

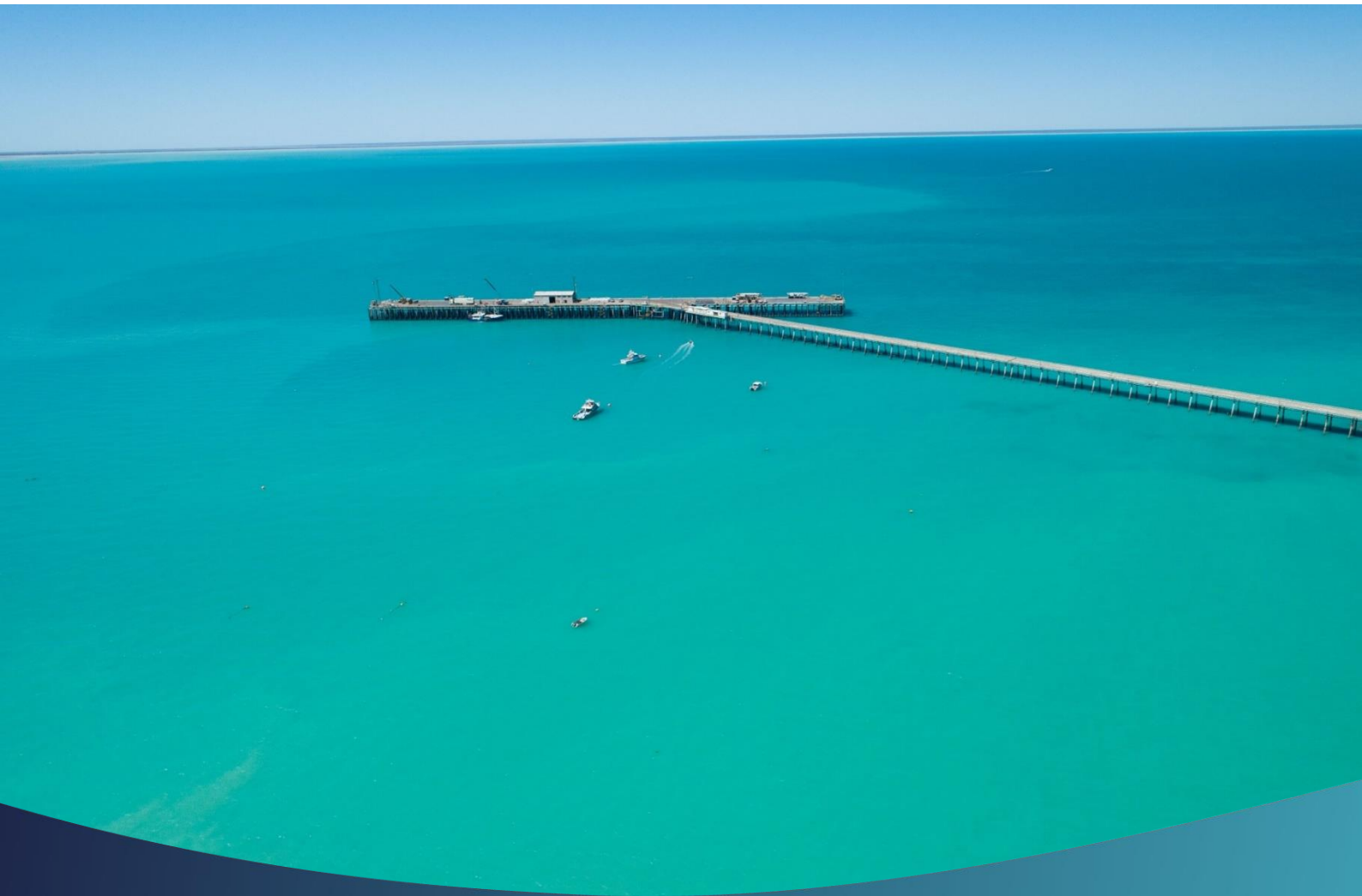


ENVIRONMENT

An O2Marine company

Marine Construction Environmental Management Plan

Broome Wharf Extension



CLIENT: Kimberley Ports Authority

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Acknowledgement Of Country

In the spirit of reconciliation O2 Marine Pty Ltd acknowledge that this project is proposed on the lands of the Yawuru People. We pay our respects to Elders past, present and emerging and recognise their continuing connection to land, sea, culture and community.

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Transmission Register

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Acronyms and Abbreviations

Term	Full term
ANZG	Australian and New Zealand Guidelines
BC Act	<i>Biodiversity Conservation Act 2016</i>
BCH	<i>Benthic Communities and Habitats</i>
COLREGS	International Regulations for the Prevention of Collisions at Sea
CSMF	Conservation significant marine fauna
DAWE	Department of Agriculture, Water and the Environment
DBCA	Department of Biodiversity, Conservation and Attractions
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DE	Development Envelope
DGVs	Default Guideline Values
DoT	Department of Transport
DPIRD	Department of Primary Industry and Regional Development
DWER	Department of Water and Environmental Regulation
EMMP	Environmental Monitoring and Management Plan
EPOs	Environmental Protection Objectives
EP Act	<i>Environmental Protection Act 1994</i>
EPA	Environmental Protection Authority
EPBC Act	<i>Environmental Protection and Biodiversity Conservation Act 1999</i>
HSE	Health Safety and Environment
ISM	International Safety Management
IUCN	International Union for Conservation of Nature
KPA	Kimberley Ports Authority
MCEMP	Marine Construction Environmental Management Plan
MEQ	Marine Environmental Quality
MFO	Marine Fauna Observer <i>Dedicated MFO: A suitably trained and dedicated person engaged undertake marine fauna observations and mitigation measures associated with construction pile-driving. The person will have demonstrated knowledge and experience in marine fauna species observation, distance estimation and reporting. They will not have any other duties while engaging in visual observations.</i>
MT	Management Targets
OMMP	Ongoing Marine Monitoring Program



Term	Full term
PM	Project Manager
PTS	Permanent threshold shift
SoA	Statement of Advice
SMS	Safety Management System
TTS	Temporary threshold shift
VTS	Vessel traffic service
WA	Western Australia
WHS	Work Health and Safety

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1. Introduction

1.1. Proposal description

Kimberly Ports Authority (KPA) is proposing to undertake improvements and modifications (works) to the wharf at the Port of Broome (the Port) to maximise wharf space and facilities while assisting with safe and efficient operations. The Port is located near Entrance Point at the tip of the Broome Peninsula, north-west of Roebuck Bay and approximately 5 km south-west of the town of Broome (Figure 1). The Port is the region's largest deep-water port and is managed by KPA. The wharf consists of a steel pile jetty extending out from Entrance Point into the deeper waters of the Bay.

The works involve extending the wharf deck and piling in the following areas on the wharf (the Proposal):

- Area 1: infill of the area adjacent to the wharf neck and berth 11
- Area 2: extension of the lumpers mess deck.

These areas are presented in Figure 2. Area 1 is approximately 610 m² and will be utilised primarily for storing miscellaneous stevedoring equipment such as gangways, rigging boxes, sea containers, and forklifts. Area 2 is approximately 495 m² and will be the foundation for new facilities including stevedore amenities. KPA's preliminary design suggests there will be approximately 26 piles required to be driven in with a hammer (size of hammer will be determined by the contractor) as part of the proposed works.



Figure 1: Proposal regional location

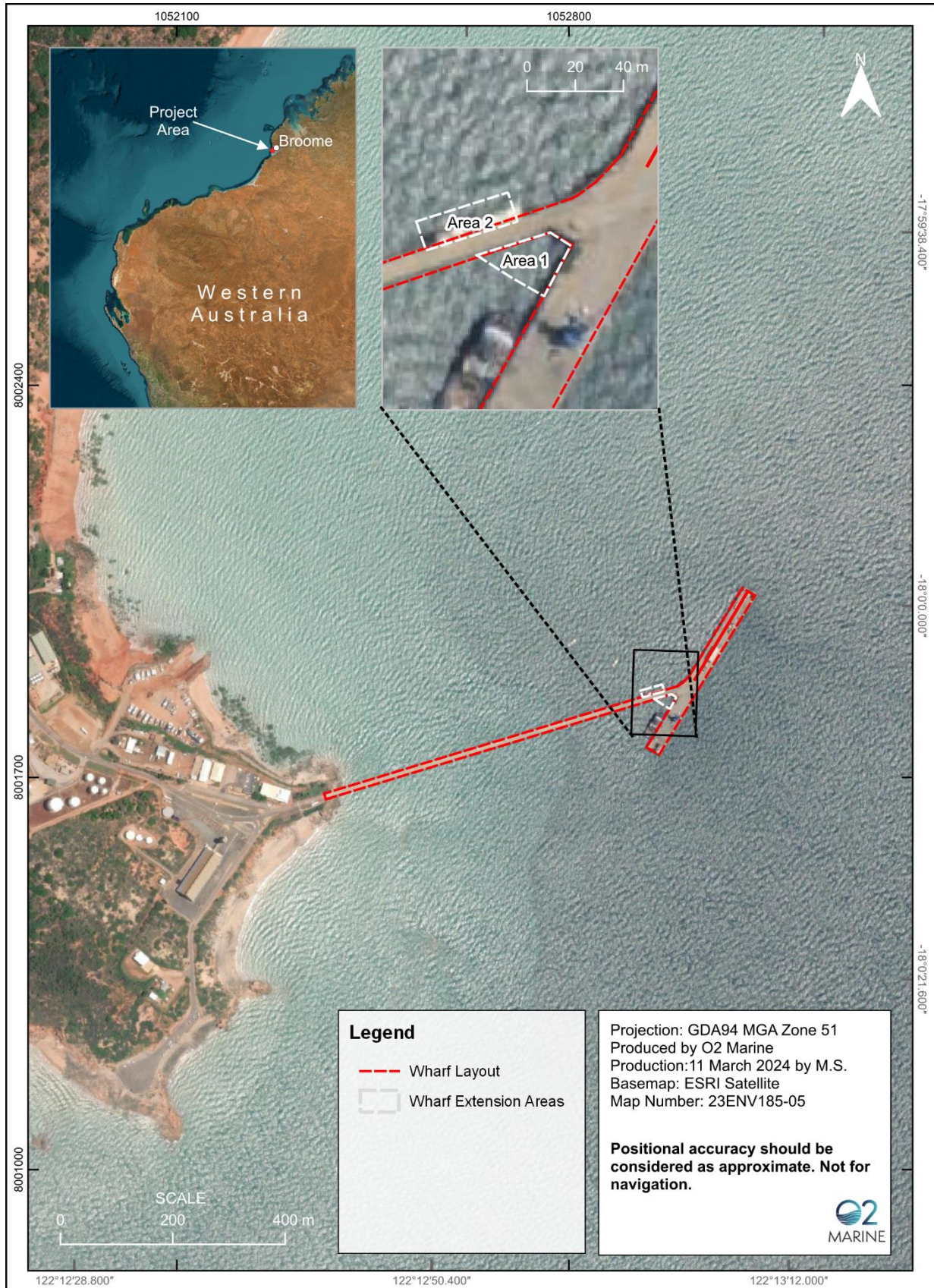


Figure 2: Proposal location and wharf extension areas

1.2. Scope of Works

This Marine Construction Environmental Management Plan (MCEMP) has been prepared to detail how environmental impacts will be managed by KPA during piling operations of the Broome Wharf Extension.

The MCEMP provides the overall environmental management framework and specific management measures to address relevant environmental factors and mitigate potential impacts of the construction activities.

1.3. Purpose

KPA is required to comply with this MCEMP, which demonstrates how KPA will address environmental management for risks relating to environmental factors identified by the EPA and through the initial environmental risk assessment stage, during the construction phase of the Broome Wharf Extension (the Proposal). Table 1 presents the EPA Environmental Objectives for each Environmental Factor that have the potential to be impacted during construction.

Table 1: Environmental factors and objectives

Preliminary Key Environmental Factor	Theme	EPA Objective	Proposed Environmental Outcomes
Benthic Communities and Habitats	Sea	<i>'To protect benthic communities and habitats so that biological diversity and ecological integrity are maintained.'</i>	No impact to BCH outside the Proposal area.
Marine Environmental Quality	Sea	<i>'To maintain the quality of water, sediment and biota so that environmental values are protected.'</i>	Impacts to MEQ limited to temporary localised turbidity during construction phase.
Marine Fauna	Sea	<i>'To protect marine fauna so that biological diversity and ecological integrity are maintained.'</i>	No mortality or injury to any marine fauna due to piling. No introduction of marine pests as a result of the Proposal.
Social Surroundings	People	<i>'To protect social surroundings from significant harm.'</i>	To minimise disruption to other stakeholders and/or the public in areas immediately adjacent to the Proposal area during construction phase.

1.4. Regulatory approvals

The potential environmental impacts of the proposal will be considered at State and Commonwealth level during the process of referral. This MCEMP forms a key documented process and tool for

identifying and managing the Proposal’s commitments and requirements of the environmental approvals process.

1.4.1. State Assessment

KPA will refer the Proposal to the Environmental Protection Authority (EPA) in accordance with Section 38 (Part IV Divisions 1 and 2) of the *Environmental Protection Act 1986* (EP Act). Once the EPA has registered a valid referral, it must determine whether to assess the referral and invites public comments through its consultation hub on whether the EPA should assess the proposal and, if so, the level of assessment. The EPA keeps a public record of all referrals and publishes its decision whether to assess a proposal, or whether a proposal is a derived proposal.

1.4.2. Federal Assessment

This Proposal will also need to be referred to the Commonwealth (DCCEE) under the EPBC Act due to the listed threatened species and ecological communities that may be impacted by the project.

This document outlines the proponent’s mitigation and management measures, including proposed ongoing monitoring.

1.5. Rationale and approach

In order to adequately assess the risks and determine the mitigation and management required by the activities, key environmental factors have been identified in accordance with EPA (2023). Table 2 presents these key environmental factors and associated key sensitive receptors that may potentially be directly or indirectly impacted due to construction activities of the proposal.

Appropriate mitigation and management actions are outlined in this MCEMP to ensure the values of each factor are protected and maintained.

Table 2: Environmental factors, existing environment, and receptors of concern

Environmental factor	Existing Environment	Receptors of concern
Benthic Communities & Habitat (BCH)	<ul style="list-style-type: none"> The development envelope (DE) for the proposal consists of subtidal rocky reef of low biological value 	<ul style="list-style-type: none"> Subtidal rocky reef Additional artificial hard substrate created
Marine Environmental Quality (MEQ)	<ul style="list-style-type: none"> Marine waters surrounding the DE are naturally turbid due to strong tidal currents, especially during spring tides Port of Broome water quality regarded as achieving a high level of ecological protection with contaminants below the ANZG 2018 default guideline values (DGVs) 	<ul style="list-style-type: none"> Impact of increased turbidity on BCH and marine fauna Reduction in MEQ due to hydrocarbon spills and/or other waste discharge during construction

Environmental factor	Existing Environment	Receptors of concern
Marine Fauna	<ul style="list-style-type: none"> The Broome region provides habitat for marine fauna species including conservation significant species such as whales, dolphins, dugong, turtles, sea snakes, crocodiles, sawfish, and bony fish species. 	<ul style="list-style-type: none"> 19 species marine fauna species are regarded as either known (based on historic records) or highly likely to occur given the presence of suitable habitat within a 10 km area surrounding the proposal's DE Propagation of underwater noise causing Permanent threshold shift (PTS), temporary threshold shift (TTS), behavioural response or stress to marine fauna Temporary disturbance of marine fauna in the vicinity of piling operations Injury or mortality of marine fauna Avoidance of important habitat or important behaviour Introduced marine pests (IMP) from vessels Establishment of new substrate for IMP establishment Vessel strike injury or mortality to marine fauna Hydrocarbon spills and/or other waste discharge
Social Surroundings	<ul style="list-style-type: none"> The Broome wharf is accessed by the general public and is popular with recreational fishers 	<ul style="list-style-type: none"> Port waters and walkways used by different stakeholders, including recreational fishers Damage to Port of Broome heritage jetty Introduction/translocation of IMPs Disturbance of local commercial fisheries (e.g. adjacent pearl aquaculture leases)

1.5.1. Key conservation significant marine fauna species for the Proposal

Conservation significant marine fauna (CSMF) are species that are known to occur or have a 'high' likelihood of occurrence within 10 km of the Proposal area and could potentially be impacted by the Proposal construction activities. Table 3 outlines the CSMF that could potentially be within the vicinity of the Proposal area during construction activities, and their conservation status according to the EPBC Act, the WA Biodiversity Conservation Act 2016 (BC Act) and the International Union for Conservation of Nature and Natural Resources (IUCN).

Key ecological windows are times of the year when particular care is required when undertaking the construction activities. The key ecological window that construction will require active management is the humpback whale migration from July to September. Other management measure will also both directly and indirectly protect other, similar, species (See Section 5.1).



Table 3: Key marine fauna of conservation significance

Species	EPBC Act	BC Act	IUCN
Green turtle (<i>Chelonia mydas</i>)	Vulnerable, Marine and Migratory	Vulnerable	Endangered
Flatback turtle (<i>Natator depressus</i>)	Vulnerable, Marine and Migratory	Vulnerable	Data Deficient
Largetooth/Freshwater Sawfish (<i>Pristis pristis</i>)	Vulnerable and Migratory	P3	Critically Endangered
Green Sawfish (<i>Pristis zijsron</i>)	Vulnerable and Migratory	Vulnerable	Critically Endangered
Dugong (<i>Dugong dugong</i>)	Migratory	Migratory	Vulnerable
Humpback Whale (<i>Megaptera novaeangliae</i>)	Migratory and Cetacean	Migratory and Conservation Dependent	Least Concern
Australian Snubfin Dolphin (<i>Orcaella heinsohni</i>)	Migratory	P4	Vulnerable
Australian Humpback Dolphin (<i>Sousa chinensis</i>)	Migratory and Cetacean	P4	Near Threatened
Indo-Pacific Bottlenose Dolphin (<i>Tursiops aduncus</i>)	Migratory and Cetacean	-	Data Deficient

2. Construction elements

2.1. Scope, sequence, timing of construction elements

The scope, sequence, and timing of the construction activities of the Proposal will be finalised once all required internal and external approvals are granted. Under the current proposed schedule, the construction project will commence in the wet season, 2024 and take approximately 8 months to complete all aspects of the project. The current proposed construction activities are planned as follows:

- Wharf extension construction 7 days per week
- Piling activities with a hammer pile to install 1 pile every 24 hours. Note: the piling is likely to be conducted from the wharf, however, could include barge piling
- Where practicable low tide will be targeted for piling activities
- Piling activities will avoid the humpback whale season (July to September) to mitigate potential impacts to the species

3. Roles and responsibilities

The overarching responsibility for the implementation of this MCEMP lies with KPA as the Proponent and permit holder for the proposed work. All positions across the Proposal have environmental responsibilities to some extent. The roles and responsibilities for the implementation of the MCEMP are summarised in Table 4. Everyone has a base level of Duty of Care to prevent Environmental Impact as described in the EP Act.

Table 4: MCEMP roles and responsibilities

Position	Responsibilities
KPA Designated Project Manager/Director	<p>KPA is the party with ultimate responsibility of the site during the Construction Phase. This may include but not limited to the following:</p> <ul style="list-style-type: none"> • Develop, implements and reviews health, safety & environmental systems • Promotes and maintains environmental management by aiming to prevent environmental impacts caused by work practices. • Monitors compliance with environmental legislation, regulation, standards, and codes • Ensures all environmental management needs are adequately met within construction contractor(s) Scope of Works. • Provision of competent person(s) to investigate environmental incidents and accidents and initiate corrective (preventative) actions. • Provision of adequate resources for effective environmental management • Notification to contractor(s) of potential environmental issues • Assessing and reviewing Contractor(s) abilities to comply with environmental management requirements, including safe systems of work and other WHS documentation • Confirmation of contractor(s) adherence to the MCEMP requirements • Ensuring adequate instruction and training is provided for all employees • Conducts inspections and audits of environmental performance and compliance on the proposal.
Construction Contractor Manager	<p>The Contractor(s) is responsible for the day-to-day activities during normal site operations during construction. The Contractor(s), as far as it is practical, are responsible for:</p> <ul style="list-style-type: none"> • Provides technical advice to management including supervisors • Monitors construction activities against the requirements of MCEMP and oversees all day-to-day environmental matters • Conducts inspections and periodic formal audits of the worksite to monitor Environmental performance and identify and implement improvement strategies • Ensures subcontractor compliance with approved safe systems of work and the maintenance of records to demonstrate compliance • Conducts regular toolbox meetings to discuss Environmental issues with employees and identify areas for improvement • Reports all incidents to the KPA as the Principal

Position	Responsibilities
	<ul style="list-style-type: none"> • Directly accountable for the safe operation of the proposal's works and compliance with the MCEMP • Ensures that a proposal's risk identification, assessment, and control process has been undertaken and that all persons working on the proposal are made aware of the hazards and the risk control requirements • Attends scheduled proposal meetings when required • Manages all aspects of workers' compensation and rehabilitation.
Site Supervisor	<ul style="list-style-type: none"> • Directly accountable for setting up the worksites to ensure that all activities can be conducted in a safe manner both for persons working on the site, visitors, and members of the general public • Responsible for ensuring pre-start communications are held daily with all personnel working on the proposal including subcontractor personnel • Ensures that all incidents are reported to the Construction Contractor Manager as soon as possible • Conducts visual daily inspections of the work site to ensure that Health Safety and Environment (HSE) procedures are being followed • Documents fortnightly inspections and take immediate and effective action to correct reported or observed breaches • Ensures that all personnel working on the site are competent to carry out the tasks for which they are assigned by checking evidence of competency and observing work practices.
Environmental Coordinator	<ul style="list-style-type: none"> • Complete one HSE audit during the project that includes a walk around to determine whether the work health and safety (WHS) and environment policies of the company are being properly implemented and to identify areas of improvement to enhance the effectiveness of the HSE Policies • Undertake fortnightly site inspections and complete environmental checklists, as required by the MCEMP • Ensure construction personnel comply with the MCEMP • Instruct construction personnel in the management of environmental impacts related to their work and the environmental work methods identified as standard environmental practice in this MCEMP that must be adhered to • Investigate and report on any identified environmental incidents within 24 hrs to the Project Manager and implement controls to eliminate or reduce the risk of recurrence • Ensure all construction activity environmental impacts are contained on site, and within areas identified to be impacted • Record environmental risks and incidents into a risk management database • Regularly monitor the construction activities to assess the risk to the environment and implement appropriate actions to control any identified risk. • Ensure environmental incidents or dangerous occurrences are promptly reported, investigated and appropriate mitigation strategies are implemented to prevent any further damage or the possibility of a recurrence

Position	Responsibilities
	<ul style="list-style-type: none"> • Ensure proposal environmental documentation is held on the proposal file • Undertake environmental monitoring requirements as required by the MCEMP, environmental approvals, licenses, and permits • Ensure that evidence for the Construction Managers compliance.
WHS Coordinator	<ul style="list-style-type: none"> • Assist the Environmental Coordinator with the project HSE audit and fortnightly inspections
Project Engineer	<ul style="list-style-type: none"> • Initial site planning to consider the following regarding health, safety, and the environment • Manpower, materials, finances, and time schedules • Ensure compliance with the considerations of this document.
Construction Contractor employees	<ul style="list-style-type: none"> • Must always work in a safe manner and immediately report all incidents, hazards or near misses to the site supervisor • Takes all reasonable steps to seek information on the Environmental working requirements of the proposal. Ensures their own fitness for work • Always co-operates with site management in ensuring compliance with company health, safety and environment procedures and statutory requirements • Does not work outside areas of competency • Where applicable, completes pre-start checks correctly for plant and equipment prior to operation and reports any damages or repairs immediately to the site supervisor • Actively participates in safety discussions at pre-start and toolbox meetings • Actively participates in the completion of JHA's and Risk Assessments where applicable • Take part in onsite audits when required.
Two Dedicated Marine fauna observers	<ul style="list-style-type: none"> • Two dedicated MFOs to be on shift at all times during piling works • Undertake management and mitigation measures for piling • Dedicated MFOs will be suitably trained and qualified • Adhere to the requirements of the (Closed Season Marine Mammals) Wildlife Conservation Notice 1998 • At least one dedicated MFO to be in place at all times, to allow for breaks etc • Knowledge of marine wildlife species in the Proposal area, including Threatened and Migratory Species listed under the EPBC Act and BC Act • Evidence of MFO suitability will be kept on record through staff curriculum vitas, training certifications and daily MFO logs, which may be used in future audits.

4. Training, awareness, and competency

4.1. Site Environment Induction

All site-based staff for the project will be required to complete the KPA Port of Broome Security and HSE online induction. Once the online induction is completed a port pass is issued to the individual and must be carried while working at the Port.

In addition, KPA will provide a project specific environmental induction for the contractor and its staff. Any new staff joining the proposal once construction has commenced will be required to complete the project specific environmental induction prior to commencing their construction activities. The site supervisor shall keep a record of all training records. The project specific environmental induction will include:

- Awareness of key sensitive receptors
- Legal requirements to protect key receptors
- Waste management
- Hydrocarbon training/awareness
- Potential environmental impacts on the site
- The procedures set out in this MCEMP
- Their role and responsibility in the implementation and monitoring of the MCEMP for the duration of the construction phase
- A list of people and/or organisations to be contacted in the event of an environmental incident.

Further information shall be provided to staff throughout the construction phase of the proposal, specifically addressing any high-risk environmental impacts and to convey environmental information as required. The Contractor(s) will be required to demonstrate that environmental issues and the requirements of the MCEMP are adequately communicated to the work teams. Examples of methods which could be used include (but not limited to):

- Project kick-off meetings
- Daily pre-start meetings
- Tool-box meetings
- Incident bulletins
- Environmental bulletins.

The Contractor(s) will be required to keep records of the above (as applicable) for review by KPA on request.

5. Management and Monitoring

5.1. Environmental Factors

The potential environmental impacts identified above in Table 2, have been assigned monitoring and management actions to measure compliance against the Environmental Protection Objectives (EPOs) and Management Targets (MTs). Management measures for each environmental factor (EPA 2023) are detailed below.

5.1.1. Benthic Communities and Habitats

The management actions to minimise the potential impacts on BCH during construction works identified during the environmental impact assessment are described in Table 5.

Table 5: Environmental monitoring and management of benthic communities and habitat

Environmental factor	Benthic Communities and Habitats					
Activity	<ul style="list-style-type: none"> • Piling operations • Construction vessels 					
Potential impacts	<ul style="list-style-type: none"> • Dislodgement of BCH on other piles on wharf as a result of noise waves (the risk for dislodgement is low due to implementing best practices) • Minor loss of BCH (mixed assemblage, sponges, filter feeders, coral and macroalgae) present at piling locations • Temporary and localised slight increase in turbidity immediately surrounding the piling locations • Plume generation from vessel propeller • Increased total suspended solids (TSS) and reduced light to BCH • Introduction/translocation of Invasive Marine Pests during construction/operations (see section 0) 					
Management targets	Management Actions			Environmental Performance		
	Item	Actions	Responsibility	Reporting/Evidence	Timing	Contingency

Avoid dislodgement of existing BCH on other piles on the wharf because of noise waves.	1.1	Undertake piling as efficiently as possible to minimise the extent of disturbance.	KPA Contractor	Final Construction Plan.	Prior to construction.	KPA to audit performance during construction if/as required.
	1.2	Undertake annual monitoring of benthic habitat, water, and sediment quality in alignment with the KPA Port of Broome OMMP.	KPA Contractor	OMMP report.	Yearly.	Investigate exceedances of OMMP. Updated OMMP procedures if required.
Minimise localised turbidity so that BCH are protected.	1.3	Piling to be completed as efficiently as possible using methods that minimise turbidity generation and the duration of piling events	Contractor	Daily logs.	Throughout piling works.	KPA to audit performance during construction if/as required.
Minimise plume from vessel propeller and reduce total suspended solids (TSS) and reduced light to BCH	1.4	Implement appropriate piling strategies to reduce vessel activity during construction.	Contractor	Final construction design.	Throughout piling works.	If not possible contractor to implement strategies consistent with noise management procedures.
	1.5	Ensure all vessel equipment and machinery is in good condition and subject to regular maintenance.	Contractor	Pre-start logs.	Prior to and throughout piling works.	KPA to audit performance during construction if/as required.

5.1.2. Marine Environmental Quality

The management actions to minimise the potential impacts on MEQ during construction works identified during the environmental impact assessment are described in Table 6.

Table 6: Environmental monitoring and management of marine environmental quality

Environmental factor	Marine environment quality					
Activity	<ul style="list-style-type: none"> • Piling operations • General vessel operations. 					
Potential impacts	<ul style="list-style-type: none"> • Increased localised turbidity from pre-drilling associated with piling operations • Impacts on the MEQ (both sediment and water) from potential hydrocarbon spill from construction vessels or construction equipment. • Loss of visual aesthetics (sediment plumes) • Impacts to local biota from smothering (shading, reduced filter feeding capacity) • Bioaccumulation of toxicants in marine flora or fauna (e.g. filter feeders, fish, etc). 					
Management targets	Management Actions			Environmental Performance		
	Item	Actions	Responsibility	Reporting/Evidence	Timing	Contingency
To maintain MEQ and minimise localised turbidity so that environmental values are protected, including visual aesthetics.	2.1	Minimise the number of piles required during Project design phase.	KPA Contractor	Final Project design.	Prior to construction.	NA – completed during Project design phase.
	2.2	Piling to consider low tide periods where possible (as per underwater noise mitigation requirements).	Contractor	Daily logs.	Throughout piling works.	KPA to audit performance during construction if/as required.
	2.3	Piling to be completed as efficiently as possible using methods that minimise turbidity generation and the duration of piling events	Contractor	Daily logs.	Throughout piling works.	KPA to audit performance during construction if/as required.

	2.4	Implement appropriate piling strategies to reduce vessel activity during construction.	Contractor	Final construction design.	Throughout piling works.	If not possible contractor to implement strategies consistent with noise management procedures.
Reduce the disturbance of contaminated sediments	2.7	Refer to Table 5.	Refer to Table 5.	Refer to Table 5.	Refer to Table 5.	Refer to Table 5.
No direct impacts to MEQ from hydrocarbon spills piling and vessel operations	2.8	Continue to conduct the Port of Broomes Ongoing Marine Monitoring Program (OMMP) in accordance with existing KPA procedures.	KPA	OMMP Report.	Twice yearly.	Investigate exceedances of OMMP. Updated OMMP procedures if required.
	2.9	Maintain an appropriate exclusion zone around the construction site.	Contractor	Daily logs.	Throughout piling works.	Exclusion zone to be altered to reflect construction work being completed.
	2.10	Refer to Table 11.	Refer to Table 11.	Refer to Table 11.	Refer to Table 11.	Refer to Table 11.

5.1.3. Marine Fauna

The management actions to minimise the potential impacts on Marine Fauna during construction works identified during the environmental impact assessment are described in Table 7.

Table 7: Environmental monitoring and management for marine fauna

Environmental factor	Marine fauna					
Activity	<ul style="list-style-type: none"> • Piling operations • General vessel operations. 					
Potential impacts	<ul style="list-style-type: none"> • Direct impacts (behavioural, stress and masking responses) from underwater noise from piling operations • Injury or death of marine fauna due to vessel movement (strike) • Direct impact from light pollution. 					
Management targets	Management Actions			Environmental Performance		
	Item	Actions	Responsibility	Reporting/Evidence	Timing	Contingency
No direct impacts or reported incidences of marine fauna injury or death from underwater noise from piling operations.	3.1	Implement marine fauna monitoring and management outlined in Appendix A.1.	Contractor Dedicated Marine Fauna Observers (MFOs)	Dedicated MFOs daily logs. Final summary report. Refer to Appendix A.1.	Daily for duration of piling. Refer to Appendix A.1.	Where marine fauna is observed within an exclusion zone piling operation will cease immediately. Refer to Appendix A.1.
	3.2	Two dedicated MFOs rostered during piling activities to undertake observation and trigger management actions during underwater piling works. Note: at least one MFO to be in place at all times, to allow for breaks etc	Contractor Dedicated MFOs	Dedicated MFOs daily logs. Final summary report. Refer to Appendix A.1.	Refer to Appendix A.1.	Refer to Appendix A.1.
	3.3	Ensure all vessel equipment and machinery is in good condition and subject to regular maintenance.	Contractor	Pre-start logs.	Prior to piling.	KPA to audit performance during construction if/as required.

	3.4	Ensure piling equipment and/or hammer selection is appropriate to reduce cumulative noise where possible.	Contractor	Pre-start logs.	Prior to piling.	KPA to audit performance during construction if/as required.
	3.5	Piling will not be undertaken during sensitive ecological windows for marine fauna species, such as the humpback whale southern migrations (July to September).	Contractor	Final construction design.	Throughout piling works.	If not possible contractor to implement strategies consistent with noise management procedures.
No reported incidences of marine fauna injury or death as a result of vessel strike.	3.6	Vessel speed limit will be <8 knots in the Proposal area.	Contractor Vessel master	Refer to Appendix A.2.	When vessel in transit.	Vessel speed signage in area.
	3.7	Piling will not be during sensitive ecological windows for marine fauna species, such as the humpback whale southern migrations (July to September).	Contractor	Final construction design.	Throughout piling works.	If not possible contractor to implement strategies consistent with noise management procedures.
No impacts to marine fauna from waste produced, stored, or disposed of throughout the Proposal	3.8	Refer to Table 10.	Refer to Table 10.	Refer to Table 10.	Refer to Table 10.	Refer to Table 10.
No impacts to marine fauna from chemical spills/hydrocarbons	3.9	Refer to Table 11.	Refer to Table 11.	Refer to Table 11.	Refer to Table 11.	Refer to Table 11.

Minimise impacts to marine fauna from light pollution from piling and vessel operations.	3.10	Existing lighting sources associated with a 24-hour operational port will be utilised. Any additional lighting will adhere to the implementation controls in Appendix B.	Contractor	Appendix B.	Throughout piling construction.	Where required, additional lighting will be temporary in nature. Wildlife-friendly lighting shall be used wherever possible.
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5.1.3.1. Marine Pests

Marine pests may be introduced into the surrounding environment during construction from vessel movements. The management actions proposed to minimise the potential impacts associated with marine pests are described in Table 8.

Table 8: Environmental monitoring and management for marine pests

Sub-factor		Introduced Marine Pests				
Activity	<ul style="list-style-type: none"> Vessel mobilisation to site 					
Potential impacts	<ul style="list-style-type: none"> Introduction of marine pests to the environment adjacent to the Proposal Area resulting in direct or indirect impacts to marine environmental factors including BCH, MEQ and marine fauna. 					
Management targets	Management Actions		Environmental Performance			
	Item	Actions	Responsibility	Reporting/Evidence	Timing	Contingency
Manage vessel activities to prevent the introduction of marine pests into and within State waters.	4.1	Construction vessels that mobilise to the Proposal site should be sourced from WA waters and/or transported via dry docking.	Contractor	Completed Vessel Biofouling Risk Assessment and Management actions outlined by the Department of Primary Industry and Regional Development (DPIRD) (DHI Water and Environment Pty Ltd 2021). To be undertaken together with any supporting documentation, including antifoul certificates and inspection reports.	Prior to construction vessels (including barges) entering WA waters from overseas or interstate.	Vessels are not to enter WA waters without approved introduced marine pest documentation.

	4.2	All construction vessels shall comply with the Department of Agriculture, Water, and the Environment (DAWE) – Australian Ballast Water Management Requirements and the National Biofouling Management Guidelines for commercial vessels.	Contractor	Vessel management procedures.	Prior to construction vessel entering Australian water or moving from one Australian Port to the Proposal area.	Vessels are not to mobilise to the Proposal site without approved documentation.
	4.3	Adhere to KPA marine pest procedures and Port arrival requirements.	Contractor	Vessel management procedures Any breach of KPA requirements.	Prior to vessels entering Port waters.	Vessels are not to enter Port waters without meeting requirements.

5.1.4. Social Surroundings

The management actions to minimise the potential impacts on Social Surroundings during construction works identified during the environmental impact assessment as a potential risk are described in Table 9.

Table 9: Environmental monitoring and management of social surroundings

Environmental factor	Social surroundings					
Activity	<ul style="list-style-type: none"> • Piling operations • Construction vessels. 					
Potential impacts	<ul style="list-style-type: none"> • Disturbance of recreational or commercial activities (diving/ Entrance Point swimmers) from construction noise • Damage to the Port of Broome heritage jetty • Increased vessel traffic and decrease maritime safety • Introduction/translocation of IMPs. 					
Management targets	Management Actions			Environmental Performance		
	Item	Actions		Responsibility	Reporting/Evidence	Timing

Minimise disturbance to port users and the public from construction noise.	5.1	Undertake construction activities in accordance with Environmental Protection (Noise) Regulations 1997.	Contractor	Daily logs.	During construction.	NA
	5.2	Maintain machinery and equipment.	Contractor	Weekly inspections.	Every week during use of machinery.	KPA to audit performance during construction if/as required.
	5.3	Marine Notice to be issued advising of the wharf extension works.	Contractor KPA	Consultation Management Strategy.	Prior to piling.	NA
	5.4	Consider closing public walkway during construction works in appropriate	Contractor	Exclusion zone.	Throughout construction.	Public walkway can be shut as required
Avoid damage to the Port of Broome heritage jetty.	5.5	Construction undertaken within the KPA operational area of the Port of Broome jetty.	KPA	Final proposal and construction design.	Prior to Proposal commencement.	Halt activities on site until impacted area is reviewed by Project Manager.
	5.6	All construction workers undergo site induction including stop work procedures.	Contractor	Site induction register.	Prior to construction.	N/A – Site inductions conducted.
Minimise restricted access and reduced disruption to commercial and recreational fishing areas.	5.8	Vessel speeds to be restricted to <8 knots within construction zones.	Contractor	Vessel logs.	Throughout construction.	Following a vessel collision, an investigation will be undertaken to determine if speed limits need to be adjusted.
	5.9	Develop and implement a vessel traffic management plan.	Contractor	Vessel traffic management plan.	To be completed prior to construction and implemented throughout construction.	KPA to audit performance during construction if/as required.

						Vessel traffic management plan to be consistent with KPA requirements.
	5.10	Marine Notice to be issued advising of the wharf extension works	KPA	Marine Notice	Prior to commencing construction	N/A

5.1.5. Waste Management

Waste during construction works is likely to be generated during any construction projects, with key sources associated with the proposal detailed below in Table 10. This issue was not identified as significant by the EPA as they can be adequately managed through appropriate mitigation and management measures.

Table 10: Environmental monitoring and management of waste management

Sub-factor		Waste				
Activity	<ul style="list-style-type: none"> General waste and packaging from construction materials Construction waste (i.e. hazardous, steel, soil, clay, rock, sand, concrete, consumables). 					
Potential Impacts	<ul style="list-style-type: none"> Impacts on the MEQ (both sediment and water) and marine fauna due presence of foreign materials Plastic packing entering the entering the environment (water) and affecting marine life Attracting animals Waste entering the environment. 					
Management Targets	Management Actions		Environmental Performance			
	Item	Actions	Responsibility	Reporting/Evidence	Timing	Contingency
Manage the correct disposal and storage of waste.	6.1	Tidy work area and pick up rubbish before and after each shift.	Contractor	Daily site inspections.	Before and during each shift. On-going during construction.	KPA to audit performance during construction if/as required.

Avoid and reduce waste generation where practicable.		Separate waste and place in the correctly labelled waste bins allocated on site to accommodate the type, volume and service frequency of anticipated waste streams. Implement recycling programs to ensure waste is managed on site and items that can be recycled are placed in the correct recycling bins.				
	6.2	Ensure licensed contractors are used to dispose of waste correctly. Records kept of waste leaving site (waste tracking register).	Contractor	Daily site inspections. Records kept of waste leaving site (waste tracking register).	On-going during construction.	KPA to audit performance during construction if/as required.
	6.3	Place waste items in designated waste bins and tie down items likely to be air borne from cyclonic activity.	Contractor	Daily site inspections.	On-going during construction.	KPA to audit performance during construction if/as required.
Manage the correct onshore disposal and reporting systems.	6.4	Reporting of any type of spillage within the marine environment directly to the KPA.	Contractor	As soon as possible, within 24 hours.	Duration of construction.	Revise associated management plans or procedures to ensure no incident recurrence. KPA to audit performance during construction if/as required.

5.1.6. Spills/Hydrocarbon Management

Minor hydrocarbon spills are possible during any construction Project with primary causes detailed below (Table 11). These can be adequately managed through appropriate mitigation and management measures.

Table 11: Environmental monitoring and management for hydrocarbon spills

Sub-factor		Spills/ Hyrdocarbon				
Activity		<ul style="list-style-type: none"> • Incorrect or accidental disposal from a vessel • Refuelling of construction vessels and machinery • Incorrect storage of hydrocarbons • Site machinery use and servicing • Waste transport. 				
Potential Impacts		<ul style="list-style-type: none"> • Impacts on the MEQ (both sediment and water) and marine fauna due presence of foreign materials • Spillage leaking into ground water, surface water or marine water resulting in contamination • Degradation of the structure, function, distribution, diversity and viability of benthic communities and habitat at local and regional scales • Loss of aesthetics (visual hydrocarbon plumes on sea surface) • Reduce capacity to support recreational activities (swimming, boating, etc). 				
Management Targets	Management Actions		Environmental Performance			
	Item	Actions	Responsibility	Reporting/Evidence	Timing	Contingency
Manage vessel bunkering, chemical storage, and spill response to ensure no adverse impacts to the marine environment.	7.1	Vessel bunkering will adhere to the Port of Broome procedures.	Contractor	Vessel bunkering permit	For the duration of the project	Vessel bunkering management systems to be reviewed and refined (if required) in the event of an identified procedural breach

						or hydrocarbon spill.
	7.2	Undertake vessel maintenance in accordance with contractors approved vessel management systems.	Contractor	Vessel management inspections	For the duration of the Proposal.	Vessel bunkering management systems to be reviewed and refined (if required) in the event of an identified procedural breach or hydrocarbon spill.
	7.3	Supply and maintain adequate hydrocarbon spill kits on site and within immediate access during refuelling.	Contractor KPA	Vessel management procedures.	During refuelling.	Auditing of maintenance and training records.
	7.4	Store all oils and lubricants on vessel appropriately to ensure that they do not pose a threat to the environment or the safety of staff and the public.	Contractor Vessel master	Vessel management procedures.	During refuelling.	Auditing of maintenance and training records.
	7.5	Implement existing KPA refuelling procedures (KPA 2022).	Contractor KPA	Vessel management procedures.	During refuelling.	Auditing of maintenance and training records.
	7.6	Maintain volumes of hydrocarbons stored onsite as low as responsibly practicable, implement all controls and provide appropriate training and resources for spill response.	Contractor	Auditing of maintenance and training records.	For the duration of construction works.	Auditing of maintenance and training records.

	7.7	Ensure all construction vessels are compliant with the <i>Dangerous Goods Safety Act 2004</i> , associated regulations and Australian Standards and Codes of practice to ensure appropriate storage and handling of hazardous materials, and with the International Maritime Organisation International Convention for the Prevention of Pollution From Ships (MARPOL).	Contractor	Vessel management procedures.	For the duration of construction works.	Auditing of maintenance and training records.
	7.8	Implement Spill response plan in the event of a spill – see section 6.2.2 of this MCEMP.	Contractor KPA	Refer to Section 7.3.	Without delay Refer to Section 7.3.	Refer to Section 7.3 Investigate spill events and review management actions and responses.
	7.9	Vessel speeds to be restricted to <8 knots within construction zones, to reduce vessel collision risk.	Contractor	Vessel logs.	For the duration of construction works.	Follow a vessel collision an investigation will be undertaken to determine if speeds limits need to be adjusted.

6. Adaptive management

6.1. Management of change

In the event there is a change in equipment, vessels, machinery, materials used for construction, procedures, processes or roles and responsibilities during the construction phase the following information should be written in a management of change document:

- Reasons for change – Why is it needed and what are beneficial outcomes of the change
- Determine the scope – Who will the change impact, what policies and processes will it impact
- Who is responsible for the change
- How will this change be executed to employees, contractor(s) and other stakeholders.

The management of change should be approved by the KPA Designated Project Manager/Director prior to the execution of the change.

7. Reporting

7.1. Incident Reporting

All employees or contractors of the proposal shall immediately report all environmental incidents as a non-conformance (i.e. performance indicators are not met, or management actions are not followed) to their site supervisor who will investigate the incident with the Project Manager.

The following examples are reportable incidents:

- Injury to conservation significant fauna or listed as a result of project activities or general observations of injured wildlife not related to the project activities
- Release/spill of contaminants (e.g. fuels/chemical/sewage) to land
- Release/spill of contaminants (e.g. fuels / chemicals / sewage) of any amount to the marine environment – note this must immediately be reported to KPAs Vessel Traffic Services (VTS) and DoT
- Any environmental complaints received as a result of activities associated with construction
- Non-compliance with the environmental management commitments made under this MCEMP, or any other development or environmental approval obtained in relation to activities associated with the EMPs (refer Section 5).

The employee is to report the incident immediately to the relevant supervisor. In every case the site supervisor is to document the incident using KPA's Incident Management System. The following points will be recorded in the contractor's environmental incident form:

- Time and date of incident
- Location and description of event
- Incident category
- Involved parties
- Person recording complaint and witness
- Steps to rectify problem Steps to ensure incident will not occur again
- Notification to relevant authority
- Due date to rectify incident
- Evidence of incident resolution.

Incidents that cause or have the potential to cause environmental impacts external to the Proposal boundary need to be reported to the Project Manager. Full copies of the report/ incident investigation shall be provided to KPA Project Manager upon completion.

Recommended corrective and preventative actions should be included in the investigation report. Upon review and approval of the investigation report, recommended actions to correct underlying causes and the contributing factors to prevent the incident from occurring again are to be assigned to the appropriate persons. Acceptance of the actions and timeframes should be sought from the action

owner or Manager. All actions must be completed within the agreed timeframes and evidence of action completion provided to the KPA Environmental representative.

7.2. Emergency Response

The Contractor will establish a Project Emergency Response Plan at the Job Start-up Meeting. The plan shall detail the following:

- Emergency muster points and the accounting of personnel and this will be communicated to all site personnel via signage, project notice boards, start-up meetings, toolbox meetings and site inductions
- Locations of firefighting equipment, spill response kit and emergency contact details will be formulated and communicated to all personnel attending the Job Start Up Meeting, at Site Specific Inductions
- Align with a Spill Prevention response plan, including communication that outlines procedures, spill tracking and reporting, and records of onsite inspections.
- Identifies the potential hazards onsite
- Develops systems for preventing accidents including appropriate training
- Provides mechanisms for minimising risks, loss, and damage from any incidents
- Provides a Proposal-specific incident management structure to guide response activities in the event of an accidental spill.

The Contractor will ensure that all site personnel are aware of the Emergency Response Plan, have been trained in its implementation, and can follow through with the Emergency Response Plan in the event of an emergency response.

Records of all induction training (company and site specific), attendance at Job Start up Meetings and Toolbox Meetings will be stored in the server Job File.

7.3. Spill Response Plan

All marine spills, regardless of volume, are to be reported to the respective shipping control personnel immediately and KPA. Incident reports outlining corrective actions to be provided to KPA within 48 hours and incidents statistics provided to KPA at weekly/monthly meetings.

In the event of a hydrocarbon spill onsite, KPA (through its lead contractor) shall implement the procedures outlined in Table 12.

Table 12: Spill response procedures

Order	Procedures	Safety steps
1	Ensure safety	<ul style="list-style-type: none"> • Ensure that site personnel are safe from the release as well as the public, equipment, property, and environment are at no other immediate risk due to the release. • Wear appropriate PPE to manage the release.

Order	Procedures	Safety steps
		<ul style="list-style-type: none"> Take a step back and re-evaluate the situation. Do not rush and ensure you are adequately protected before entering a spill area with appropriate knowledge (check Material Safety Data Sheet) Notify people in the immediate vicinity of the incident Ensure there are no ignition sources in the area if the spill is a flammable material.
2	Remove source	<ul style="list-style-type: none"> Act quickly to reduce the amount of product spilled and the environment impact where possible Close valves, shut off equipment, or plug any holes or leaks as appropriate Stop the flow at its source.
3	Secure the area	<ul style="list-style-type: none"> Limit access to the spill area Prevent unauthorised entry onto the site.
4	Contain the spill	<ul style="list-style-type: none"> Prevent migration of the spill offsite, into any water body, or into any drainage structures Use sorbent materials to contain the spill Locate spill kits onsite Prevent migration of the material Attempt to minimise the contamination onsite.
5	Notify and report	<ul style="list-style-type: none"> Notify the appropriate internal managers of the spill Provide details of the spill to any other relevant stakeholders Complete an internal incident report Notify KPA immediately via VHF Channel 16/14 of the spill.

7.4. Document and Record Management

KPA and the Contractor are responsible for ensuring that all necessary documentation relating to quality, safety, health, and environmental issues is retained or maintained in either electronic or hard copy format. Currency of legislative documents shall be maintained in hard copy and available to all staff on site. Any changes to legislation will be communicated to the site supervisor by the Project Manager.

The Contractor shall always keep a current copy of this MCEMP on site. The Contractor shall also forward any Pre-Start and Project Meeting Minutes to the KPA for inclusion in the Job File.

The contractors must report monitoring and other data as required by the MCEMP and related documents to the KPA environmental representative in a format, due timing and detail as specified by KPA.

8. Audits and inspections

The contractor will conduct daily environmental inspections. The person undertaking the inspections shall document and sign off on the inspection.

In addition, KPA will conduct fortnightly HSE inspections and conduct one HSE project audit.

Further Environmental Inspections and audits shall be conducted as required. e.g. if the job requirements change or if there is an incident.

All non-conformance with the requirements of this plan must be reported to the KPA environmental representative within 4 hours.

9. MCEMP Review

This MCEMP will be reviewed periodically during the construction phase of the Proposal by KPA. This will ensure the MCEMP remains current and in line with the regulatory requirements and KPA practices. A more frequent review may be required if there is an agreed change of scope in delivering the Proposal. Other occasions when the MCEMP will be reviewed include:

- Upon significant changes to the Proposal activities or upon significant changes to key environmental values identified in this MCEMP
- If one or more management targets or performance indicators are not being met and adaptive management is required.

KPA may, at their discretion, authorise amendments to site copy of the MCEMP, as may be required during the Proposal to ensure practicality and relevancy of the instruction contained herein.

Any amendments prepared for inclusion in this MCEMP, shall be duly signed and authorised by the relevant manager and shall comply with statutory requirements. All contractors shall be supplied with a copy of any revisions that may affect their scope of works.

10. References

- ANZG (Australian and New Zealand Guidelines) (2018) *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*. Australian and New Zealand Governments and Australian state and territory governments, Canberra ACT, Australia. Available at:
<https://www.waterquality.gov.au/anz-guidelines>. Accessed: 02.02.2024
- DHI Water and Environment Pty Ltd (2021) *Vessel-Check | Marine Biofouling Biosecurity Management Tool*. Available at: <https://vessel-check.com/>. Accessed: 02.02.2024.
- EPA (Environmental Protection Authority) (2023). *Statement of Environmental Principles, Factors and Objectives*, EPA, Western Australia.
- KPA (2022) *Port of Broome: Port and Terminal Handbook*, Broome, WA, Australia. Available at:
https://www.kimberleyports.wa.gov.au/awcontent/web/documents/rec200783-kpa-port-and-terminal-handbook-v7-0_1.pdf. Accessed: 02.02.2024.
- O2 Marine (2024) *Preliminary Environmental Impact Assessment: Broome Wharf Extension*. Prepared for Kimberley Ports Authority.

Appendix A. Marine Fauna Management Procedures

Appendix A.1. Underwater Noise Management Procedure

Underwater noise generated from piling works and vessel operations during construction will be managed by KPA in accordance with the following underwater noise management procedure described below. Target marine fauna for underwater noise management includes whales, dugong, dolphins, sawfish, and turtles.

During piling activities, dedicated marine fauna observers (MFOs) will conduct visual observation. The MFOs will be situated either on a roaming vessel or from a suitable platform (e.g. the Port of Broome wharf) that allows for a full unimpeded view of the Observation Zone (2 km).

Management Zones

Two Management Zone will be managed by the dedicated MFOs, namely:

- Observation Zones
- Exclusion Zones.

The management zones have been informed by the underwater noise modelling results (Talis 2024). These management zones are presented in Table 13, Figure 3 and Figure 4. Observation Zones are based on the modelled Temporary Threshold Shift (TTS) onset distance for each fauna group, noting that a buffer distance has been added to account for potential error in the noise modelling and results from noise modelling verification completed for other Projects. These zones are based on the ‘worst case’ predicted impacts (e.g. high tide). Exclusion Zones are based on Permanent Threshold Shift (PTS) onset distance for each fauna group. To provide further protection and consistent management the exclusion zones have been extended beyond the recommended PTS distance (Talis 2024).

Table 13: Piling management zones (adapted from Talis 2024)

Marine fauna group	Exclusion Zone (m)	Observation Zone (m)
Whales*	1,700	10,000
Dolphins	150	500
Dugongs	150	300
Turtles Crocodiles Sawfish**	200	700
*Noting timing of piling works is avoiding humpback whale season therefore humpback whales are not expected to be within the Proposal area or surrounding environment		

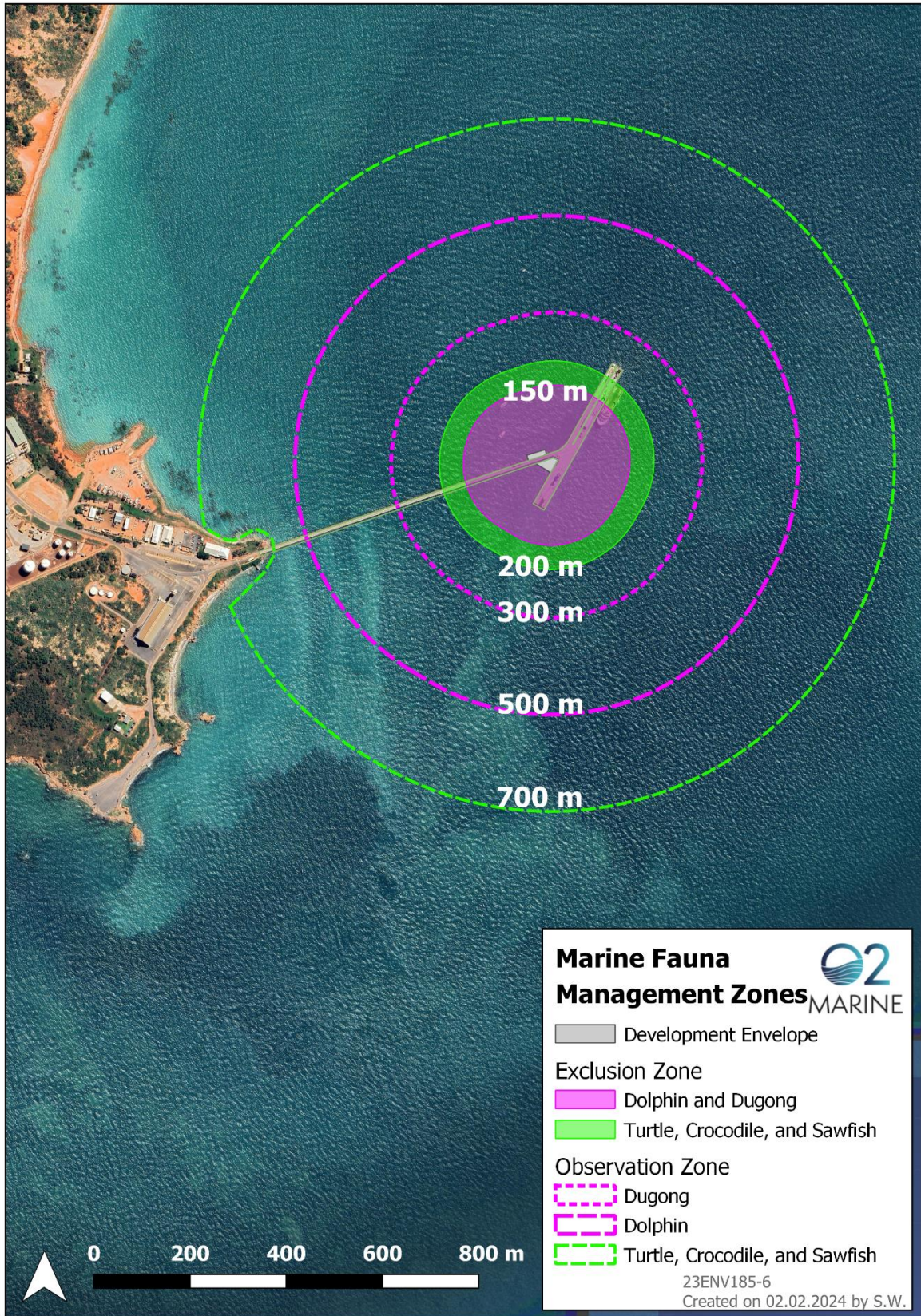


Figure 3: Dolphin, Dugong, Turtle, Crocodile and Sawfish management zones

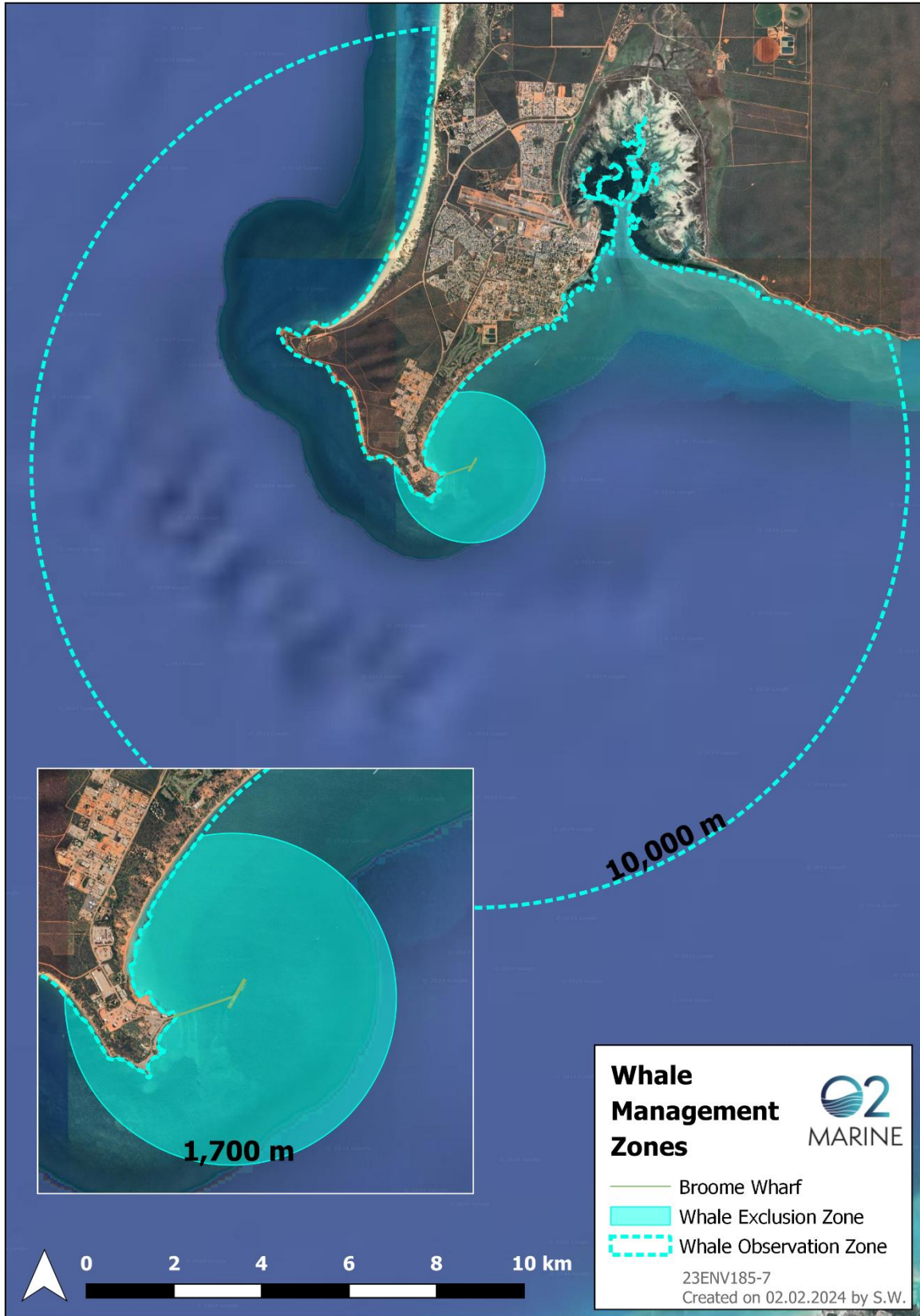


Figure 4: Whale Management Zones

Management Procedure

Pre-start

Prior to piling works each day the dedicated MFOs will commence continuous visual observation within the management zones for no less than 30 minutes. MFOs must have sight lines of the piling Observation Zone, enabling them to effectively manage the disturbance distance and species management zones. MFOs in conjunction with underwater piling contractors and Project Managers (PM) will carry out the following duties and comply with the following protocols in regard to pre-start procedures:

- If target marine fauna is observed within the management zone, piling operations shall be delayed until target marine faunas have been observed exiting the **Observation Zone** or have not been seen for 30 minutes
- If target marine fauna is not observed within either the **Exclusion** or **Observation Zones** within 30 minutes, underwater piling can commence with soft-start procedures.

Soft-Start piling

Soft-start procedures is required for all piles and involves the commencement of piling at low hammer energy, gradually increasing to full impact energy over a 30-minute period if no breach occurs of pre-start procedure protocols. Full impact energy may only be used after the 30-minute soft-start period. This procedure may alert marine fauna to the presence of the piling activity and enable them to move away to distances where injury is unlikely. The dedicated MFOs will continually monitor the management zones during soft-start procedure.

- If target marine fauna are observed in the **Observation Zone**, soft-start procedures will continue and the MFO will continue to monitor the marine fauna
- If it is evident that the marine fauna are in distress then piling operations shall cease until marine fauna have exited the management zones or have not been seen for 30 minutes. Once target marine fauna have exited the management zone, soft start piling may recommence.
- If target marine fauna are observed in the **Exclusion zone**, soft-start procedures will cease until the observed target marine fauna leaves the **Exclusion Zone** or have not been seen for 30 minutes, on completion of the 30 minutes duration and no animal has been observed in the exclusion zone soft-start procedures will recommence
- If no target marine fauna are observed within the management zones for the duration (30 minutes) of the soft-start procedure then normal piling operations may commence.

Normal piling

Where target marine fauna are not observed in management zones during soft-start procedures then normal piling can commence. Normal piling involves commencement of full impact piling. The MFO will continually monitor the management zones during normal piling. If marine fauna are sighted then the shut down procedures will be implemented.

Shut down procedures

The dedicated MFOs will maintain continuous observations during underwater piling. They will notify the Contractor PM immediately if fauna is observed within the corresponding observation or exclusion zone. Where marine fauna is observed within the Observation Zone (but outside the Exclusion Zone) during piling activities (including Soft-start procedures), then the following action shall be taken:

- If target marine fauna is sighted and is in distress then piling activities shall be suspended within two minutes of the sighting, or as soon as safely possible
- If target marine fauna is not showing signs of distress and remains within the Observation Zones (but outside the Exclusion Zones), piling activities will continue and the MFOs will continue to monitor the target marine fauna
- Underwater piling works will cease if target marine fauna enters the Exclusion Zone.

Where target marine fauna is observed within the Exclusion Zone during piling activities (including Soft-start procedures), then the following actions will be taken:

- Piling works will cease when target marine fauna is identified within, or about to enter, the Exclusion Zone
- Piling activities that have been suspended must not recommence until the target marine fauna has exited the corresponding Exclusion Zone and Observation Zone of its own accord or has not been seen by the MFOs within these zones for a period of 30 minutes
- Once able to resume, piling will recommence following soft-start procedures.

Low-Visibility conditions (Day works only)

During periods of low visibility (i.e. where a distance of 700 m cannot be clearly viewed), including in poor weather conditions such as fog, rain or thick smoke, then piling operations may commence with soft-start procedures provided that:

- During the preceding 24-hour period there have not been three or more circumstances where marine fauna has been observed which resulted in ceasing of piling operations
- A 2-hour period of continual observations was undertaken in good visibility within the 24-hour period prior to proposed piling and no marine fauna sighted
- If marine fauna are sighted, the shut-down procedures will apply.

Low-Visibility conditions (Night works only)

Nighttime piling may commence with soft-start procedures provided that during the preceding 24-hour period:

- There have not been three or more circumstances where marine fauna have been observed which resulted in ceasing of piling operations
- Within 2 hours leading up to sunset continual observations within the observation zones were undertaken and no target marine fauna were sighted
- A 2-hour period of continual observations was undertaken in good visibility within the 24-hour period prior to proposed piling and no marine fauna sighted
- If marine fauna are sighted, the shut-down procedures will apply.

Dedicated Marine Fauna Observer

Training and qualifications

Two Dedicated MFOs will be used prior to and throughout piling operations. This will ensure there is always one MFO in place to cover for breaks. Dedicated MFOs will be suitably trained and qualified, adhering to the requirement of the Wildlife Conservation (Closed Season Marine Mammals) Notice 1998. MFOs must demonstrate a knowledge of marine wildlife species in the North-west region, including Threatened and Migratory Species listed under the EPBC Act and BC Act and priority listing, including morphological and behavioural characteristics. The dedicated MFOs will have demonstrated knowledge and experience in marine fauna species observation, distance estimation and reporting. They will not have other duties while engaging in visual observations.

Evidence of personnel suitability will be kept on record through staff curriculum vitae, training certificates and in-field record keeping, which may be used in future audits. Information will include:

- MFO names and contact details
- Details of MFOs training (including provider and course dates)
- Previous experience as MFOs

Shifts

MFO shifts will be set prior to field mobilization to prevent observer fatigue, which can reduce the quality of observation and data recording. From a health and safety perspective, having coordinated shifts will ensure that observers have amenity breaks and reduced weather exposure.

Platform

The dedicated MFOs will be either on the wharf, or an elevated point where appropriate that provides appropriate unimpeded vantage of the Management Zones and with 360-degree views around the noise source. This point may need to shift pending the location of the noise source (i.e. site construction activities) or visibility on any given day.

When required (i.e. low visibility due to weather or other vessels) the MFO's will be on a suitably elevated platform on a roaming vessel that will be moving through the Management Zones. The roaming MFO either to be positioned from the bow of the boat, ensuring the observer can see over the bridge or elevated viewing platform, observation location must allow for a 360 view around the noise source and appropriate vantage of the Management Zones. This point may need to shift pending the location of the noise source on any given day (i.e. site construction and Port activities).

Recording and reporting

Field log

The two Dedicated MFOs will use a pre-designed datasheet to record observation effort, fauna observation and mitigation measures. All records will be sent to DBCA and DCCEEW (Ports and Marine Section). Field logs will include:

- Location, date and start time of observations
- Name of the two Dedicated MFOs involved in the observations
- Start and finish time of piling activities

- Other marine fauna observations
- Fauna behaviours, in particular any behaviours that could be attributed to blasting and piling activities
- Location, times and reasons when observations were hampered by poor sighting conditions
- Location and time of start-up delays, power downs, or stop work procedures as a result of marine fauna sightings
- Location, time and distance of any fauna sightings including species where possible.
- Adherence to management responses in relation to dead and injured wildlife, including suspension of underwater piling
- Observed cetaceans in a format consistent with the National Cetacean Sighting and Stranding's Database.

Completion report

On the completing of the program including a summary of operation, sightings and mitigation actions will be provided to KPA. The full report will be kept on file at KPA and be available on request, which will allow compliance auditing.

Reportable incidents

All employees of the Proponent and Contractor(s) shall immediately report all environmental incidents as a non-conformance, whether these are reportable or non-reportable incidents (i.e. performance indicators not met or management actions are not followed to the Contractor site supervisor who will investigate the incident with both the Contractor PM and KPA PM.

Reportable incidences include:

- injury to conservation significant fauna or listed as a result of project activities
- general observations of injured wildlife not related to the project activities

Reportable incidences are to be reported to the Contractor PM. The PM is to notify KPA who will notify DBCA and DCCEEW. All environmental incidents will be reported by KPA to DCCEEW within 48 hours of KPA being made aware.

References

Talis (2024) Broome Wharf Extension Project – Underwater Noise Modelling and Assessment,
Prepared by Talis Consultants for O2 Marine

Appendix A.2. Vessel strike avoidance

The risk of construction negatively impacting marine fauna by vessel strike will be minimised through restricted vessel speeds and vessel approach distances. These measures will focus on species which bask/rest on the surface and/or are air breathers but will be implemented for other marine fauna species if observed.

Vessel speed restrictions

Vessels engaged in KPA construction will comply with speed limits within the proposal area – 8 knots. In the event a proposal vessel strikes a conservation significant marine fauna, an incident investigation will be undertaken to determine if speed limits need to be adjusted to reduce the risk of repeated vessel strikes.

Vessel approach distances

The distances have considered the Australian National Guidelines for Whale and Dolphin Watching (DoEE 2017) and the National Strategy for Reducing Vessel Strike on Cetaceans and other Marine Megafauna (CoA 2017) (Table 14).

In the caution zone (Table 14) the vessels speed must be reduced to no more than 6 knots. Caution zones cannot be entered by a vessel if the animal is injured, stranded, entangled, or distressed, or if a single calf or pod of calves are present. No more than three vessels are permitted to be in a whale or dolphin caution zone at the same time.

Should a travelling dolphin enter the no approach zone, including with an attempt to ‘bow ride’, the vessel shall either maintain its course and speed, or maintain its course and gradually slow down.

Table 14: Marine fauna vessel approach distances

Marine fauna group	Caution Zone (m)	No Approach Zone (m)	Distressed
Whales	300	100 to the side of the whale 300 in front or at rear of the whale	Withdraw from caution zone at <6 knots
Whale and calf*	-	300	Withdraw from caution zone at <6 knots
Dolphins	150	50 to the side of the dolphin 150 in front or to rear of the dolphin	Withdraw from caution zone at <6 knots
Dolphin and calf*	-	150	Withdraw from caution zone at <6 knots
Dugongs	300	100	Withdraw from caution zone at <6 knots
Turtles	100	50	Withdraw from caution zone at <6 knots

*A calf is defined as an animal which is less than half the length of the mother to which is usually remains in close proximity to (DoEE 2017).

References

CoA (Commonwealth of Australia) (2017). *National Strategy for Reducing Vessel Strike on Cetaceans and other Marine Megafauna*, Commonwealth of Australia

DoEE (Department of Environment and Energy) (2017) *National Strategy for Reducing Vessel Strike on Cetaceans and other Marine Megafauna*

Appendix B. Artificial Lighting Requirements

Construction activities will occur next to one operational wharf facilities which is managed by KPA. The Port facilities are required to be operated and lit on 24 hours a day, 7 days a week basis. The Port is also visited by ships which are also required to maintain minimum illumination to ensure a safe work environment while operating alongside KPA's wharves. As such, it is unlikely that the illumination from construction or associated vessels in this area will be discernible from vessels sitting alongside these operational wharf facilities. To mitigate the effects of artificial light on fauna, all construction vessels and activities must comply with standards outlines below.

Control measures

- All lights to be directed downwards using targeted asymmetrical distribution to illuminate only the specific areas of need, while minimising the reflectance
- Ensure mobile light sources are not oriented towards nesting habitat or seaward (where possible)
- All construction vessels (including barges) to ensure all lights are directed onto the work deck and immediate work area
- All construction vessels are required to comply with the International Safety Management (ISM) code, which is the international standard for the safe management and operations of ships. Under this code, each vessel is required to implement a vessel Safety Management System (SMS)
- All construction related vessels (including barges) are required under the ISM code to adhere to providing a safe working environment depending on the type of operation that the vessel is undertaking.
- Each construction vessel under the International Regulations for the Prevention of Collisions at Sea (COLREGS) must display navigational lights at night or in time of low visibility.