Government of South Australia

Department for Transport, Energy and Infrastructure

ENVIRONMENTAL MANAGEMENT PLAN (EMP)

New Rapid Bay Jetty, District Council of Yankalilla, Fleurieu Peninsula

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1 INTRODUCTION

1.1 Background

The Department for Transport, Energy and Infrastructure (DTEI) is committed to an environmental goal of developing and managing "a transport system in harmony with the environment". Whether working on land or in water environments, care needs to be taken to protect flora and fauna, heritage items, water and air quality and impacts on the community. It is the responsibility of all people involved in the project to adopt environmentally responsible work practices.

The purposes of the environmental management process are to:

- Produce a framework for control of construction and operational impacts including practicable and achievable performance requirements and a system of monitoring, reporting and implementing corrective action.
- Provide evidence of compliance with legislation, policies, guidelines and requirements to Local, State and Commonwealth Authorities.
- Provide the community with the assurance that the project is being managed in an environmentally acceptable manner.

This is to be achieved by proactive environmental management planning prior to carrying out work, performance monitoring and, if required, implementation of corrective action.

This Environmental Management Plan (EMP) contains contractual requirements to be satisfied by the Contractor. It details actions and procedures to be carried out during the construction and operation of the project in order to mitigate adverse environmental impacts.

The objectives of the EMP are the following:

- to identify the environmental concerns arising from the project; and
- to identify appropriate mitigation measures that will be applied in order to minimise any adverse environmental effects.

An Environmental Management Implementation Plan (EMIP) is to be developed by the Contractor, providing details regarding how the environmental management measures outlined in this EMP and the Environmental Requirements in the tender contract documentation (to be issued at the tender stage) will be implemented.

1.2 Project and Environs

The existing Rapid Bay Jetty is located at the township of Rapid Bay, approximately 100km south of Adelaide on the Fleurieu Peninsula, within the District Council of Yankalilla. The jetty is approximately 470 metres in length and can be separated into two sections – the approach jetty (390m) and the T-head.

From a tourism perspective, the jetty is one of the most popular in the State and home to a variety of marine life, in particular the *Leafy Sea Dragon.*

Storms in June 2003 caused significant damage to the seaward end of the jetty, resulting in closure of the T-Head. Following a structural condition assessment in

2004, a portion of the jetty was closed on 23rd December, 2004, leaving 130 metres of jetty available for public use.

It is proposed to construct a new jetty, "New Rapid Bay Jetty", immediately to the east of the existing Rapid Bay Jetty, or to reconstruct the existing jetty, if feasible. The structure will provide pedestrian access to deep water for recreational divers, anglers and tourists. Should a new structure be the final alternative, the current jetty will be retained with some slight upgrading to prevent the immediate collapse of the T-head section. The proposed alignment of a new jetty is to the east of the existing jetty

The existing Rapid Bay Jetty provides considerable substrate for marine flora and sessile invertebrates which in turn attract mobile invertebrate and vertebrate species. The length of the jetty provides a large area of habitat and also spans shallow and deep water (up to ~10 m), thus providing a range of environments for marine organisms. In comparison with other sites in the lower Gulf St Vincent and Investigator Straight, the Rapid Bay Jetty area hosts approximately double the number of fish species and supports a high abundance of many species.

2 ENVIRONMENTAL MANAGEMENT - SPECIFIC CONTRACT REQUIREMENTS

This section supplements the tender contract documentation (to be issued at the tender stage).

For each of the issues identified, the EMP specifies:

- the nature of the issue identified;
- the management objective in addressing the issue; and
- the management actions necessary to achieve the objective.

The Contractor's EMIP shall address management of all issues and requirements listed in this section of the EMP and the Environmental Requirements in the tender contract documentation.

2.1 Flora and Fauna Management

OBJECTIVE: To minimise impacts to flora and fauna.

STRATEGY: Design and implement flora and fauna management measures for the project.

2.1.1 Marine Flora and Fauna

ISSUES: An Environmental Impact Assessment undertaken in March 2007 has identified potential environmental impacts associated with the proposed geotechnical investigation/ trial piling, construction and operation of the proposed jetty (see *Appendix 2* in the 'Expression of Interest' Document). Additionally, 26 nationally threatened or Listed marine fauna species (under the *Environment Protection and Biodiversity Conservation Act, 1999*) have been identified as potentially occurring in the immediate vicinity of the jetty.

Of the Listed marine species, one of the most important, both biologically and economically, is the Leafy Seadragon, *Phycodurus eques*. Impacts on this species (via noise, vibration, habitat removal and increased turbidity) should be avoided or minimised whenever possible.

The majority of the faunal biodiversity at the site occurs beneath the existing jetty. Mitigation measures should be employed to ensure that construction activities cause the minimum possible disturbance on sensitive marine fauna and flora, particularly with respect to the impacts of noise, turbidity and vibration.

The major impacts on the marine flora and fauna from jetty construction are likely to be noise and disturbance from pile driving and associated activity e.g. anchoring of floating plant. There may also be localised short term turbidity from pile driving and boat movements (including anchoring).

The new jetty will impact on the existing seagrass within its alignment. Piling should directly remove a relatively small area of seagrass. However, impacts from anchoring in seagrass meadows (during construction) could be significant if not properly managed and could result in serious, long-term scouring.

	Actions	**Pre - construction**	**Construction**	**Post - construction**
1	Investigate design alternatives to minimise the impact of the jetty on the environment.	✔		
2	Investigate and optimise construction methods to minimise adverse impacts on the environment, including limiting radiation shock waves and anchor damage to sea grass beds. This may be achieved via a trial piling procedure before the main construction commences and the use of anchors such as *Stingrays* (as well as minimising anchor points) that self-bury and are easy to remove without stripping seagrass cover. Methods of limiting shock waves may include (but are not limited to) bubble curtains, blast mats and burying charges.	✔	✔	
3	Minimise the impact on marine mammals within the Rapid Bay environs, including daily visual checks immediately prior to commencement of works and soft starts. A soft start process should be adopted for pile driving to allow fauna that are sensitive to noise to depart without risk of harm. Works may cease when dolphins or other large marine animals are within the proximity of the construction zone.	✔	✔	✔
4	The Contractor must obtain final approval from DTEI for the removal of seagrass due to the Project Works.	✔		
5	Design and implement a construction monitoring program to record changes in the flora and fauna communities.	✔	✔	✔
6	Prepare an action plan to manage fauna injured during construction. Fauna rescue organisations include, but are not limited to, Bird Rescue and Wildlife Care, Fauna Care, Australian Dolphin	✔	✔	

	Research Foundation and Release and Fauna Rescue of SA Inc.			
7	All areas of the Project Site to be protected, site access tracks and any other environmental constraints or management measures must be included on the construction drawings.	✔	✔	✔

2.1.2 Terrestrial Flora and Fauna

ISSUES: Several species of bird use the seaward end of the existing jetty as a roosting site. Noted species included a large number of Crested Terns (*Sterna bergii*), several Black-faced Cormorants (*Phalacrocorax fuscescens*) and Pacific Gulls (*Larus pacificus*). All are listed marine species under the *Environment Protection and Biodiversity Conservation Act, 1999*.

	Actions	Pre - construction	Construction	Post - construction
1	Minimise noise and physical disturbance to terrestrial fauna and flora species during the entirety of the Construction Works.	✔	✔	✔

2.2 Weed, Pest and Disease Control

OBJECTIVE: To control weeds on site and prevent the spread of weeds, pest species and diseases.

STRATEGY: Design and implement a weed-eradication program to prevent the spread of existing weeds and introduction of pest species and diseases.

ISSUES: Several terrestrial weed species have been identified next to (within the seawall) and beneath the existing Rapid Bay Jetty. These weeds must not be spread within or external to the Project Site.

All environmental and proclaimed weed species must be controlled during the Contractor's Work, and the species listed below must be eradicated prior to construction activities commencing in liaison with the local Natural Resources Management Board.

- Sea Spurge (Euphorbia paralias)

	Actions	Pre - construction	Construction	Post - construction
1	The Contractor's Work must be undertaken in a manner that does not spread or introduce weed species and plant diseases on the Project Site.	✔	✔	✔
2	All proclaimed and pest plants that are removed must be taken to a licensed waste depot.	✔	✔	✔
3	All material imported for use in the Project Works must be free of any weed seeds, vegetative material from weed species and plant diseases.	✔	✔	
4	Proclaimed pests and vermin on the Project Site must be controlled. Sealed bins must be provided on the Project Site for site waste to discourage animal pests such as rats, mice, pigeons, seagulls and pelicans.	✔	✔	

2.3 Water Quality Protection, Erosion and Sediment Control

OBJECTIVE: To comply with the *Environment Protection Act 1993* and the *Environment Protection (Water Quality) Policy 2003.* To protect, as far as practicable, water resources from silt and chemical contamination. To minimise the quantity of sediment suspended in the water column.

STRATEGY: Design and implementation of erosion and sediment control measures for the project.

ISSUES: Jetty construction has the potential to generate increased turbidity and sedimentation. The main source of turbidity generation will be from the pile driving. Silt within the seabed will be readily disturbed and mobilised by pile driving.

Surface vibrations which arise from blasting or driving have the potential to cause liquefaction of loose soils, or induce higher settlements than may be desirable. However, it is considered unlikely that liquefaction will occur, given that the soil is relatively well-graded, and does not appear to be in a loose state. Whilst some settlement may occur in the vicinity of the blast, the use of blast mats will minimise the energy reaching the surface and thus the amount of settlement induced.

	Actions	Pre - construction	Construction	Post - construction
1	Minimise the suspension of sediment from the seabed as much as practicable.	✔	✔	✔
2	The Contractor must plan, carry out and maintain the whole of the Contractor's Work to avoid erosion, sedimentation or pollution of the site, marine waters, surrounding country, land, surface and ground water, and must ensure that effective erosion and sedimentation control is provided at all times during the Contractor's Work.	✔	✔	✔
3	The Contractor must ensure that appropriate measures are in place to minimise and contain turbid plumes, siltation, and the release of pollutants (including heavy metals) from sediment that may result from pile driving activities. This may include the use of silt curtains.	✔	✔	
4	Fuel storage on barges must be kept to a minimum.	✔	✔	✔
5	The Contractor must ensure that appropriate measures are in place to minimise hydrocarbon pollution and any other pollution that may result from pile driving activities. This may include floating booms.	✔	✔	

2.4 Construction Noise and Vibration Control

OBJECTIVE: To minimise noise and vibration impacts.

STRATEGY: Design and implementation of noise and vibration control measures for the project.

ISSUES: Control of noise emissions and vibration effects is extremely important to minimise impacts on the sensitive marine fauna.

Blasting of the bedrock or driving of piles has the potential to cause vibrations throughout the rock, soil and overlying seawater. Vibrations can also leave the surface of the seabed and propagate through the overlying seawater and, where the depth of the water is insufficient to adequately attenuate the wave, through the air above.

Noise associated with jetty construction is usually dominated by intermittent high levels of impulsive sound generated by piling which is caused by ramming of the hammer onto the pile (CoA 1996). This level of noise is readily transmitted underwater.

	Actions	Pre - construction	Construction	Post - construction
1	Instigate construction methods, particularly pile driving methods, which allow fauna that are sensitive to noise to depart without risk of harm. This may include (but is not limited to) a soft start process.	✔	✔	✔
2	All construction plant and equipment used on the Contractor's Work must be fitted with properly maintained noise suppression devices in accordance with the manufacturer's recommendations.	✔	✔	✔
3	The Contractor must ensure that all site vehicles and vehicles which frequent the Project Site, and which require reversing alarms, are fitted with an alarm which provides a noise level appropriate to varying background noise levels.	✔	✔	✔
4	If blasting is required as a method of pile installation, determine safe distances and effects levels for marine organisms prior to blasting.	✔	✔	

2.5 Air Quality Controls

OBJECTIVE: To minimise emissions of dust and other air pollutants.

STRATEGY: Design and implementation of air quality control measures for the project.

ISSUES: Control of air emissions is important to minimise impacts to the marine environment and to adjacent landholders.

	Actions	Pre - construction	Construction	Post - construction
1	The Contractor must ensure that all temporary site facilities erected on or near the Project Site are designed and operated to minimise the emission of smoke, dust and other substances into the atmosphere.	✔	✔	✔

2.6 Materials, Fuels, Waste Management and Resource Use

OBJECTIVES: To avoid pollution of the environment through activities associated with the storage, maintenance and refuelling of machinery and equipment. To minimise waste generated during construction activities, maximise recycling/re-use and dispose of wastes in an appropriate manner. To avoid contamination of soil and groundwater. To minimise potable water use as far as practicable.

STRATEGIES: Design and implementation of measures for the non-polluting storage, maintenance and refuelling of on site machinery and equipment. Design and implementation of measures to minimise waste generation and avoid soil contamination throughout the project. Investigate, document and implement total water use reductions and alternative (non-potable) water supplies.

ISSUES: The marine environment in this region is extremely sensitive due to the presence of Commonwealth and State threatened fauna species. Storage and handling of chemicals, fuels and lubricants must be undertaken in a manner that will not impact on the marine environment.

DTEI encourages the use of recycled materials in infrastructure projects.

	Actions	**Pre - construction**	**Construction**	**Post - construction**
1	Design and planning for the project must incorporate the principles and procedures in the Environment Chapter in the DTEI *Procurement Manual* and the *State Supply Board Policy - Environmental Impact 1999.* A key area for recycling is the construction materials.	✔	✔	
2	Construction activities must be undertaken in a manner that minimises wastage of materials energy where practicable and avoids pollution.	✔	✔	
3	Effluent from the Contractor's amenities must be discharged into the local sewerage system, where available, septic tanks or portable self-contained toilets of suitable capacity subject to acceptable arrangements for disposal of the effluent. Pit toilets are not permitted.	✔	✔	✔
4	The Contractor must provide waste and recycling bins on the Project Site for the collection and storage of wastes and recyclables. The Contractor must implement measures to ensure that the site is kept clear of windblown litter originating from the site and off site, and any dumped materials. Materials suitable for recycling such as used oils and vegetation removed from the Project Site must be recycled.	✔	✔	✔
5	The Contractor must conduct potentially polluting activities and operations, including washing down of construction plant, refuelling plant, use of chemicals and handling hazardous chemicals, at locations that have adequate environmental protection measures and which are isolated from the marine environment, stormwater drainage systems and natural watercourses.	✔	✔	✔
6	The Contractor must adopt transport, handling and storage methods that will prevent pollutant spillage, including chemicals, fuels and lubricants on or around the Project Site, including pile driving activities (particularly with respect to the transfer of chemicals and fuel between service vessels and piling barges).	✔	✔	✔
12	The Contractor shall comply with current Water Conservation Measures and current water restrictions. A complete list of restrictions can be viewed at www.sawater.com.au.	✔	✔	✔

2.6.1 Hydrocarbon Storage and Handling

	Actions	Pre - construction	Construction	Post - construction
1	Refuelling or maintenance of plant and equipment, or any other activity which may result in the spillage of a chemical, fuel or lubricant at any location with direct drainage to the marine environment, is not permitted without appropriate temporary bunding being provided. Refuelling must be undertaken in an environmentally responsible manner and in line with the EPA 'Draft Code of Practice for Vessel and Facility Management: Marine and Inland Waters'. Refuelling must not occur in the vicinity of any waterway or environmentally sensitive area, with the exception of refuelling for pile driving activities. Refuelling operations must not be left unattended while in progress. Adequate quantities of suitable material to counteract spillage must be kept readily available at all refuelling locations. When machinery/ vessels are on the water, the Contractor must have spill clean-up equipment at the site to counteract spillage in the event of a minor spill.	✔	✔	✔
2	The Contractor must develop, use and update an emergency response plan, as part of the OHS&W Plan, that includes provision to deal with pollutant spillages.	✔	✔	✔
3	The Contractor must keep records of any spill or emergency incidents and the response and corrective action that was implemented.	✔	✔	✔
4	Where a pollution incident potentially in breach of the *Environment Protection Act 1993* occurs the Contractor must notify relevant Authorities, including the EPA, and DTEI's Representative immediately, undertake appropriate clean up and remediation and provide a copy of the emergency response record to DTEI's Representative. For any incident or spillage other than an incident or spillage potentially in breach of the *Environment Protection Act 1993* as outlined above, the Contractor must notify DTEI's Representative and provide a copy of the emergency response record within two days of the occurrence of the spillage or incident.	✔	✔	✔
5	The Contractor must provide on the Project Site, and have access at all times to, a hydrocarbon spill kit for the purpose of cleaning up oil and fuel spillage. The Contractor must also ensure that personnel trained in efficient deployment of the spill kit are readily available in the event of a spill. The Contractor must also provide on the Project Site any other materials required to respond to any spillage.	✔	✔	✔