complaints are to be investigated and mitigated (if required) immediately. • Public access, public safety and site security will be considered with regard to traffic management and pedestrian access in collaboration with Transperth,		• Visual Monitoring from a designated spotter on land during piling works in marine areas. • Noise monitoring as required outside of construction hours. • Vibration Monitoring. • Incident Log. • Complaints Log.		

Environmental Outcomes	Management Actions	Responsible Party	Monitoring	Frequency/ Timing	Reporting
	Main Roads Western Australian, nearby business owners and other stakeholders that may be impacted. All of which will be detailed in site specific CEMPs.				
	The Potential impact on associated amenities and nearby stakeholders could include the loss of visual amenity, the usability of existing natural assets and the loss of revenue on nearby small businesses, of historic and Aboriginal Heritage Places. To minimise impact: • A PTA Stakeholder Engagement Plan should be discussed in site-specific CEMPs. • Visual Monitoring for Plumes and other environmental impacts. • Public access, public safety and site security will be considered regarding traffic management and pedestrian access in collaboration with Transperth, Main Roads Western Australian, nearby business owners and other stakeholders that may be impacted. All of this will be detailed in site-specific CEMPs. • Communication of works should be undertaken at least 3 months in advance to all stakeholders. • Construction to be carried out in a way as far as reasonably possible so as not to impede the normal business of nearby	PTA and Contractor	• Visual Monitoring by a designated vessel and spotter during piling activities in marine areas. • Visual Monitoring from a designated spotter on land during piling activities in marine areas. • Stakeholder Engagement Log. • Complaints Log.	As required	

Environmental Outcomes	Management Actions	Responsible Party	Monitoring	Frequency/ Timing	Reporting
	organisations, businesses and patrons in the DE. • Appropriate signage on the hoardings/site fences will be installed, outlining the works being undertaken and displaying relevant contact details so communities/stakeholders can report complaints. • Where practicable, in areas of habitat or conservation significance unnecessary light spill should be minimised and lamp types selected to minimise adverse impacts on fauna. This includes temporary lighting requirements during construction. Design to incorporate the *Guide on the Limitation of Effects of Obtrusive Light from Outdoor Lighting Installations* (CIE 2003). • Construction to be completed in a set time and to specifications agreed upon by PTA and Contractor. • All incidents are to be recorded in an incident log and mitigated immediately. • All complaints are to be recorded in a complaints log and mitigated (if required) immediately.				
	Aquatic Noise Management: • Minimise aquatic noise impacts at source (i.e. through alternative piling methods such as vibration piling and/or through	Contractor	• Acoustic Monitoring terrestrial (outside set	• Noise and Vibration prior to construction.	

Environmental Outcomes	Management Actions	Responsible Party	Monitoring	Frequency/ Timing	Reporting
	the implementation of additional management measures. • Using land and sea spotters to monitor for swimmers or divers around each DE. • Ensure no human swimmers or divers are in the water during piling operations.		hours in management actions) and Aquatic. • Vibration Monitoring. • Incident Log. • Complaints Log. • Monitor for swimmers or divers around each DE	• Acoustic and Vibration daily during piling activity.	

6. Site Specific CEMPs

Following the completion of detailed design and confirmation of construction methodology, including piling method, piling depth, construction materials, and equipment, a further risk assessment must be undertaken using the PTA Risk Evaluation Matrix (Appendix 2). The outcomes of this assessment are to be incorporated into Site-Specific CEMPs, which must be prepared by the contractor prior to mobilisation and commencement of construction activities in consultation with DBCA.

Each Site-Specific CEMP must:

- ensure alignment and consistency with this overarching CEMP and its associated management controls,
- identify any additional environmental, heritage and community impact risks to each jetty site, along with corresponding PTA approved management and approval requirements,
- align with the PTA EMS and relevant plans and procedures,
- comply with the PTA Scope of Works and Technical Criteria (SWTC) document requirements,
- reflect the guidance provided in the DBCA CEMP Guidance Note for the Swan Caning River Park DCA (DBCA 2024),
- define specific thresholds and implementation controls required to manage identified risks, therefore informing construction methodology and task planning at each location,
- be submitted to DBCA for review and endorsement prior to implementation.

7. Consultation and Communication

7.1. Internal

During the Project, the PTA will communicate environmental and heritage information and requirements via contractor tender specifications. Environmental information is provided in the project background and scope items, and the deliverables outline what the contractor must complete. Relevant documents, including the 9302-000-001 PTA Environment Policy, are provided to contractors via the vendor portal.

7.2. External

Given the locations of the jetty and terminal construction, and the potential environmental, heritage and community impacts, the PTA has identified several key stakeholders for the Project. To support effective engagement, the PTA will implement a Project Specific Stakeholder Engagement Plan throughout the life of the Project. This plan will guide collaboration with local communities and key stakeholders to ensure:

- All new infrastructure is constructed in a manner that is socially acceptable and environmentally responsible, and

- The community positively embraces and utilises the new infrastructure upon its completion.

A Project Complaints Register will be kept on site at each construction location. Complaints will be communicated to the PTA Project Manager as soon as practicable, within 12 hours of receiving a complaint.

8. Construction Environmental Monitoring and Management

To ensure positive environmental outcomes are achieved, the PTA will ensure extensive environmental monitoring and management throughout the Project's construction phase. This will be executed by implementing the below:

- Training and Competency
- Environmental Incident Management
- Emergency Preparedness and Response
- Adaptive Management

8.1. Training and Competency

The PTA provides consistent and auditable training, development, and assessment to employees as a requirement of the 9402-000-018 Training and Development Policy, which aims to enhance and assist performance at the Divisional and individual level, consistent with the PTA's purpose. This ensures employees are provided with consistent and auditable training, development, and assessment to ensure, so far as practicable, they maintain necessary skills and required competencies. All training attendance is recorded in Skills Central, the PTA's learning management system.

The contractors must establish, implement and maintain a documented program to identify and address environmental training and awareness for all stakeholders, including employees, contractors, suppliers, and customers. The program must ensure that all personnel whose work may potentially impact the environment receive appropriate training. The program must ensure that stakeholders are adequately trained to successfully perform their designated roles and responsibilities. This program must include, but not be limited to:

- The importance of compliance with the PTA's Environment Policy.
- Awareness of their individual roles and responsibilities in conforming with legislative requirements, environmental incident reporting and management, emergency preparedness and response requirements, and aware of the potential consequences of departure from specified operating procedures.
- Awareness of the significant environmental impacts (actual and potential) of their work activities, operational controls set out in this CEMP, the Site-Specific CEMP and the contractors' CEMP, and of the environmental benefits of improved personal performance.

8.2. Environmental Incident Management

The 9210-000-004 Reporting Health, Safety and Environmental Hazards and Incidents Procedure defines processes for reporting hazards, dangerous goods and environmental

incidents. Contractors are required to report any environmental incidents to the PTA Contract Manager as soon as practicable, and the Contract Manager must notify the Environmental Manager, IP&LS.

The Environmental Manager, IP&LS is responsible for the notification of Notifiable Environmental Incidents to external regulators, where required by legal or other obligations. This includes any incident that has the potential to cause pollution or otherwise impact on the river environment, which must be reported immediately to the Department of Biodiversity, Conservation and Attractions, by phone call to the Riverpark Duty Officer on 9278 0981. Spills entering the Swan River must also be reported within 24 hours to the Department of Transport and Major Infrastructure (DTMI) on 9480 9924 or marine.pollution@transport.wa.gov.au.

8.3. Emergency Preparedness and Response

All emergencies are managed in accordance with PTA's 9000-000-011 Emergency Management Manual (EMM). Large-scale, uncontrollable spill/leak of a hazardous substance will be reported to the Department of Fire and Emergency Services (DFES) and the Department of Water and Environment Regulation (DWER).

8.4. Adaptive Management

The PTA anticipates that changes to the Project work may occur during the project's lifetime. When a change occurs, this must be communicated by the contractor or PTA employee immediately to the PTA Project Manager. There may be a risk of impact to the environment and or heritage aspects of the Project due to a change in Design, Execution and or Materials and Resources. A change automatically triggers the need to reassess, analyse and mitigate those risks with, where necessary, appropriate controls.

9. Measurement and Performance Evaluation

9.1. Environmental Audit

The PTA will undertake routine inspections and compliance audits of the contractor's compliance with this CEMP and each Site-Specific CEMP. These inspections and audits will include checking of the contractor's adherence to, and the PTA's compliance with, all conditions and obligations as per:

- All Commonwealth Legislation Permits and Approvals,
- All State Legislation Permits and Approvals, and
- PTA internal EMS Policy, Procedures and Management Plans

9.2. Corrective and Preventive Action

The PTA's 9510-000-015 Corrective and Preventive Action Procedure requires that corrective and preventative actions are determined where a non-conformance, Area of Concern (AOC) or Opportunity for Improvement (OFI) is identified. This may be through:

- Audit,
- Inspection,

- Notifiable Incident,
- Incidents,
- Investigation,
- Observation or complaint,
- Reports,
- Meetings,
- Review processes,
- Day-to-day business activities,
- Emergency management exercise, or
- Compliance activities conducted by regulatory bodies.

Where a non-conformance with contractual consequences is identified, the Contract Manager can issue a Non-Conformance Report (NCR) against the contract. The procurement function defines and manages the NCRS process in accordance with the contract requirements.

Corrective and preventative actions may be entered into the relevant SAI360 Inspection or Audit Module to ensure that these are tracked, managed and closed out. This includes the action agreed by the auditee or other relevant party, the responsible person assigned to it, and the deadline to implement the action.

10. Review and Improvement

As per the 9010-000-023 PTA Document Control Procedure, the PTA will review this CEMP as the Project progresses. All identified risks will be revisited, and as appropriate, new risks and associated controls will be identified and explained. The outcomes of the review process will be documented in the Revision Status section of this CEMP.

11. Internal Reference Documents

Relevant PTA internal documents are listed in Table 8.

Table 8: Reference Documents (PTA Internal)

Title	Objective / Document Number	Revision
Environment Policy (Appendix 1)	9302-000-001	2.00
Emergency Management Manual	9000-000-011	5.00
Reporting Health, Safety and Environmental Hazards and Incidents Procedure	9210-000-004	6.01
Corrective and Preventive Action Procedure	9510-000-015	2.00
Training and Development Policy	9402-000-018	3.00

Title	Objective / Document Number	Revision
Document Control Procedure	9010-000-023	3.01
Regulatory Compliance Procedure	9010-000-018	2.07
Organisational Responsibilities, Accountabilities and Authorities Manual for Health, Safety and the Environment. Responsibilities	9100-000-001	8.01

12. Other References

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DBCA (2016a) Corporate Policy 42: Planning for Land Use, Development and Permitting Affecting the Swan Canning Development Control Area (DCA). Retrieved from Template Corporate Policies, on 10/07/2025.

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DBCA (2024a) Guidance note - Algal sampling when using a silt curtain. Retrieved from: Policies, plans and guidelines | Department of Biodiversity, Conservation and Attractions, on 09/07/2025.

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DER (2015) Treatment and management of soil and water in acid sulfate soil landscapes. Accessed on 10/07/2025.

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Standards Australia (2016) Guide to noise and vibration control on construction, demolition and maintenance sites (Reconfirmed 2016). Accessed on 10/07/2025.

Sullivan LA, Ward NJ, Bush RT, Toppler NR and Choppala G (2018) National Acid Sulfate soils Guidance: Overview and management of monosulfidic black ooze (MBO) accumulations in waterways and wetlands. Accessed on 10/07/2025.

APPENDIX 1. PTA Environmental Policy

OFFICIAL

Government of **Western Australia**
Public Transport Authority

ENVIRONMENT POLICY

1. POLICY

1.1. The Public Transport Authority is committed to managing its activities in an environmentally responsible manner to contribute to a sustainable transport system for the people of Western Australia.

1.2. To achieve this, the Public Transport Authority will:

1.2.1. Comply with environmental and Aboriginal cultural heritage legislation, policies and agreements.

1.2.2. Instil an environmentally aware and responsible culture within our organisation.

1.2.3. Manage our activities to prevent pollution to land, air and water and seek to enhance our environmental assets.

1.2.4. Manage environmental risks and opportunities at the strategic, corporate, operational and project level.

1.2.5. Conserve resources and manage waste to minimise the environmental impacts of our activities.

1.2.6. Implement, maintain, review, and continually improve our Environmental Management System to enhance our environmental performance.

1.2.7. Provide our employees, including our contractors, with information, training, and resources to understand and fulfill their environmental responsibilities.

1.2.8. Engage and collaborate with Government, industry, third party operators and the community to contribute to the management of environmental values.

1.2.9. Promote the benefits of public transport as a sustainable transport option.

2. BACKGROUND

2.1. The Public Transport Authority plans, constructs, operates and maintains public transport infrastructure and services in Perth and regional Western Australia, and protects the long-term value of WA's State Government owned rail corridor.

RELATED DOCUMENTATION

9502-000-001 - Policy - Risk Management

9300-000-001 - Manual - Environmental Management System

POLICY OWNER

Executive Director - Infrastructure Planning & Land Services

ACTIVE DATE

February 2024

REVIEW DATE

February 2027

Martin White

A/MANAGING DIRECTOR

COMPLIANCE WITH THIS DOCUMENT IS MANDATORY

9302-000-001 Rev2.00

Page 1 of 1

APPENDIX 2. PTA's Risk Assessment Matrix

Control Rating	Description
Adequate	The control design and operation meets the control objective; these controls are relevant, documented and apply appropriate good practice.
Inadequate	Neither the control design nor operation is meeting the control objective. These controls may be relevant but improvements to the control design and operation are required to meet the control objective or implementations of alternative controls are required.

CONSEQUENCE REFERENCE TABLE

Level	Title	Health & Safety	Transport Services	Financial	Reputation & Trust (Political, Stakeholders and Community)	Business/Project Operations	Environmental	Legal & Compliance
5	CATASTROPHIC	Multiple fatalities	• Critical service infrastructure and/or systems are not operational and cannot be rectified. • Severe impact to customers e.g. severe drop in patronage or severe level of congestion.	Greater of: • Greater than $30M; or • Deviation from project budget > 30%	• Severe adverse community impacts and condemnation. • Extreme negative media attention. • Consistent ongoing community loss of confidence and trust in Agency capabilities and intentions. • Government intervention.	• Activities ceased. • More than 50% variation in KPI or objective. • Multiple critical programs or projects cannot be delivered.	• Severe uncontained hazardous impact. • Requiring long-term treatment and monitoring. • Severe residual effect on local ecological communities, animal and plant populations it contains, and environmental and heritage values of the area.	• Severe non-compliance with legislation and/or regulation. • Severe contract or other legal breach • Criminal charges, penalties and/or loss of accreditation. • Class action or other litigation against the Agency.
4	MAJOR	Single fatality or substantial injuries or severe permanent disablement	• A number of critical services and/or systems are cancelled/unavailable, with extensive rectification required before resumption of services. • Non-critical service infrastructure is not operational and cannot be rectified. • Substantial impact to customers e.g. substantial drop in patronage or substantial level of congestion.	Greater of: • $10M - $30M; or Deviation from project budget between 20-30%	• Substantial and prolonged community impact and dissatisfaction publicly expressed. • Consistent negative media attention. • Criticism and loss of confidence/ trust by community and Stakeholders in Agency processes and capability. • Ministerial intervention.	• Substantial delays to activities. • 25% to 50% variation in KPI or objective. • One or more critical programs or projects cannot be delivered.	• Substantial hazardous impact. • Rectified in the long-term. • Substantial residual effect on local ecological communities, animal and plant populations it contains, and environmental and heritage values of the area.	• Substantial non-compliance with legislation and/or regulation. • Substantial contract or other legal breach. • Termination of process or imposed penalties. • Substantial litigation against the Agency.
3	MODERATE	Medical treatment required or Lost time injury or Restricted work injury	• One or a number of services and/or systems, including critical services, are unavailable for an extended length of time. • Medium impact to customers e.g. complaints and medium drop in patronage or medium level of congestion.	Greater of: • $1M - $10M; or Deviation from project budget between + 10-20%	• Sectional community impacts and concerns publicly expressed. • Increased negative media attention. • Loss of confidence and trust by community and Stakeholders in Agency processes and capability. • Ministerial concern.	• Medium delays to business activities. • 10% - 25% variation in KPI or objective. • One or more projects is significantly impaired.	• Uncontained impact. • Rectified in short-medium term. • Medium term residual effect on local ecological communities, animal and plant populations it contains, and environmental and heritage values of the area.	• Non-compliance/s with regulation and/or probity infringements, which may result in some processes repeated. • Contract or other legal breach which may result in costs/delays to the Agency. • Legal action probable.
2	MINOR	First aid treatment required	• One or a number of services and/or systems are unavailable or operating with restrictions but can be resumed within acceptable timeframes. • Short term impact to customers e.g. short term drop in patronage or isolated congestion.	Greater of: • $100,000 - $1M; or • Deviation from project budget between + 6-10%	• Local community impacts and concerns. • Occasional once off negative media attention. • Trust issues raised.	• Short-term delays to business activities. • 5% to 10% variation in KPI or objective.	• Contained low impact. • Rectified with standard treatment. • Short-term residual effect on local ecological communities, animal and plant populations it contains, and environmental and heritage values of the area.	• Complex legal/ non-compliance issue to be addressed. • Legal action and /or public liability claim possible. • Disciplinary action.
1	INSIGNIFICANT	No treatment required	• Service infrastructure receives minimal damage, minimal rectification required. Service/s and/or systems only temporarily unavailable or remain operational. • Minimal impact to customers e.g. minimal drop in patronage or minimal level of congestion.	Greater of: • Less than $100,000; or • Deviation from project budget within ± 5%	• Isolated local community or individual's issue-based concerns. • Low profile media attention.	• Minimal delays to business activities. • Up to 5% variation in KPI or objective.	• Minimal impact to isolated area. • Simple or no treatment required. • No lasting effect on local ecological communities, animal and plant populations it contains, and environmental and heritage values of the area.	• Guidance required for legal/ compliance issues managed through routine procedures. • Legal action unlikely.

LIKELIHOOD TABLE				
Level	**Likelihood**	**Description**	**Indicative Frequency**	**Time Based**
5	Almost Certain	The event or consequence is expected to occur in most circumstances	>90% of times when performing a task/activity	More than once per month
4	Likely	The event or consequence will probably occur in most circumstances	51 – 90% of times when performing a task/activity	More than once per year
3	Possible	The event or consequence might occur at some time	11 – 50% of times when performing a task/activity	Once every 1 – 10 years
2	Unlikely	The event or consequence could occur at some time	0.1 – 10% of times when performing a task/activity	Once every 10 – 50 years
1	Rare	The event or consequence may occur only in exceptional circumstances	<0.1% of times when performing a task/activity	Less than once every 50 years*

* NB: Risks that are rated as likelihood category 'rare' may be expected to occur significantly less frequently than less than once every 50 years such as those relating to engineering principles and/or tolerances. Where this is the case it must be clearly indicated in the risk register, an appropriate treatment action plan undertaken accordingly, and additional quantitative risk analysis where required or appropriate

RISK ASSESSMENT MATRIX

Consequence / Likelihood		Insignificant	Minor	Moderate	Major	Catastrophic
		1	2	3	4	5
Almost Certain	5	Low 5	High 10	High 15	Very High 20	Very High 25
Likely	4	Low 4	Medium 8	High 12	Very High 16	Very High 20
Possible	3	Low 3	Low 6	Medium 9	High 12	High 15
Unlikely	2	Low 2	Low 4	Low 6	Medium 8	High 10
Rare	1	Low 1	Low 2	Low 3	Low 4	Medium 7

Level of Risk	Rating	Residual Risk Assessment – with current controls	Target Risk Assessment – with Treatment Action Plans
16 and over	Very High	Treatment Action Plan Required.	Decision on acceptance of risk to be made by Executive Committee.
10 - 15	High	Treatment Action Plan Required.	Decision on acceptance of risk to be made by General Manager/Executive Director, except where the risk is rated 15. Decision on acceptance of a risk rated 15 is to be made by the Executive Committee.
7 - 9	Medium	Risk may be accepted by Branch/Division/Directorate Manager EXCEPT where the Consequence is Catastrophic, or the risk has not been reduced to ALARP. A Treatment Action Plan is required.	Decision on acceptance of risk to be made by Branch/Division/Directorate Manager EXCEPT where the Consequence is Catastrophic. The decision on acceptance of a Catastrophic risk must be made by General Manager/Executive Director.
1 - 6	Low	Risk is acceptable – manage by routine procedures EXCEPT where the risk has not been reduced to ALARP. A Treatment Action Plan is required.	Decision on acceptance of risk to be made by Branch/Division/Directorate Manager