# Appendix 2: Consolidated List of Management Actions

| Action | Proposed Management Control |
|---|---|
| **MARINE FAUNA** | |
| BPPH | |
| BPPH 1 | Marine disturbance approval system to track disturbance areas |
| BPPH 2 | Monitor beach profiles and wrack around the solid breakwater |
| BPPH 3 | Relocate any significant sand build up to the east of the breakwater to maintain the ability to launch small vessels. This will also result in a lower area of impact to BPPH via smothering or erosion |
| Coastal Processes | |
| CP 1 | Monitor beach profiles around the solid breakwater |
| CP 2 | Relocate any significant sand build up to the east of the breakwater to maintain the ability to launch small vessels |
| CP 3 | If required, relocate additional sediment or wrack to eastern beaches, to compensate for any identified significant deficits that may be caused by the presence of the breakwater |
| Whales | |
| W 1 | Verification of marine noise predictions in first month of pile driving |
| W 2 | Modification of proposed controls in consultation with DEC/SEWPaC if required based on verification |
| W 3 | Pile driving only during conditions that allow visual monitoring |
| W 4 | Soft start to pile driving activities to prevent sudden increases in noise |
| W 5 | 1000 m marine mammal management area around pile driving barge whilst operating. Slow down the rate of pile driving activities if marine mammals enter this area |
| W 6 | 500 m marine mammal exclusion area around pile driving barge whilst operating. Shut down pile driving activities if marine mammals enter this area |
| W 7 | Suitably qualified observer operating immediately before and during pile driving |
| W 8 | Should noise verification or animal observations indicate further controls are necessary, the following contingency measures will be considered:<br>○ Restricting piling to avoid high tide<br>○ Reducing the strike rate of piling<br>○ Pre-boring of holes<br>○ Source noise controls |
| W 9 | All vessel crews to undertake site induction to include details of risks, impacts, management controls, communications and reporting regarding vessel strike |
| W 10 | Whale sightings to be communicated to all vessels in area |
| W 11 | Vessel speed reduction below 8 knots if whale sightings are within vessel movement areas |
| W 12 | Reporting of any vessel strike to DEC/SEWPaC |
| Dolphins | |
| D 1 | Implement marine noise controls as identified for whales. |
| D 2 | Survey of dolphin population and movements prior to construction |
| D 3 | Possible modification of marine noise controls if dolphin activity from survey work suggests this is required |
| D 4 | Any modifications to noise controls in consultation with DEC/SEWPaC |
| D 5 | Same vessel strike management controls as for whales (discussed above) |
| Dugong | |
| Du 1 | Marine noise controls as identified for Whales |
| Du 2 | Inclusion of dugong (presence / absence) in the survey of dolphin population and movements prior to construction |
| Du 3 | Possible modification of marine noise controls if dugong activity from survey work suggests is required |
| Du 4 | Any modifications to noise controls in consultation with DEC/SEWPaC |
| Du 5 | Same vessel strike management controls as for whales (discussed above) |

| Action | Proposed Management Control |
|---|---|
| Marine Turtles | |
| MT 1 | Marine noise management controls proposed are the same as for marine mammals except that the zones are reduced in size due to smaller animal size (harder to locate) and the lower impacts expected:<br>• 500 m marine turtle management area around pile driving barge whilst operating. Slow down pile driving rate when marine turtles are within this area<br>• 250 m marine turtle exclusion area around pile driving barge whilst operating. Shutdown of pile driving activities when marine turtles are within this area |
| MT 2 | Same vessel strike management controls as for whales (discussed above) |
| MT 3 | Educate personnel on the need to minimise light spill and the controls in place |
| MT 4 | Design lighting to be as low as practicable while maintaining a safe working environment |
| MT 5 | Minimise light intensity to as low as reasonable practicable along shoreline areas |
| MT 6 | Avoid use of white lights (mercury vapour, metal halide, halogen and fluorescent) where practicable on stockpile and breakwater and jetty |
| MT 7 | Reduce light spill using shielding, directional alignment and behavioural controls (use of blinds, need for lighting) |
| MT 8 | Monitor turtle activity on the beaches adjacent to the Proposal and report to DEC |
| MT 9 | Locate land-based infrastructure a sufficient distance inland from turtle nesting beaches where practicable |
| MT 10 | Physical removal of sand build up and placement on east side as required to maintain operability of launching ramp and beach profiles |
| MT 11 | Monitoring of coastal profiles and reporting annually to DEC |
| MT 12 | Minimum lighting required for human safety has been proposed; |
| MT 13 | Lighting at jetty loading area will be switched off when not in use; |
| MT 14 | Stockyard and road high level lighting has been reviewed and reduced from an original 25 m pole height to a maximum of 12 m; |
| MT 15 | No significant rookeries are within 1.5 km of the Proposal; |
| MT 16 | The stockyard is set back from the beach as far as practicable to maximise the use of natural topography and vegetation as shields; |
| MT 17 | Lighting will be screened and directed such that direct light spill on the beach will be minimised; |
| MT 18 | IOH has located its accommodation camp and workshop areas further inland, away from the coastline; |
| MT 19 | Dust control measures will be used to minimise air borne particles, in turn minimising light diffraction and consequential glow; |
| MT 20 | Office lighting will be switched off when not in use, and blinds will be installed; |
| MT 21 | Conveyors will have lighting that is reduced to low anti-collision levels when unoccupied; |
| MT 22 | Navigation aids will be selected with a preference for long period flashing lights while complying with Department of Transport requirements; |
| MT 23 | LED lamps have been selected, and HPS lamps will not be used; and |
| MT 24 | White lights that emit ultraviolet lights will not be used. |
| Other Species | |
| OS 1 | Slow start procedure to include recording marine fauna visible within 50 m of piling location prior to start and during start-up of piling |
| OS 2 | Reporting to DEC any animals noted to remain within 50 m of piling activity |
| OS 3 | Prepare and implement hull fouling and ballast water management plan in consultation with DPA based on existing industry standards. The plan shall include:<br>• Risk assessment of IMP introduction<br>• Standard protocols for ballast water management for construction and operations phases<br>• Vessel inspection and hygiene protocols for construction and operations phases<br>• Record keeping and communication requirements<br>• Roles and responsibilities<br>• Prepare and implement IMP management plan in consultation with DPA based on existing industry standards. The plan shall include:<br>  ○ IMP monitoring and reporting requirements<br>  ○ Roles and responsibilities in responding to any IMPs |

| Action | Proposed Management Control |
|---|---|
| OS 4 | Implement industry standard desalination intake fauna entrapment controls, such as screens and low velocity intake |
| OS 5 | Desalination plant detailed design subject to approval by DPA under development approval system |
| OS 6 | Implement workforce education to discourage visiting offshore islands |
| OS 7 | Implement workforce education to include information relevant to recreational fishing |
| **MARINE FAUNA** | |
| Oil Spills | |
| OilS 1 | Prepare and implement oil spill contingency plan, and ensure appropriate response capability to the satisfaction of the EPA upon advice from DPA. The plan will include details of:<br>○ Refuelling protocols<br>○ Diesel fuel pipeline controls<br>○ Emergency equipment to be stored on site<br>○ Response strategies and responsible persons |
| OilS 2 | Ensure spill equipment is stored on site and is available in the case of an oil spill. Typical spill response equipment may comprise of:<br>○ 300m of solid buoyancy booms<br>○ 5 x 15 kg Anchor Kits<br>○ 1 x Foilex skimmer<br>○ 1 x Diesel powered spate diaphragm pump<br>○ 2 x Collapsible oil recovery tank (10,000L)<br>○ 1 x Work boat suitable for deploying equipment<br>○ Various absorbent booms, pads and rolls<br>○ Various PPE |
| OilS 3 | Workforce induction and training to include details of how to reduce the likelihood and consequence of spillage, and what the appropriate response actions are if a spill occurs |
| Desalination Outfall | |
| DO 1 | Establish defined Low Ecological Protection Area (LEPA) as a zone 25 m in every direction from the diffuser |
| DO 2 | Locate LEPA within Moderate Ecological Protection Area (MEPA) for port activities to provide an additional contingency |
| DO 3 | Ensure that 60-fold dilution is achieved at the boundary of the LEPA, to ensure that MEPA water quality parameters are met |
| DO 4 | Design diffuser to achieve 60-fold dilution at the LEPA / MEPA boundary during worst case conditions (i.e. no tidal or wave current mixing) |
| DO 5 | Monitor salinity concentrations at various depths and distances from the diffuser to verify the modelling results |
| DO 6 | Once the model has been verified, continuously monitor salinity concentrations within the outflow to ensure a minimum 60-fold dilution at the LEPA / MEPA boundary |
| DO 7 | Prepare and implement desalination outfall management plan to include further detail such as:<br>○ Definition of LEPA and MEPA water quality parameters<br>○ Model verification programme for plant start up<br>○ Water quality monitoring and reporting programme<br>○ Contingency measures<br>○ Permitted use of anti-scalants |
| DO 8 | Approval for the use of the temporary desalination plants will be sought from DEC when the design is available. |
| DO 9 | The following requirements will apply to the use of temporary desalination plants:<br>• The outfall will not be located in proximity to any significant BPPH such as corals or seagrass;<br>• The outfall and intake will be have a sufficient separation to ensure that the intake is clean water;<br>• The outfall will be located in an area that is highly mixed, and away from any potential pooling areas;<br>• The outflow velocity will be set as high as practicable to maximise mixing. |
| Turbidity | |
| T 1 | 5 m assumed buffer included in disturbance calculations to account for potential sediment effects during construction |
| T 2 | Visual monitoring of any plume during construction and reporting to DEC regional office if required |
| T 3 | 200 m MEPA defined around loading areas at the port to identify water quality requirements for port operational areas |
| T 4 | Vessel speed limits will be enforced |
| T 5 | Workforce induction and training to include details of how to reduce the likelihood and consequence of spillage |
| T 6 | Spillage controls around conveyor transfer and loading points |

| Action | Proposed Management Control |
|---|---|
| T 7 | Develop and implement spill response procedures to ensure spills are responded to as soon as practicable |
| T 8 | Report any spills internally as incidents |
| T 9 | Runoff from stockpile area is directed to sump located behind the primary dunes with capacity to store runoff from significant rainfall events |
| T 10 | Sump to be cleaned out periodically to retain capacity for significant rainfall events |
| T 11 | Workforce induction and training to include details of how to reduce the likelihood and consequence of spillage |
| Waste | |
| Wa 1 | Workforce induction and training to include details of waste management requirements |
| Wa 2 | Prepare and implement a waste management plan in consultation with DPA. The plan will include:<br>o Waste avoidance and re-use/recycling measures<br>o Waste disposal arrangements and responsibilities<br>o Education and training requirements<br>o Inspection and reporting<br>o Continuous improvement |
| Anti-Foulants | |
| AF 1 | Marine management plan prepared in consultation with DPA to identify prohibited activities, approval and reporting requirements for potentially contaminating activities. |
| **OTHER ENVIRONMENTAL FACTORS** | |
| Terrestrial Flora and Vegetation | |
| FV 1 | Implement ground disturbance procedures to contain disturbance within approved boundaries |
| FV 2 | Strip and store vegetation and topsoil during ground disturbance for use in future rehabilitation |
| FV 3 | Seasonal survey to be completed to check proposed footprint area for Priority Flora |
| FV 4 | Project design will take into account the location of Priority Flora and locally significant vegetation sites and avoid them wherever practicable |
| FV 5 | DEC to be notified of the extent of any populations or individuals of Priority Flora, including any areas outside of the Proposal footprint, areas able to be avoided and unavoidable disturbance. Surveys to estimate number and location of Priority Flora |
| FV 6 | Rehabilitate any cleared area not required for operations |
| FV 7 | Implement surface and groundwater controls as discussed below |
| FV 8 | Implement a weed management procedure, which will include requirements for weed inspections and the cleaning of soil and plant matter from incoming earthmoving equipment |
| FV 9 | Map any weed infested areas within the Proposal Area and clean any vehicles or equipment leaving these areas |
| FV 10 | Implement effective dust management controls to the satisfaction of the EPA upon advice from DPA. The approved dust management plan will utilise some or all of the following as appropriate:<br>o Regular application of water to roads, bare areas and stockpiles<br>o Dust suppressants<br>o Hard stand areas<br>o Regular cleaning of spillage<br>o Dust extraction and capture at conveyor transfer points<br>o Telescopic chutes on shiploaders<br>o Conveyor covers |
| FV 11 | Maintain adequate fire response equipment on site |
| FV 12 | Maintain adequate fire breaks across the site as required |
| Terrestrial Fauna | |
| TF 1 | Proposal design avoids disturbance to high conservation value mangrove areas |
| TF 2 | Proposal design minimises disturbance to locally significant dunes/beach habitat |
| TF 3 | Proposal design avoids disturbance to high conservation value samphire and claypan areas |
| TF 4 | Proposal design minimises impact on creeklines and drainage lines by locating infrastructure away from them |
| TF 5 | Implement ground disturbance procedures to contain disturbance within approved boundaries |
| TF 6 | Implement workforce education about significant fauna habitat and prevent personnel from entering these areas where practicable (including offshore islands) |

| Action | Proposed Management Control |
|---|---|
| TF 7 | Speed limits will be implemented and enforced on internal roads in areas where conservation significant fauna vehicle strike risk is considered high |
| TF 8 | Workforce education about the risks of providing food for native and introduced fauna (directly or indirectly) |
| TF 9 | Feral animal control in consultation with DPA and DAFWA if required |
| Surface Water | |
| SW 1 | Existing causeway across the tidal creek will be used |
| SW 2 | Crossings of Eramurra Creek will use culverts that are designed to not impede flow |
| SW 3 | Disturbance of the creek and its banks will be kept to the minimum practicable |
| SW 4 | Accommodation, office, workshop, laydown and storage facilities will be located outside of the 1:100 year flood zone for Eramurra Creek |
| SW 5 | Stockpiles, accommodation, office, workshop, laydown and storage facilities will be located outside of defined storm surge level |
| SW 6 | Hazardous materials will be stored within bunded areas that are compliant with AS 1940 and in compliance with Dangerous Goods Act 2004 (DG Act) |
| SW 7 | Hazardous materials will not be stored in close proximity to surface water bodies |
| SW 8 | Wastewater irrigation area sited and operated in accordance with DEC licencE |
| SW 9 | Borrow pits will be constructed, operated and rehabilitated to prevent surface water running into them |
| Groundwater | |
| GW 1 | Hazardous materials will be stored within bunded areas that are compliant with AS 1940 and in compliance with DG Act |
| GW 2 | Spills will be cleaned up as soon as practicable in accordance with spill response procedures |
| GW 3 | Any groundwater drilling and abstraction will be conducted in accordance with RIWI Act licences |
| Air and Dust Emissions | |
| AD 1 | Water trucks will be used on dust-prone areas |
| AD 2 | Chemical suppressants may be utilised if required |
| AD 3 | Stockpile and ore transfer operations will utilise water sprays |
| AD 4 | Works approval will be sought from DEC for export operations and power station if required |
| Noise Emissions | |
| N 1 | Ensure construction and operational activities comply with the Environmental Protection (Noise) Regulations 1997 (WA) |
| N 2 | Maintain operational equipment on a regular basis |
| N 3 | Select low noise equipment where practicable |
| Waste (continued from section within Water Quality section) | |
| Wa 3 | Waste will be separated using designated bins |
| Wa 4 | Waste will be stored within specified areas before being taken offsite to a licensed facility |
| Wa 5 | Controlled wastes will be collected by a licensed operator |
| Wa 6 | Hazardous materials will be stored within bunded areas that are compliant with AS 1940 |
| Aboriginal Heritage | |
| AH 1 | Aboriginal Heritage surveys will be conducted prior to ground disturbance |
| AH 2 | Implement ground disturbance procedures to control disturbance within approved boundaries |
| AH 3 | Proposal design will take into account the location of Aboriginal sites and avoid them wherever practicable |
| AH 4 | Approval under Section 18 of the AH Act will be sought for any sites that cannot be avoided |