

## ENVIRONMENTAL SCOPING DOCUMENT

<b>PROPOSAL NAME:</b>	<b>OCEAN REEF MARINA</b>
<b>ASSESSMENT NUMBER:</b>	<b>2012</b>
<b>LOCATION:</b>	<b>362 OCEAN REEF ROAD, OCEAN REEF</b>
<b>LOCAL GOVERNMENT AREA:</b>	<b>CITY OF JOONDALUP</b>
<b>PROPONENT:</b>	<b>CITY OF JOONDALUP</b>
<b>PUBLIC REVIEW PERIOD:</b>	<b>8 WEEKS</b>

### 1. Introduction

The above proposal is being assessed by the Environmental Protection Authority (EPA) under Part IV of the *Environmental Protection Act 1986* (EP Act) at the level of Public Environmental Review (PER). This Environmental Scoping Document (ESD) sets out the requirements for the environmental review of the proposal. The purpose of an ESD is to:

- provide proposal-specific guidelines to direct the proponent on the preliminary key environmental factors or issues that are to be addressed during the environmental review and preparation of the environmental review report; and
- identify the required work that needs to be carried out.

The proponent must conduct the environmental review in accordance with this ESD and then report to the EPA in an environmental review report (PER document). As well as the proposal-specific requirements for the environmental review identified in this ESD, the PER document must also address the generic information requirements listed in section 10.2.4 of the EPA's *Environmental Impact Assessment (Part IV Divisions 1 and 2) Administrative Procedures 2012* (Administrative Procedures). When the EPA is satisfied that the PER document adequately addresses both of these requirements, the proponent will be required to release the document for a public review period of 8 weeks.

This ESD has been prepared by the EPA in consultation with the proponent, decision-making authorities and interested agencies consistent with EPA Environmental Assessment Guideline (EAG) 10 – *Scoping a proposal*. ESDs prepared by the EPA are not subject to public review. The ESD will be available on the EPA website ([www.epa.wa.gov.au](http://www.epa.wa.gov.au)) upon endorsement and must be appended to the PER document.

## 2. The proposal

The subject of this ESD is the City of Joondalup's upgrade and expansion of the existing marina facilities at the Ocean Reef Boat Harbour. The terrestrial components of the development are being progressed through a Metropolitan Region Scheme Amendment and are not being addressed through this ESD. However where impacts from the terrestrial development have the potential to significantly impact the preliminary key environmental factors listed in Table 2 then they should be addressed in the PER.

The key characteristics of the proposal are set out in Table 1, in accordance with EAG 1 – *Defining the key characteristics of a proposal*. The development envelope encompassing the physical elements of the proposal is delineated in Figure 1.

It should be noted that the key proposal characteristics may change as a result of implementation of the mitigation hierarchy by the proponent on account of the findings of studies and investigations conducted as part of the environmental review.

**Table 1 Key Proposal Characteristics**

<b>Summary of the proposal</b>	
Proposal Title	Ocean Reef Marina
Proponent Name	City of Joondalup
Short Description	<p>The construction, operation and maintenance of expanded marina facilities at the Ocean Reef Boat Harbour. The proposal includes:</p> <ul style="list-style-type: none"> <li>• construction and maintenance of two new outer breakwaters;</li> <li>• removal of the existing breakwaters and other marine infrastructure from the boat launching harbour;</li> <li>• dredging of sand and rock inside the harbour;</li> <li>• disposal of dredge spoil into land reclamation areas inside the breakwaters;</li> <li>• construction of jetties to support piled boat mooring pens; and</li> <li>• operation and maintenance of the marina waterbody.</li> </ul>
<b>Physical Elements</b>	
<b>Element</b>	<b>Proposed Extent</b>
Development envelope	64.74 hectares (ha)
Marina waterbody	32 ha
Reclamation area	8 ha
Dredging	4.5 ha

### 3. Preliminary key environmental factors and scope of work

The key proposal characteristics in Table 1 have informed the identification of the preliminary key environmental factors for the proposal, in accordance with EAG 8 – *Environmental factors and objectives*. The preliminary key environmental factors for this proposal and the EPA’s objective for each of those factors are identified in Table 2.

To provide context to the preliminary key environmental factors, Table 2 also identifies the aspects of the proposal that cause the factors to be key factors, and the potential impacts and risks likely to be relevant to the assessment. All of this in turn has informed the work required to be conducted in the environmental review. Where the work required as part of this ESD results in spatially defined information (such as habitat or predicted impact maps) this spatial data is to be provided to the EPA with the submission of the PER.

Finally, Table 2 identifies the policy documents that establish how the EPA expects the environmental factors to be addressed in the environmental review and the PER document that follows. Impacts associated with proposals are to be considered at a local and regional scale, including evaluation of cumulative impacts, and provide details of proposed management/mitigation measures. This includes whether environmental offsets are required by application of the mitigation hierarchy, consistent with the WA Environmental Offsets Guidelines.

**Table 2 Preliminary key environmental factors and required work**

<b>Marine Environmental Quality</b>	
<b>EPA objective</b>	To maintain the quality of water, sediment and biota so that the environmental values, both ecological and social, are protected.
<b>Relevant aspects</b>	Dredging; construction and operation of coastal infrastructure including the breakwaters and marina waterbody.
<b>Potential impacts and risks</b>	<p>The proposal may have the following effects:</p> <ul style="list-style-type: none"> <li>• Removal of existing breakwaters and marine infrastructure may temporarily affect water quality due to increased turbidity and the release of any nutrients and contaminants in sediments</li> <li>• Dredging to allow for the construction and maintenance of the marina waterbody may temporarily affect water quality due to increased turbidity and the release of any nutrients and contaminants in dredged sediments.</li> <li>• Seepage of return water from land reclamations areas may temporarily impact marine environmental quality due to increased turbidity and the release of any nutrients and contaminants in dredged sediments.</li> <li>• Placement of limestone for the marina breakwaters and leaching of fines from the limestone may cause temporary turbidity during and after the limestone is placed.</li> </ul>

	<ul style="list-style-type: none"> <li>• Surface and stormwater drainage into the marina waterbody may affect water and sediment quality.</li> <li>• Outflow of marina water into adjacent marine waters may result in changes in turbidity, nutrient and/or contaminants which may adversely affect marine ecology and function particularly within Marmion Marine Park.</li> <li>• Increased boat numbers increasing the potential for pollution.</li> </ul>
<b>Required work</b>	<ol style="list-style-type: none"> <li>1. Conduct monitoring as necessary to characterise the existing marine environmental quality (baseline water and sediment quality) in the area potentially affected by the proposal, with particular consideration to the environment of Marmion Marine Park. The characterisation needs to capture spatial variability in sediment quality and spatial and seasonal variation in relevant water quality parameters as informed by an assessment of threats and pressures to marine environmental values, both ecological and social. The characterisation is to inform dredge spoil management and the environmental quality monitoring and management plans required in 7a and 7b.</li> <li>2. Provide an Environmental Quality Plan (EQP, i.e. a map) that spatially defines the Environmental Values (EVs, both ecological and social), Environmental Quality Objectives (EQOs) and Levels of Ecological Protection (LEPs) that currently apply to the area. The EQP should consider the Marine Parks and Reserves Authority's <i>10 year audit of the implementation Marmion Marine Park Management Plan 2002-2012</i>.</li> <li>3. Characterise the hydrogeology of the groundwater system and the quality, quantity, and seasonal and spatial variability of the groundwater flows into the proposal and surrounding areas based on contemporary monitoring data from the catchment.</li> <li>4. Identify elements of the proposal which may potentially affect marine environmental quality, including both direct and indirect impacts and for both construction and operation. Detail is required for the proposed dredging and spoil placement methods and for the removal of existing marine infrastructure in the current boat harbour.</li> <li>5. Develop an accurate and validated three dimensional model which considers circulation in the existing boat harbour and the surrounding hydrodynamics to understand dispersion, deposition and accumulation of sediments and contaminants from marine-based construction and maintenance activities and outflow from the marina waterbody. Hydrodynamic and particle transport modelling should take into account factors such as tides, meteorological and seasonal ocean conditions. It should also be linked to ecological modelling as necessary to predict the ecological responses where specific proposal elements may affect marine environmental quality (as identified in 4 above).</li> <li>6. Predict the residual impacts from the proposal, both direct and indirect, after considering and detailing how the mitigation hierarchy – avoid, minimise, rectify and offset – has been applied. Impact predictions are to include, but not be limited to: <ol style="list-style-type: none"> <li>a. The likely extent, severity and duration of direct and indirect marine-based construction impacts on marine environmental quality and EVs. These impacts should be justified and defined spatially as an overlay on the existing EQP showing where the EVs (both ecological and social), EQOs and spatially defined LEPs will not be achieved during construction.</li> <li>b. The likely extent, severity and duration of direct and indirect operational impacts. These impacts should be justified and defined spatially as an overlay on the existing EQP showing where the EVs (both ecological</li> </ol> </li> </ol>

	<p>and social), environmental quality objectives (EQOs) and spatially defined levels of ecological protection (LEPs) will not be achieved during the operational life of the project.</p> <ul style="list-style-type: none"> <li>c. A new EQP should be proposed that takes into account unavoidable construction and operational impacts, including maintenance dredging, on marine environmental quality and spatially maps the EQOs/LEPs that will be achieved in the long term.</li> <li>d. Impacts to biodiversity; abundance and biomass; water, sediment and biota quality, and ecosystem processes including nutrient cycling. An adequate understanding of the natural rates and types of ecological processes operating in the area must be demonstrated in order to evaluate the possible extent and severity of any changes to the types and/or rates of processes.</li> <li>e. Details as to how the proposal will be managed to minimise impacts on the marine environmental quality of Marmion Marine Park. This should consider the values relevant to marine environmental quality identified in the Marine Parks and Reserves Authority's <i>10 year audit of the implementation Marmion Marine Park Management Plan 2002-2012</i>.</li> <li>f. Predictions for how any potential changes to groundwater and surface water inputs (in terms of quality and/or quantity) associated with the Ocean Reef Marina development may affect the flushing and environmental quality of the marina waterbody and Marmion Marine Park. This is to consider the effects of climate change and potential pollution sources within the Ocean Reef Marina development.</li> <li>g. Predictions of impacts to marine environmental quality for both construction and operation are to include best, most likely and worst case scenarios. They are to also consider and assess the cumulative effects of the proposal in addition to the effects of adjacent approved activities, such as stormwater drains, treated wastewater outfalls and other marinas.</li> </ul> <p>7. Identify management and mitigation measures for the proposal to demonstrate that the EPA's objectives for marine environmental quality can be met and to ensure residual impacts are not greater than predicted. The PER is to include:</p> <ul style="list-style-type: none"> <li>a. A Marine Construction Monitoring and Management Plan (MCMMP) that includes the protocols and procedures for monitoring (e.g. turbidity, light attenuation coefficient, visual records etc.) and management (e.g. silt curtains, pre-washing of limestone rock for breakwater etc.) to ensure that the construction of the development achieves the proposed EQOs/LEPs defined in the new EQP required by 6c. The MCMMP is to include the protocols and procedures for removing/modifying the marine infrastructure in the current Ocean Reef Boat Harbour.</li> <li>b. A Marina Environmental Quality Management Plan (MEQMP) that includes monitoring and management to ensure that the operation of the proposal achieves the proposed EQOs/LEPs defined in the new EQP required by 6c. The MEQMP should be based on the recommendations and approaches in Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC and ARMCANZ, 2000) and State Water Quality Management Strategy Report 6. The MEQMP is to define the EVs to be protected, identify the environmental concerns or threats and establish the EQOs and LEPs to be achieved. It is also to include and detail the management and mitigation measures to ensure that the EVs and EQOs are achieved. This includes measures to address potential declines in ground and surface water quality and/or quantity, which may affect marine environmental quality and flushing of the marina waterbody</li> </ul>
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	<p>and consequently marine environmental quality. The measures proposed should aim to ensure that the marine environmental quality and associated values outside the marina and within Marmion Marine Park are maintained.</p> <p>8. Outline the proposed ongoing governance arrangements for the management of marine environmental quality, maintenance dredging and ongoing wrack management within the marina waterbody in accordance with the Western Australian Planning Commission's Development Control Policy 1.8 <i>Canal Estates and Artificial Waterways Developments</i>.</p>
<b>Peer review</b>	Commission, in consultation with the OEPA, and include in the PER a peer review of the hydrodynamic and flushing studies and the predicted impacts to marine environmental quality (scopes 3, 5, 6a and 6b).
<b>Relevant policy</b>	<p>ANZECC and ARMCANZ, 2000 <i>Australian and New Zealand Guidelines for Fresh and Marine Water Quality</i>, National Water Quality Management Strategy No. 4.</p> <p>Australian Government, 2009 <i>National Assessment Guidelines for Dredging</i></p> <p>Department of Conservation and Land Management, 1992 <i>Marmion Marine Park Management Plan 1992-2002</i> National Parks and Nature Conservation Authority, Perth, Western Australia</p> <p>Environmental Assessment Guideline No. 7 <i>Marine Dredging Proposals</i></p> <p>EPA Position Statement 2000 <i>Perth's Coastal Waters: Environmental Values and Objectives</i></p> <p>Government of WA, 2004 <i>State Water Quality Management Strategy Document No.6</i></p> <p>Marine Parks and Reserves Authority, 2012 <i>10 year audit of the implementation of the Marmion Marine Park Management Plan 1992-2002</i></p> <p>McAlpine, KW Wenziker, KJ Apte, SC and Masini, RJ 2005 <i>Background quality for coastal marine waters of Perth, Western Australia</i>, Department of Environment, Perth, Western Australia.</p> <p>Western Australian Planning Commission, 2012 Development Control Policy 1.8 <i>Canal Estates and Artificial Waterways Developments</i></p>
<b>Benthic Communities and Habitat</b>	
<b>EPA objective</b>	To maintain the structure, function, diversity, distribution and viability of benthic communities and habitats at local and regional scales.
<b>Relevant aspects</b>	Dredging; construction and operation of coastal infrastructure including the breakwaters and marina waterbody.
<b>Potential impacts and risks</b>	<p>The proposal may have the following effects:</p> <ul style="list-style-type: none"> <li>• Direct removal of benthic communities and habitat to allow for the construction of the marina waterbody and breakwaters.</li> <li>• Indirect impacts to benthic communities and habitats due to altered sediment and water movement and flows caused by breakwaters.</li> <li>• Reduction in marine environmental quality that supports healthy benthic communities and habitat during construction and operation of the marina.</li> <li>• Increased recreational boating activity leading to pressures on benthic communities at key sites within Marmion Marine Park.</li> </ul>

<b>Required work</b>	<ol style="list-style-type: none"> <li>1. Characterise the environment by designing and conducting a benthic communities and habitat survey to accurately map the spatial extent of benthic habitats. Based on the findings of the surveys, produce geo-referenced maps showing the extent and distribution of the different benthic communities and habitats and present these at the appropriate scale. Mapping is to extend to the outer boundary of the area where both reversible and irreversible effects of biota are predicted to occur and into the zone of influence and for appropriate reference sites. Surveys should be conducted to a standard such that the results can be used as a baseline for future monitoring both during construction and operation of the proposal. Mapping techniques and habitat classification should be consistent with those used by the Department of Parks and Wildlife for marine reserve management. The habitat map for Marmion Marine Park (Department of Environment and Conservation, 2002) is to be assessed for its accuracy within the predicted zone of influence. Where the map is deemed inaccurate it is to be updated, through methods that may include ground truthing, in consultation with the Department of Parks and Wildlife.</li> <li>2. Assess the values and significance of benthic communities and habitats within the proposal and adjacent areas and describe these values in a local and regional context. This assessment must also specifically address the values and significance of benthic communities and habitats in the context of Marmion Marine Park and for abalone and western rock lobster habitat.</li> <li>3. Identify elements of the proposal which may potentially affect benthic communities and habitat, including both direct and indirect impacts and for both construction and operation.</li> <li>4. Predict the residual impacts from the proposal, both direct and indirect, on benthic communities and habitat after demonstrating how the mitigation hierarchy – avoid, minimise, rectify and offset – has been considered and applied. Impact predictions are to include the likely extent, severity and duration of direct and indirect impacts of the proposal on benthic communities and habitats through spatially defining the zones of high and moderate impact and the zone of influence consistent with EAG 7 <i>Marine Dredging Proposals</i>. Any irreversible loss of, or serious damage to, benthic primary producer habitat (BPPH), will need to be addressed in the context of EAG 3 <i>Protection of Benthic Primary Producer Habitats in Western Australia's Marine Environment</i> including an appropriately defined local assessment unit (LAU) and an assessment of any loss against EAG 3's cumulative loss guidelines.  For the purposes of applying EAG 3, the EPA recommends using the boundaries of Marmion Marine Park, including Hillarys and Ocean Reef boat harbours, as the local assessment unit (LAU). When applying EAG 3, the proponent should take into account the direct disturbance and indirect effects of Hillarys and Ocean Reef boat harbours, the two Beenyup waste water outlets and any other previous proposals within the LAU.</li> <li>5. Impact predictions are also to specifically address the potential short and long term impacts to abalone and western rock lobster habitats.</li> <li>6. Include in the MCMMP details of the monitoring and management to occur during and after construction to demonstrate and ensure that the EPA's objectives for benthic communities and habitats can be met and that residual impacts are not greater than predicted. The MCMMP is to include the protocols and procedure for mapping turbidity plumes and reporting the realised extent of the zones of impact and influence defined for the proposal.</li> </ol>
<b>Relevant policy</b>	Department of Conservation and Land Management, 1992 <i>Marmion Marine Park Management Plan 1992-2002</i> National Parks and Nature Conservation Authority, Perth, Western Australia

	<p>Department of Environment and Conservation, 2003 <i>Marine Habitats of Western Australia dataset</i></p> <p>Environmental Assessment Guideline No. 3 <i>Protection of Benthic Primary Producer Habitat in Western Australia's Marine Environment</i></p> <p>Environmental Assessment Guideline No. 7 <i>Marine Dredging Proposals</i></p> <p>Marine Parks and Reserves Authority, 2012 <i>10 year audit of the implementation of the Marmion Marine Park Management Plan 1992-2002</i></p>
<b>Marine Fauna</b>	
<b>EPA objective</b>	To maintain the diversity, geographic distribution and viability of fauna at the species and population levels.
<b>Relevant aspects</b>	Dredging; construction and operation of coastal infrastructure, including the breakwaters and marina waterbody
<b>Potential impacts and risks</b>	<p>The proposal may have the following effects:</p> <ul style="list-style-type: none"> <li>• Construction activities may cause temporary displacement of marine fauna through noise impacts, vessel strikes and entanglement.</li> <li>• Increased public access resulting in increased interactions between humans and marine fauna.</li> <li>• Increased boat numbers causing increased fishing pressure and the potential for boat strikes.</li> <li>• Increased risk of introduced marine species due to increased numbers of large recreational vessels berthing in the marina.</li> <li>• Potential impacts to species, including western rock lobster and abalone through direct and indirect impacts from construction and operation such as from changes to water and nutrient flows and processes.</li> </ul>
<b>Required work</b>	<ol style="list-style-type: none"> <li>1. Conduct a desktop study of available information to provide a comprehensive listing of marine fauna known or likely to occur within, or regularly pass through, Marmion Marine Park and where relevant document any known uses of the area by them (e.g. foraging, migrating, calving, nursing, spawning, roosting and nesting etc). The study is to identify any critical windows of environmental sensitivity for marine fauna in the proximity of the proposal area, including for marine mammals, abalone, finfish and western rock lobster. The listing should include the identification of both conservation significant marine fauna species and marine species important to fisheries (both commercial and recreational) that are likely to occur in the area. Conservation significant marine fauna species include those listed under both the Western Australian <i>Wildlife Conservation Act 1950</i> and the <i>Environment Protection and Biodiversity Conservation Act 1999</i> and species listed by the Department of Parks and Wildlife as Priority fauna.</li> <li>2. Design and conduct a survey for conservation significant marine fauna and for species important to fisheries (both commercial and recreational) that may be affected by the proposal (as identified in 1. above) to identify significant habitats or areas and to estimate abundance, where relevant. The survey for conservation significant marine fauna species shall be undertaken in consultation with the Department of Parks and Wildlife. The survey for marine fauna species important for fisheries (commercial and recreational) shall be undertaken in consultation with the Department of Fisheries.</li> <li>3. Design and conduct a baseline survey in consultation with the Department of</li> </ol>

	<p>Fisheries and in accordance with the guidelines provided by the Australian National System for the Prevention of Marine Pest Incursions (DAFF 2009) to identify if there any introduced marine pests in the existing Ocean Reef Boat Harbour and/or adjacent waters.</p> <ol style="list-style-type: none"> <li>4. Assess the values and significance of marine fauna in the proximity of the proposal and describe these values in a local, regional and State context. This assessment must also specifically address the values and significance of conservation significant marine fauna in the context of Marmion Marine Park and for abalone, finfish and western rock lobster in the context of fisheries.</li> <li>5. Identify elements of the proposal which may potentially affect marine fauna (identified in 1. above), including both direct and indirect impacts and for both construction and operation. This is to include the risks posed by introduced marine organisms from construction and ongoing operations.</li> <li>6. Predict the residual impacts from the proposal, both direct and indirect, after demonstrating how the mitigation hierarchy – avoid, minimise, rectify and offset – has been considered and applied. Impact predictions are to include both short and long-term impacts. For conservation significant marine fauna populations predictions are to include how the proposal may change their patterns of use e.g ongoing viability of feeding, haul-out, roosting, nesting, migratory patterns, spawning and nursery areas. For species important for fisheries such as abalone, predictions are to include how the proposal may change food availability as a result of a shadowing effect of the breakwaters and impacts resulting from changes to water quality during construction and operation.</li> <li>7. Identify management and mitigation measures for the proposal to demonstrate that the EPA's objectives for marine fauna can be met and to ensure residual impacts are not greater than predicted. This is to include management and monitoring protocols for introduced marine organisms during construction and operation.</li> <li>8. Include in the MCEMP details of the monitoring and management during and after construction to demonstrate and ensure that residual impacts to marine fauna are not greater than predicted.</li> </ol>
<b>Relevant policy</b>	<p>Commonwealth of Australia, 2009 <i>National Biofouling Management Guidance for Non-trading Vessels</i></p> <p>Department of Conservation and Land Management, 1992 <i>Marmion Marine Park Management Plan 1992-2002</i> National Parks and Nature Conservation Authority, Perth, Western Australia</p> <p>Marine Parks and Reserves Authority, 2012 <i>10 year audit of the implementation of the Marmion Marine Park Management Plan 1992-2002</i></p> <p><i>Wildlife Conservation Act 1950</i></p>
<b>Coastal Processes</b>	
<b>EPA objective</b>	To maintain the morphology of the subtidal, intertidal and supratidal zones and the local geophysical processes that shape them
<b>Relevant aspects</b>	Construction and operation of coastal infrastructure, including the breakwaters and marina waterbody
<b>Potential impacts and risks</b>	<p>The proposal may have the following effects:</p> <ul style="list-style-type: none"> <li>• Construction of the marina entrance breakwater and marina waterbody may alter wave dynamics and interrupt longshore sediment transport.</li> </ul>

	<ul style="list-style-type: none"> <li>• Construction of the breakwaters may trap sediment and cause further loss of near shore benthic communities and habitat.</li> <li>• Construction of the breakwaters may trap algae and seagrass wrack both inside and adjacent to the marina.</li> <li>• The construction of the breakwaters may interrupt wrack movement, accumulation and breakdown and impact near-shore communities and connected habitats.</li> </ul>
<b>Required work</b>	<ol style="list-style-type: none"> <li>1. Characterise the environment by describing the current coastal processes in the proximity of the proposal. This is to include, but not be limited to, <ol style="list-style-type: none"> <li>a. modelling the local current and wave climate;</li> <li>b. conducting a detailed analysis of existing long-shore sediment movements to estimate erosional and depositional patterns including for cross-shore processes;</li> <li>c. determining beach profiles; and;</li> <li>d. determining coastal vulnerability and the potential impacts as a result of climate change, including through using multiple tide gauge records in the Perth Region to determine local sea level rise.</li> </ol> <p>The characterisation is to consider all temporal scales, including seasonal and inter-annual, and the spatial scale must be adequate to address all coastal processes and patterns likely to be affected as a result of the proposal. The characterisation should define the limit of where impacts are expected to occur.</p> </li> <li>2. Identify elements of the proposal which may potentially affect coastal processes, including both direct and indirect impacts and for both construction and operation.</li> <li>3. Predict the residual impacts from the proposal, both direct and indirect, after demonstrating how the mitigation hierarchy – avoid, minimise, rectify and offset – has been considered and applied. Impact predictions are to: <ol style="list-style-type: none"> <li>a. Be provided at a sufficient scale to allow all impacts resulting from the proposal to both up and down coast processes as well as onshore-offshore processes to be assessed.</li> <li>b. Be informed by monitoring previously undertaken at local harbours and marinas.</li> <li>c. Determine changes to local current and wave climate, long-shore sediment movements and the erosional and deposition patterns (including to cross-shore processes), and beach profiles resulting from the proposal.</li> <li>d. Consider cumulative impacts from other and to other coastal developments.</li> <li>e. Be for both the short and long-term (100 year planning horizon); be provided for best, most likely and worst case scenarios; and consider the likely impacts of climate change.</li> <li>f. Examine the need (if any) for coastal structures to mitigate the impacts of wave shadows that would be caused by the proposal.</li> <li>g. Address the frequency, volume and potential environmental impacts of sand/wrack bypassing/backpassing and maintenance dredging within and adjacent to the harbour/marine park boundary.</li> <li>h. Address the requirements of State Planning Policy 2.6.</li> </ol> </li> <li>4. Identify management and mitigation measures for the proposal to</li> </ol>

	<p>demonstrate that the EPA’s objectives for coastal processes can be met and to ensure residual impacts are not greater than predicted. This is to include the identification of areas of land and sea within the harbour/marina boundary to allow for management works and buffer areas to manage sand and/or wrack accumulations. It is also to include a comprehensive beach monitoring and management program to manage the beaches and avoid adverse impacts.</p> <p>5. Outline the proposed ongoing governance arrangements for the management of coastal processes including the roles and responsibilities for sand/wrack bypassing/backpassing requirements and maintenance dredging.</p>
<b>Peer review</b>	<p>Commission, in consultation with the OEPA, and include in the PER a peer review of the coastal process modelling and the predicted impacts to coastal process (scopes 1 and 3).</p>
<b>Relevant policy</b>	<p>Department of Conservation and Land Management, 1992 <i>Marmion Marine Park Management Plan 1992-2002</i> National Parks and Nature Conservation Authority, Perth, Western Australia</p> <p>IPCC, 2014: Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Field, C.B., V.R. Barros, D.J. Dokken, K.J. Mach, M.D. Mastrandrea, T.E. Bilir, M. Chatterjee, K.L. Ebi, Y.O. Estrada, R.C. Genova, B. Girma, E.S. Kissel, A.N. Levy, S. MacCracken, P.R. Mastrandrea, and L.L. White (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA</p> <p>IPCC, 2014: Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part B: Regional Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Barros, V.R., C.B. Field, D.J. Dokken, M.D. Mastrandrea, K.J. Mach, T.E. Bilir, M. Chatterjee, K.L. Ebi, Y.O. Estrada, R.C. Genova, B. Girma, E.S. Kissel, A.N. Levy, S. MacCracken, P.R. Mastrandrea, and L.L. White (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA</p> <p>Marine Parks and Reserves Authority, 2012 <i>Position Statement: Seawrack Management in Marine Parks and Reserves.</i></p> <p>Marine Parks and Reserves Authority, 2012 <i>10 year audit of the implementation of the Marmion Marine Park Management Plan 1992-2002</i></p> <p>State of Planning Policy No. 2.6 <i>State Coastal Planning Policy</i></p> <p>Sea Level Change in Western Australia - Application of Coastal Planning</p>
<b>Integrating Factors – Offsets</b>	
<b>EPA Objective</b>	<p>To counterbalance any significant residual environmental impacts or uncertainty through the application of offsets.</p>
<b>Potential impacts</b>	<ul style="list-style-type: none"> <li>• Potential significant residual impacts on marine environmental quality, benthic habitat and communities and marine fauna</li> <li>• Potential significant impacts to the values of Marmion Marine Park.</li> </ul>
<b>Work and output required</b>	<ul style="list-style-type: none"> <li>• Provide a summary of significant residual impacts for the proposal for each potential impact listed above. For impacts to benthic habitats, these should be described as percentage of the total habitat type within Marmion Marine Park and should distinguish between impacts from the proposal and cumulative loss from other approved developments.</li> <li>• Investigate where the conservation values that are likely to be lost occur</li> </ul>

	<p>outside Marmion Marine Park, focusing on areas adjacent to current boundaries of Marmion Marine Park, and areas identified in the document <i>A Representative Marine Reserve System for Western Australia</i>.</p> <ul style="list-style-type: none"> <li>• If required, provide an overall offsets strategy for the proposal and include these in the PER.</li> </ul>
<b>Relevant policy/guidance documents</b>	<p>Department of Conservation and Land Management, 1992 <i>Marmion Marine Park Management Plan 1992-2002</i> National Parks and Nature Conservation Authority, Perth, Western Australia</p> <p>Government of Western Australia, 2011 <i>WA Environmental Offsets Policy</i>.</p> <p>Government of Western Australia, 2014 <i>WA Environmental Offset Guidelines</i>.</p> <p>Environmental Protection Bulletin No.1 <i>Environmental Offsets</i></p>

#### 4. Stakeholder consultation

The EPA expects that the proponent will consult with stakeholders who are interested in, or affected by, the proposal. This includes decision-making authorities (DMAs), other relevant State government departments and local government authorities, environmental non-government organisations, industry and the local community.

The proponent must document the stakeholder consultation undertaken and the outcomes, including any adjustments to the proposal and any future plans for consultation. This is to be addressed in a specific section of the PER document and, in addition, key outcomes of consultation are to be reported against the preliminary key environmental factors as relevant.

It is expected that as a part of the consultation with DMA's there will be discussion around each agency's specific regulatory approvals, and a demonstration that other factors can be managed by another regulatory body.

#### 5. Other factors or matters

During assessment of proposals, other factors or matters will be identified as relevant to the proposal, but not of significance to warrant further assessment by the EPA, or impacts can be regulated by other statutory processes to meet the EPA's objectives.

These factors do not require further work as part of the environmental review, or detailed discussion and evaluation in the PER document, although they must be included in the PER document in a summarised, tabular format noting that the PER document will be subject to public review.

In some circumstances other factors, while not being considered as preliminary key environmental factors, may require greater emphasis in the PER document. This may be due to high public interest or at the request of another stakeholder, so that the potential impacts and management measures associated with the other factor

are sufficiently articulated for the public review. For this assessment, the other factors that are to be concisely described and discussed in the PER document are:

- Marmion Marine Park values not identified as key environmental factors; and
- Amenity, particularly regarding the impacts of construction and operation noise and vibration on surrounding residences.

It is also important that the proponent be aware that other factors or matters may be identified during the course of the environmental review that were not apparent at the time that this ESD was prepared. If this situation arises, the proponent must consult with the EPA to determine whether these factors and/or matters are to be addressed in the PER document, and if so, to what extent.

## 6. Agreed assessment timeline

Table 4 sets out the timeline for the assessment of the proposal agreed between the EPA and the proponent. Proponents are expected to meet the agreed timeline, and in doing so, provide adequate, quality information to inform the assessment.

**Table 4 Assessment Timeline**

Key Stages of Assessment	Agreed Completion Date
EPA approval of ESD	26 September 2014
Proponent submits first adequate draft PER document	Early September 2015
Office of the Environmental Protection Authority (OEPA) provides comment on first adequate draft PER document	Mid October 2015 (6 weeks)
Proponent submits adequate revised draft PER document	November 2015
EPA authorises release of PER document for public review	January 2016 (2 weeks)
Proponent releases authorised PER document for public review	January 2016
Public review of PER document	March 2016 (8 weeks)
EPA provides Summary of Submissions	April 2016 (3 weeks)
Proponent provides Response to Submissions	June 2016
OEPA reviews the Response to Submissions	July 2016 (4 weeks)
OEPA assesses proposal for consideration by EPA	September 2016 (7 weeks)
Preparation and finalisation of EPA assessment report (including two weeks consultation on draft conditions with proponent and key Government agencies)	October 2016 (5 weeks)

If any stage in the agreed timeline is not met or inadequate information is submitted by the proponent, the timing for the completion of subsequent stages of the process will be revised. Equally, where the EPA is unable to meet an agreed completion date in the timeline, the proponent will be advised and the timeline revised.

The proponent should refer to EPA's EAG 6 – *Timelines for environmental assessment of proposals* for information regarding the responsibilities of proponents and the EPA for achieving timely and effective assessment of proposals.

## 7. Decision-making authorities

At this stage, the EPA has identified the authorities listed in Table 5 as DMAs for the proposal. Additional DMAs may be identified during the course of the assessment.

**Table 5 Decision-making authorities**

Decision-making authority	Relevant legislation
Minister for Transport	<i>Marine and Harbours Act 1981</i> <i>Jetties Act 1926</i>
Minister for Planning	<i>Planning and Development Act 2005</i>
Minister for Lands	<i>Land Administration Act 1997</i>
Minister for Environment	<i>Conservation and Land Management Act 1984</i>

## 8. Parallel processing

The EP Act constrains DMAs from making any decision that could have the effect of causing or allowing the proposal to be implemented. However, the proponent is encouraged to pursue other approvals in parallel with the EPA's assessment noting that the constraint only relates to making an approval decision. The EPA notes that a Metropolitan Region Scheme amendment is being progressed in parallel with this assessment.

## 9. PER document

When the EPA is satisfied with the standard of the PER document (refer to section 4.4 of EAG 6) it will provide written authorisation for the release of the document for public review. The proponent must not release the PER document for public review until this authorisation is provided.

The proponent is responsible for advertising the release and availability of the PER document in accordance with instructions that will be issued to the proponent by the EPA. The EPA must be consulted on the timing and details for advertising.

**Figure 1 – Development envelope**

