



Environmental Protection Authority

Mr Gavin Nichols
Department of Defence
PO Box 2188
ROCKINGHAM WA 6967

Your Ref:
Our Ref: CMS15182
Enquiries: Gordon Motherwell, 6145 0800
Email: Gordon.Motherwell@epa.wa.gov.au

Dear Mr Nichols

NOTICE UNDER SECTION 39A(3) *Environmental Protection Act 1986*

PROPOSAL: Maintenance Dredging of Garden Island Wharves
LOCATION: City of Rockingham
PROPONENT: Department of Defence
**DECISION: Referral Examined, Preliminary Investigations and Inquiries
Conducted. Proposal Not to be Assessed Under Part IV of EP
Act. Advice Given. (Appealable)**

The Environmental Protection Authority (EPA) understands that you wish to undertake the above proposal which has been referred to the EPA for consideration of its potential environmental impact.

This proposal raises a number of environmental issues. However, the overall environmental impact of the proposal is not so significant as to require assessment by the EPA, and the subsequent setting of formal conditions by the Minister for Environment under Part IV of the *Environmental Protection Act 1986*. Accordingly, the EPA has determined not to assess this proposal.

Nevertheless, the EPA has provided the attached advice to you as the proponent, and other relevant authorities, on the environmental aspects of the proposal.

The EPA's decision to not assess the proposal is open to appeal. There is a 14-day period, closing 4 July 2016, during which, on payment of the appeal fee, an appellant may ask the Minister to consider directing the EPA to reconsider this decision or conduct a formal assessment.

Information on the outcome of the appeals process is available through the Appeals Convenor's website, www.appealsconvenor.wa.gov.au, or by telephoning 6467 5190 after the closing date of appeals.

Yours sincerely

A handwritten signature in black ink, appearing to read 'A Sutton', with a horizontal line extending from the end of the signature.

Anthony Sutton
Director
Assessment and Compliance Division

Delegate of the Chairman of the Environmental Protection Authority
Under Notice of Delegation No. 33 published 17 December 2013

20 June 2016

Encl: Public Advice

**PUBLIC ADVICE UNDER SECTION 39A(7)
ENVIRONMENTAL PROTECTION ACT 1986**

MAINTENANCE DREDGING OF GARDEN ISLAND WHARVES

Summary

The Department of Defence proposes to undertake maintenance dredging of accumulated sediments alongside its marine infrastructure on the eastern side of Garden Island, in Cockburn Sound, to return naval waters to navigable depths. Approximately 1900 cubic metres (m³) of material is to be excavated from four locations in Careening Bay and 5480m³ of material from the Armaments Wharf in Sulphur Bay.

The proposed dredging method is to use a long reach excavator with bucket fitted with a cutter suction pump connected to floating pipeline. This will allow dredged material to be discharged direct to the seafloor via downpipe thereby minimising generation of turbidity in the water column.

The material to be dredged is predominantly fine sand and has been tested by the Proponent and considered suitable for unconfined disposal into deeper Naval waters within Cockburn Sound.

The location of the proposal, identified disturbance footprint and surrounding environmental sensitivities, including levels of ecological protection for Cockburn Sound, are shown in Figures 1 to 4.

The proposal was advertised for public comment and the Environmental Protection Authority (EPA) notes that no public comments were received.

The EPA has considered the proposal in accordance with the requirements of the *Environmental Protection Act 1986 (EP Act)* and the *Environmental Impact Assessment Administrative Procedures 2012*. In making its decision on whether to assess the proposal, the EPA considered the 10 aspects of the significance test as set out in clause 7 of the *Environmental Impact Assessment Administrative Procedures 2012*:

1. values, sensitivity and quality of the environment which is likely to be impacted;
2. extent (intensity, duration, magnitude and geographic footprint) of the likely impacts;
3. consequence of the likely impacts (or change);
4. resilience of the environment to cope with the impacts or change;
5. cumulative impacts with other projects;
6. level of confidence in the prediction of impacts and the success of proposed mitigation;
7. objects of the Act, policies, guidelines, procedures and standards against which a proposal can be assessed;
8. presence of strategic planning policy framework;

9. presence of other statutory decision-making processes which regulate the mitigation of the potential effects on the environment to meet the EPA's objectives and principles for EIA; and
10. public concern about the likely effects of the proposal, if implemented, on the environment.

In considering the potential direct and indirect impacts of the proposal on Benthic Communities and Habitat, Marine Environmental Quality and Marine Fauna the EPA has had particular regard to:

- the Proponent's Referral Documentation and the Environmental Monitoring and Management Plan/Dredge Monitoring Plan (EMMP, 25 May 2016, Rev 1) which informed the EPA's investigation of potential impacts and assessment of environmental factors;
- the Environmental Values and Environmental Quality Objectives designated for Cockburn Sound within the *State Environment (Cockburn Sound) Policy 2015* (SEP) and supporting documents;
- the importance of environmental monitoring in the Sound, particularly in light of a fish kill in November 2015, to demonstrate dredging or any other industrial activity has not had a direct impact on the benthic communities and habitats, marine fauna and the ecological and social values of the Sound;
- the potential impacts to **Benthic Communities and Habitat**, which are not likely to pose a significant impact due to:
 - the relatively small scale of the dredging impacts, the small volume of dredge material (7380m³) and relatively short duration of planned activities (no more than two weeks);
 - no direct impacts to seagrass from dredging or spoil disposal;
 - predicted indirect impacts to adjacent seagrass are negligible;
 - maintenance of record of turbid plume dispersal, direction and extent to confirm the predicted Zone of Influence (Zoi) and which habitats are exposed to turbidity from dredging activities;
 - opportunistic aerial photography of dredge plume; and
 - pre- and post-dredging monitoring of condition of nearest seagrass beds to confirm that no indirect impacts or loss of habitat has occurred.
- the potential impacts to **Marine Environmental Quality**, which are not likely to pose a significant impact due to:
 - the results of the sediment characterisation study which indicate, following investigation against the Cockburn Sound SEP Environmental Quality Criteria Reference Document (March, 2015) and National Assessment Guidelines for Dredging, that the dredge material is suitable for disposal in Cockburn Sound;
 - water quality monitoring before, during and after dredging;
 - sediment sampling before and after dredging, including tributyltin (TBT) and
 - monitoring of TBT in mussel flesh before, during and after dredging at the boundary of the nearest mussel farm lease and also within the Zone of Influence,
- the potential impacts to **Marine Fauna**, which are not likely to pose a significant impact due to:
 - maintenance of a marine fauna watch to monitor protected marine fauna and dead/dying fish;
 - temporarily ceasing of dredging in the event that protected marine fauna swim into harm's way or dead/dying fish (following notification of and

- direction from the Department of Fisheries) are observed in the vicinity of the dredging and spoil disposal activities;
- restriction of dredging to June–August to avoid disturbance of the Careening Bay Little Penguin colony during the nesting and chick rearing period, and to avoid affecting the success of the peak snapper and crab spawning event during the spring to summer period (September–January) in the northern parts of Cockburn Sound;
 - maintenance of daylight working hours and avoidance of evening “rafting area” near Diamantina Wharf in Careening Bay – to avoid interfering with the daily penguin migration to and from feeding grounds in Cockburn Sound; and
 - maintenance of night time working hours to avoid interruption of Sulphur Bay penguins from both Penguin and Garden islands foraging in the vicinity of Sulphur Bay during daylight hours.

In summary, although the proposal raises a number of environmental issues, the EPA considers its objectives for Benthic Communities and Habitat, Marine Environmental Quality and Marine Fauna can be met.

The EPA considers that the proposal is unlikely to have a significant impact on the environment and does not warrant formal assessment because of the relatively small footprint, no direct impacts on seagrass, and the limited duration of the proposal. In addition, the EPA notes that the proponent has prepared an Environmental Management and Monitoring Plan which consolidates its management measures, monitoring and reporting commitments.

Therefore the proposal can be adequately managed to meet the EPA’s objectives through the implementation of the proposal in accordance with the referral documentation and the EPA’s advice.

1. Environmental Factors

The EPA has identified the following preliminary environmental factors relevant to this proposal:

- a) Benthic Communities and Habitat;
- b) Marine Environmental Quality; and
- c) Marine Fauna.

There were no factors that were determined to be key environmental factors that would require formal assessment under Part IV of the EP Act. The EPA considers that there will be adequate mitigation of the potential effects on the environment through the implementation of the proposal in accordance with the referral documentation.

2. Relevant Policy and Guidance

The EPA has given due consideration to the following relevant published EPA policies and guidelines, noting that other published policies and guidelines pertaining to this proposal were considered but not determined to be relevant:

a. Benthic Communities and Habitat

- Environmental Assessment Guideline No. 3 (EAG3) - *Protection of Benthic Primary Producer Habitats in Western Australia's Marine Environment*, December 2009, Environmental Protection Authority Western Australia; and
- Environmental Assessment Guideline No. 7 (EAG7), *Marine Dredging Proposals*, September 2011, Environmental Protection Authority Western Australia.

b. Marine Environmental Quality

- Environmental Assessment Guideline No. 15 (EAG15), *Protecting the Quality of Western Australia's Marine Environment*, March 2015, Environmental Protection Authority Western Australia.
- *State Environment (Cockburn Sound) Policy 2015* (SEP) and supporting documents, Government of Western Australia.

3. Advice and Recommendations regarding Environmental Factors

a. Benthic Communities and Habitat

The EPA's objective for this factor is to maintain the structure, function, diversity, distribution and viability of benthic communities and habitats at local and regional scales.

The areas to be dredged adjacent to the wharves do not contain seagrass habitat and the spoil disposal sites have been chosen because of their depth (>15m) and distance from any seagrass meadows. The EPA notes that the Proponent, through the avoidance measures set out above, does not expect any direct impacts to seagrass habitat from the proposal.

Some seagrass habitat does exist, however, adjacent to the dredging areas. The Proponent has undertaken a Seagrass Risk Assessment and concludes that the risk of indirect impacts to adjacent seagrass beds from the short term turbidity plumes that are generated from this proposal will be negligible.

The EPA supports the Proponent's use of validated modelling from previous and larger maintenance dredging campaigns to predict the impacts from this smaller dredging proposal. This work has informed the predicted Zones of Influence (Zoi) for this proposal which show the most likely 'worse case' extent of turbidity plumes generated by dredging and disposal activities at both locations.

The proposed monitoring in the Environmental Monitoring and Management Plan/Dredge Monitoring Plan (EMMP) to demonstrate these predictions were accurate include:

- maintenance of record of turbid plume dispersal, direction and extent to confirm the predicted Zone of Influence (Zoi) and which habitats are exposed to turbidity from dredging activities;
- opportunistic aerial photography of dredge plumes; and
- pre- and post-dredging monitoring of condition of nearest seagrass beds to confirm that no indirect impacts or loss of habitat has occurred.

The EPA expects the Proponent to implement the seagrass monitoring described in the EMMP (25 May 2016, Rev 1) consistent with the Manual of Standard Operating Procedures for Environmental Monitoring against the Cockburn Sound Environmental Quality Criteria (EPA, 2005).

Implementation of this EMMP will confirm the reliability of predicted impacts to benthic communities and habitat (including the Zols) as well as inform the public as to the realised extent of the turbid plume.

Should the monitoring set out above demonstrate that the extent of the turbid plume is beyond the predicted Zols, the EPA expects that the Proponent will make this information publically available as soon as practicable and, if significantly different, undertake another Seagrass Risk Assessment that accounts for any dredging related pressures not predicted beforehand.

Summary

Having regard to:

- the small scale and short duration of the dredging program; and
- the extent to which the Proponent has sought to avoid, and then minimise the level of impact to seagrass habitat,

the EPA considers that the proposal, if implemented consistent with the referral documentation and the EPA's advice, is not likely to compromise the EPA's objective for the environmental factor of Benthic Communities and Habitat.

b. Marine Environmental Quality

The EPA's objective for this factor is to maintain the quality of water, sediment and biota so that the environmental values, both ecological and social, are protected.

A sediment characterisation study was completed by the Proponent to determine the suitability of dredged material for unconfined disposal at the selected spoil grounds in Cockburn Sound. Environmental quality criteria (EQC) from both the National Assessment Guidelines for Dredging (Commonwealth of Australia, 2009) and the EQC Reference Document for Cockburn Sound (EPA, 2015) were used to assess suitability for disposal.

The EPA notes from this analysis there was a level of TBT contamination in the area proposed to be dredged adjacent to the wharves in Careening Bay. However, subsequent elutriate testing of composite samples of these sediments reported concentrations below the Environmental Quality Guideline and Initial Management Triggers applicable to both the Moderate Ecological Protection Areas (MEPA) and High Ecological Protection Areas (HEPA) as provided in the EQC Reference Document for Cockburn Sound (March, 2015). The EPA therefore considers that the dredge material is suitable for disposal in Cockburn Sound and is unlikely to impact the ecosystem health or seafood safe for eating within Cockburn Sound.

The proposed monitoring in the EMMP to address potential impacts to marine environmental quality includes:

- water quality monitoring before, during and after dredging;
- sediment sampling before and after dredging (including TBT); and
- monitoring of TBT in mussel flesh before, during and after dredging at the boundary of the nearest mussel farm lease and also within the Zol.

The EPA expects the Proponent to implement the water quality, sediment quality and biological monitoring described in the Environmental Monitoring and Management

Plan/Dredge Monitoring Plan (25 May 2016, Rev 1) consistent with the Manual of Standard Operating Procedures for Environmental Monitoring against the Cockburn Sound Environmental Quality Criteria (EPA, 2005).

Implementation of this EMMP will demonstrate that the Careening Bay MEPA and broader HEPA for Cockburn Sound, as spatially defined in Schedule 2 of the SEP (Figure 2), are being met. This will provide the community with confidence that the ecological and social values of Cockburn Sound, particularly ecosystem health and waters safe for primary contact recreation and consumption of seafood, are not being impacted by this proposal.

Summary

Having regard to:

- the small scale and short duration of the dredging program;
- the suitability of dredge material for disposal in Cockburn Sound; and
- proposed monitoring of water quality, sediment quality and the TBT contamination issue,

the EPA considers that the proposal, if implemented consistent with the referral documentation and the EPA's advice, is not likely to compromise the EPA's objective for the environmental factor of Marine Environmental Quality or the values and objectives described in the State Environment (Cockburn Sound) Policy (Government of Western Australia, 2015).

c. Marine Fauna

The EPA's objective for this factor is to maintain the diversity, geographic distribution and viability of fauna at the species and population levels.

The EPA notes that through appropriate stakeholder consultation the Proponent has identified key marine fauna and fisheries species relevant to this proposal and developed an EMMP to address potential impacts to these species from the dredging and spoil disposal activities.

For example the Proponent has addressed key recommendations from the Department of Parks and Wildlife (DPaW) in its specific monitoring and mitigation measures to avoid and minimise impacts to Little Penguins and other marine fauna. These measures include:

- maintenance of a marine fauna watch – to observe and record marine fauna abundance, distribution and behaviour in the vicinity of the dredging works;
- should protected species (cetaceans, pinnipeds or Little Penguins) swim within 50 metres of the operating dredgehead, operations will cease temporarily until the animal has been observed to move out of that exclusion zone and has not been seen within that zone for 15 minutes, at which time operations will recommence;
- should dead or injured protected species be observed within 100 metres of the dredging works, DPaW will be immediately notified and operations will cease temporarily pending advice from DPaW;
- restriction of dredging to June–August to avoid disturbance of the Careening Bay Little Penguin colony during the nesting and chick rearing period;

- maintenance of daylight working hours and avoidance of evening “rafting area” near Diamantina Wharf in Careening Bay – to avoid interfering with the daily penguin migration to and from feeding grounds in Cockburn Sound; and
- maintenance of night time working hours in Sulphur Bay if dredging necessary between June–August to avoid interruption of penguins from both Penguin and Garden islands foraging in the vicinity of Sulphur Bay during daylight hours

The Proponent has also addressed key recommendations from the Department of Fisheries (DoF) in its specific monitoring and mitigation measures to avoid and minimise impacts to important recreational and commercial fishing species such as Blue Swimmer Crab and Pink Snapper. These measures include:

- restriction of dredging to June–August to avoid affecting the success of the peak snapper and crab spawning event during the spring to summer period (September–January) in the northern parts of Cockburn Sound;
- maintenance of a marine fauna watch to monitor for dead/dying fish:
 1. in the event that dead or dying fish are observed in the water within the Zone of Influence (Zoi) of the dredging and disposal works, the Department of Defence (DoD) must immediately report the sighting to the Department of Fisheries (Fishwatch 1800 815 507).
 2. The DoF (Fish Health Unit) will investigate the sighting and advise the Director General (or approved delegate) of the DoF;
 3. The Director General (or approved delegate) of the DoF will form a view, on balance, as to whether the dredging and/or disposal works may be directly or indirectly impacting fish or their environment, and will notify the DoD.
 4. The Director General (or approved delegate) of the DoF may direct the DoD to suspend the dredging and disposal works pending further investigation. If this investigation reasonably concludes that the dredging campaign does not pose an unacceptable level of risk to fish and their environment, the Director General (or approved delegate) of the DoF will advise the DoD that it may recommence dredging and/or disposal;
 5. If dead or dying fish are observed within the vicinity of the dredging and disposal works, but outside the predicted Zone of Influence, the DoF will notify the DoD.

The EPA expects that the Proponent use dedicated and suitably trained Marine Fauna Observers to monitor protected marine fauna and dead/dying fish during dredging and spoil disposal activities.

The EPA also notes that the threat of impacts from introduced marine pests will be managed in accordance with the DoF’s established risk assessment guidelines for vessels as well as DoF’s other relevant marine biosecurity requirements.

Summary

Having regard to:

- the small scale and short duration of the dredging program;
- the proposed timing of dredging activity; and
- monitoring and mitigation measures, as recommended through appropriate stakeholder consultation, to avoid and minimise impacts to key marine fauna and fisheries species,

the EPA considers that the proposal, if implemented consistent with the referral documentation, the EMMP and the EPA's advice, is not likely to compromise the EPA's objective for the environmental factor of Marine Fauna.

4. Other Advice regarding implementation of the proposal

The EPA encourages proponents and regulators to make environmental monitoring data publically available. This degree of transparency is particularly important for an area such as Cockburn Sound which has many different and potentially competing uses and is highly valued by the community.

By making the monitoring data for this proposal publically available it will provide the Proponent and community with confidence that:

1. the environmental and social values of Cockburn Sound are not being impacted by the maintenance dredging; and
2. marine fauna (including fish, crabs and penguins) are not being impacted by the proposal.

The EPA expects, therefore, that the Proponent will make the results from the monitoring required by the EMMP, and any contingency measures undertaken, publically available on its website as soon as practicable. The EPA also expects that these results will be provided to the Cockburn Sound Management Council.

Attachments

- Figure 1 – Proposal Location
- Figure 2 – High, Moderate and Low Ecological Protection Areas in Cockburn Sound
- Figure 3 – Careening Bay map (dredge areas, spoil grounds, environmental sensitivities and Zones of Influence)
- Figure 4 – Sulphur Bay map (dredge areas, spoil grounds, environmental sensitivities and Zones of Influence)
- References

Figure 1 – Proposal Location



Figure 1 Project location showing HMAS Stirling, Careening Bay, Armaments Wharf and the naval waters boundary

Figure 2 - High, Moderate and Low Ecological Protection Areas in Cockburn Sound

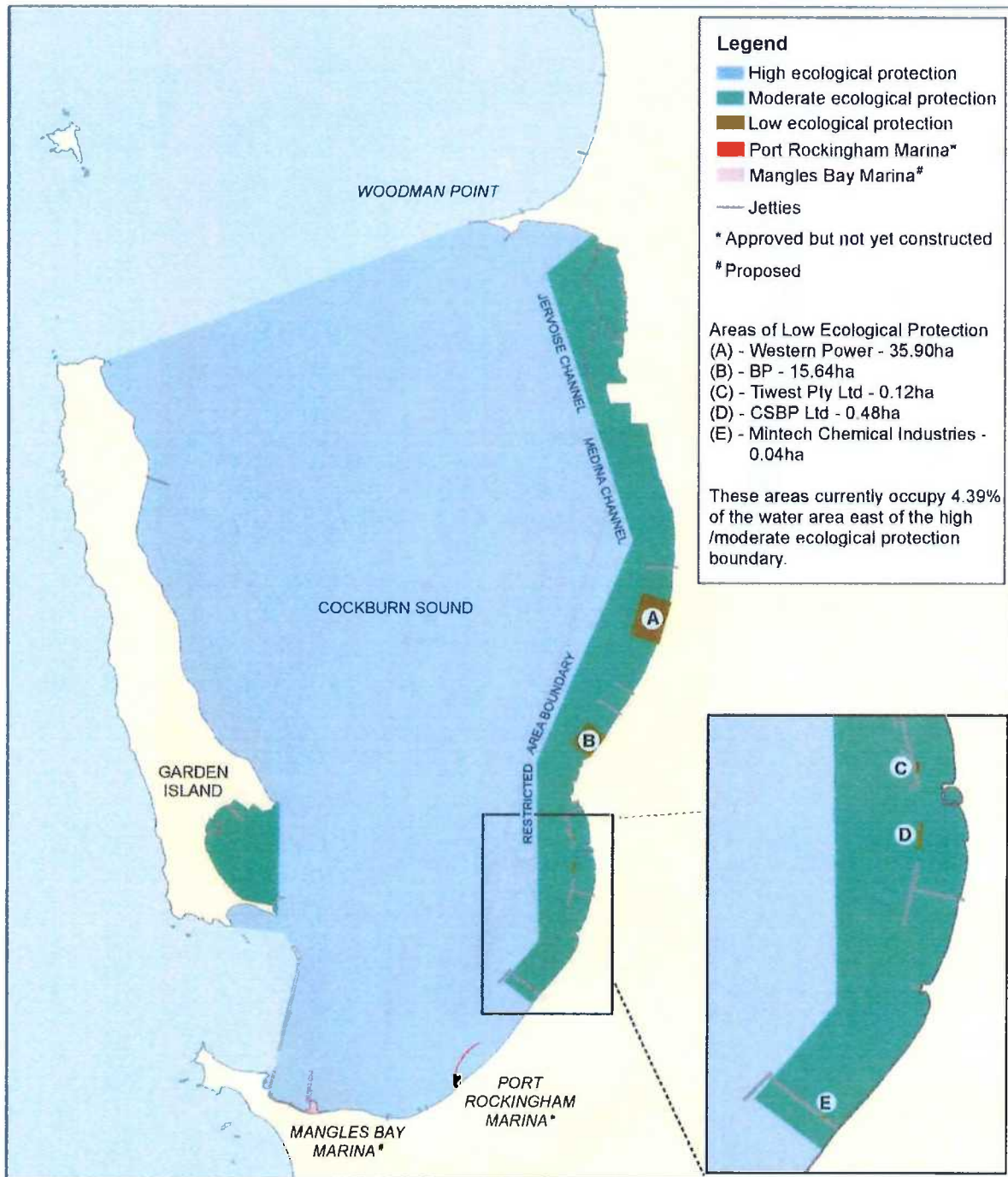
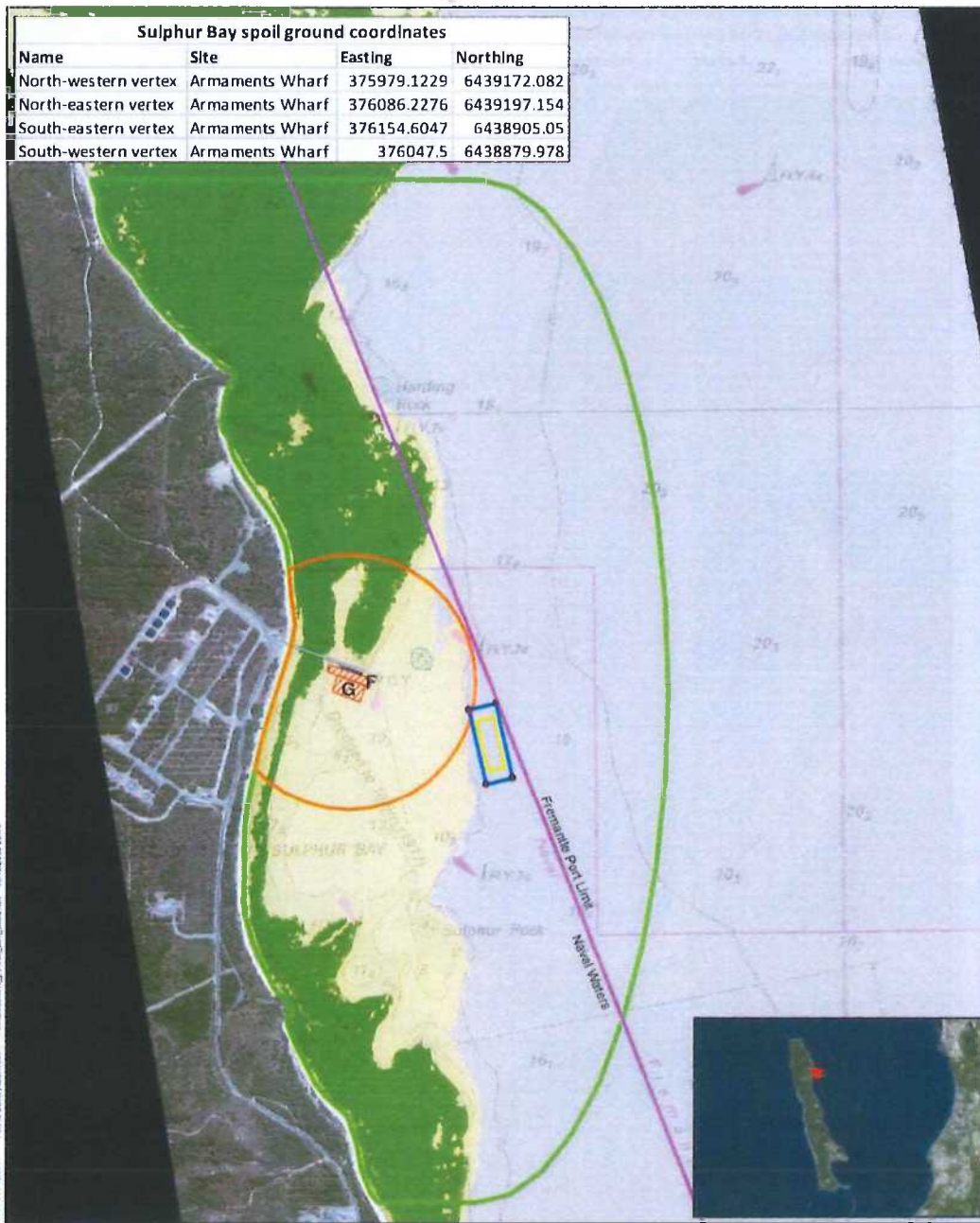


Figure 3 – Careening Bay map (dredge areas, spoil grounds, environmental sensitivities and Zones of Influence)



Figure 4 – Sulphur Bay map (dredge areas, spoil grounds, environmental sensitivities and Zones of Influence)



Author: Aurecon
 File: C:\Users\jgibson\Documents\A3_jgibson\BWP_11192016_09_44

Legend

- Sulphur Bay spoil ground coordinates
- Zoi - dredging
- BPPH Classes
- Contractor confined spoil ground
- Zoi - disposal
- Seagrass communities
- Declared spoil ground size
- Proposed Dredge Areas
- Silt (<10m)
- Fremantle Port Link
- Existing Spoil Ground
- Fine Sediment (>10m)



Date: 6/04/2016 Version: 1 Job No:
 Coordinate System: GDA 1984 MGA Zone 50

Department of Defence
H.M.A.S Stirling Maintenance Dredging
 Figure 2: Armaments Wharf maintenance dredging locations, offshore disposal sites and zones of influence

References

- EPA (2009). *Environmental Assessment Guideline No.3. - Protection of Benthic Primary Producer Habitats in Western Australia's Marine Environment*. Environmental Protection Authority, Perth, Western Australia, December 2009.
- EPA (2011). *Environmental Assessment Guideline No. 7 for Marine Dredging Proposals*. Environmental Protection Authority, Perth, Western Australia, September 2011.
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- EPA (2005a). *Environmental Quality Criteria Reference Document for Cockburn Sound. A supporting document for the State Environmental (Cockburn Sound) Policy 2005*. Environmental Protection Authority Report 20. Environmental Protection Authority, Perth, WA.
- EPA (2005b). *Manual of Standard Operating Procedures for Environmental Monitoring against the Cockburn Sound Environmental Quality Criteria. A supporting document for the State Environmental (Cockburn Sound) Policy 2005*. Environmental Protection Authority Report 21. Environmental Protection Authority, Perth, WA.
- Government of WA (2005). *State Environmental (Cockburn Sound) Policy 2005*. Government of Western Australia, Perth, Western Australia.