Published on 12 July 2007 Statement No. 743

STATEMENT THAT A PROPOSAL MAY BE IMPLEMENTED (PURSUANT TO THE PROVISIONS OF THE *ENVIRONMENTAL PROTECTION ACT 1986*)

DREDGING PROGRAM FOR THE CAPE LAMBERT PORT UPGRADE

Proposal: A capital and maintenance dredging program to remove up to 2.5 million cubic metres of marine sediment from within State Waters adjacent to Cape Lambert, and disposal of up to 2 million cubic metres of uncontaminated dredge material to Spoil Ground 1, as defined in schedule 1 of this statement.

Proponent: Robe River Iron Associates

Proponent Address: Level 22, Central Park, 152–158 St George's Terrace, PERTH WA 6000

Assessment Number: 1672

Report of the Environmental Protection Authority: Bulletin 1254

The proposal referred to in the above report of the Environmental Protection Authority may be implemented. The implementation of that proposal is subject to the following conditions and procedures:

1 Proposal Implementation

1-1 The proponent shall implement the proposal as documented and described in schedule 1 of this statement subject to the conditions and procedures of this statement.

2 Proponent Nomination and Contact Details

2-1 The proponent for the time being nominated by the Minister for the Environment under sections 38(6) or 38(7) of the *Environmental Protection Act 1986* is responsible for the implementation of the proposal.

2-2 The proponent shall notify the Chief Executive Officer of the Department of Environment and Conservation (CEO) of any change of the name and address of the proponent for the serving of notices or other correspondence within 30 days of such change.

3 Time Limit of Authorisation

3-1 The authorisation to implement the proposal provided for in this statement shall lapse and be void within five years after the date of this statement if the proposal to which this statement relates is not substantially commenced.

3-2 The proponent shall provide the CEO with written evidence which demonstrates that the proposal has substantially commenced on or before the expiration of five years from the date of this statement.

4 Compliance Reporting

4-1 The proponent shall submit to the CEO environmental compliance reports annually reporting on the previous twelve-month period, unless required by the CEO to report more frequently.

4-2 The environmental compliance reports shall address each element of an audit program approved by the CEO and shall be prepared and submitted in a format acceptable to the CEO.

4-3 The environmental compliance reports shall:

1. be endorsed by signature of the proponent's Managing Director or a person, approved in writing by the CEO, delegated to sign on behalf of the proponent's Managing Director;

2. state whether the proponent has complied with each condition and procedure contained in this statement;

3. provide verifiable evidence of compliance with each condition and procedure contained in this statement;

4. state whether the proponent has complied with each key action contained in any environmental management plan or program required by this statement;

5. provide verifiable evidence of conformance with each key action contained in any environmental management plan or program required by this statement;

6. identify all non-compliances and non-conformances and describe the corrective and preventative actions taken in relation to each non-compliance or non-conformance;

7. review the effectiveness of all corrective and preventative actions taken; and

8. describe the state of implementation of the proposal.

4-4 The proponent shall make the environmental compliance reports required by condition 4-1 publicly available in a manner approved by the CEO.

5 Coral Protection

5-1 The proponent shall not conduct any dredging and/or spoil disposal activities during the predicted autumn coral mass spawning periods in March and April in any year.

Note: The dates for the predicted autumn coral mass spawning periods shall be determined in consultation with the Department of Environment and Conservation.

5-2 In the event that dredging and/or spoil disposal activities are deferred or delayed such that these activities extend into the spring season (September-November) in any year, prior to the commencement of dredging and/or spoil disposal, the proponent shall prepare a Coral Spawning Monitoring Plan in consultation with the Department of Conservation and Environment.

The objective of this Plan is to identify and predict significant coral spawning periods which could occur during the dredging program.

This Plan shall include:

1. identification of dominant coral species in the area encompassed by the outer boundary of the predicted zone of influence of dredging and spoil disposal;

2. identification of other less dominant corals using genus level grouping in the area of the zone of influence of dredging and spoil disposal;

3. the protocols for preliminary investigations to determine the sex of corals;

4. protocols and procedures for sampling of corals to determine if they will spawn;

5. methodology to identify, and if required, to relocate corals monitored;

6. establishment of a definition of significance which will be used as a basis for determining whether corals are deemed to be spawning;

7. the reporting of results and predicted coral spawning periods; and

8. the timing of the reporting of results.

5-3 Subject to condition 5-2, the proponent shall prepare a report prior to each predicted significant coral spawning period, including:

1. the spring coral mass spawning period(s) of September to November; and

2. periods over which there is predicted to be a significant spawning of any dominant or subdominant coral species,

analysing the results arising from the monitoring of coral required by condition 5-2, and shall submit this report to the Department of Environment and Conservation.

5-4 Notwithstanding the requirements of condition 5-1, the proponent shall not conduct dredging and/or spoil disposal activities during:

1. the predicted spring coral mass spawning periods based on the results of the Coral Spawning Monitoring Plan required by condition 5-2; or

2. the spawning periods for any dominant or subdominant coral species based on the results of the Coral Spawning Monitoring Plan required by condition 5-2,

unless the proponent can demonstrate to the requirements of the Minister for the Environment acting on advice of the Department of Environment and Conservation that the corals within the area of influence of the dredge or spoil plumes are not significantly participating in a coral spawning event referred to in points 1 and 2 above.

5-5 At least 14 days prior to the commencement of dredging and/or spoil disposal activities, the proponent shall commence monitoring coral health and shall continue this monitoring on a fortnightly basis as set out in the Coral Community Condition Monitoring and Management Plan required by condition 10-1 to the requirements of the Minister for the Environment.

This Plan shall include prior baseline measurements of coral community health for:

1. potential impact monitoring sites located in the predicted zones of impact and stress shown in figure 3 of schedule 1; and

2. appropriately located reference sites accompanied by a rationale for the selection of each site.

5-6 The proponent shall continue monitoring coral health as referred to in condition 5-5 during dredging and/or spoil disposal activities and for at least two months after cessation of all dredging and spoil disposal activities.

5-7 Subject to condition 5-8, the proponent shall report on coral health each fortnight to the Department of Environment and Conservation within 72 hours following completion of each fortnightly monitoring survey for the duration of coral health monitoring, with the first report being submitted within 72 hours following the completion of the first pre-dredging monitoring survey.

5-8 If at any time during dredging and/or spoil disposal activities, net coral mortality at any potential impact monitoring site within the predicted zone of impact shown in figure 3 of schedule 1 exceeds the 'limit' level of 10 per cent, the proponent shall immediately cease all dredging and/or spoil disposal activities which are contributing to the observed mortality at the site(s) where that 'limit' level is exceeded, and shall report the exceedence to the Department of Environment and Conservation within 24 hours.

5-9 If at any time during dredging and/or spoil disposal activities, net coral mortality is detected which is attributable to the proposal at any potential impact monitoring site within the predicted zone of stress or influence shown in figure 3 of schedule 1, the proponent shall immediately cease all dredging and/or spoil disposal activities which are contributing to the observed mortality at the site(s) and shall report the coral mortality to the Department of Environment and Conservation within 24 hours.

5-10 The proponent shall not recommence dredging and/or spoil disposal activities following any cessation required by conditions 5-8 and 5-9 until such time as:

1. the proponent has sought advice from the Dredging Management Group (See procedure 3); and

2. the proponent has prepared and submitted a report on that advice to the Department of Environment and Conservation,

and it can be demonstrated to the requirements of the Minister for the Environment that the recommencement of such activities will not contribute to further net mortality of corals within predicted zones of impact, stress and influence as specified in conditions 5-8 and 5-9.

5-11 If for any reason, the fortnightly coral health monitoring surveys were not undertaken during any four-week period (i.e. two consecutive coral health monitoring surveys) at any potential impact monitoring site, the proponent shall immediately cease dredging and disposal activities which may affect water quality at that site until such time as the level of net coral mortality at that site can be assessed and demonstrated to be no greater than the 'limit' levels specified in conditions 5-8 and 5-9.

5-12 The proponent shall report any cessation of dredging and/or disposal activities and subsequent recommencements which occur as a result of meeting the requirements of conditions 5-8, 5-9 and 5-11 to the Department of Environment and Conservation within 24 hours.

6 Benthic Primary Producer Habitat (BPPH)

6-1 Prior to commencement of dredging and/or spoil disposal activities, the proponent shall conduct a field survey to determine the current distribution of the different Benthic Primary Producer Habitats (BPPH) within a defined management unit(s) for all areas encompassed by the boundary of the predicted zone of influence shown in figure 3 of schedule 1, to the requirements of the Minister for the Environment.

In the survey, the proponent shall:

1. Establish the location, spatial extent and per cent cover of the BPPHs in the area; and

2. Record the biota within the existing BPPH communities to species level, where practicable.

6-2 Prior to commencement of dredging and/or spoil disposal activities, the proponent shall conduct a survey to determine both the original historical* distribution of BPPHs within a defined management unit(s), and the cumulative BPPH loss resulting from human activity, to the requirements of the Minister for the Environment.

The survey shall:

1. be carried out in accordance with *Benthic Primary Producer Habitat Protection*, Guidance Statement No. 29, Environmental Protection Authority (June 2004).

2. employ field-verified benthic habitat mapping data; historical aerial photographic records; previous environmental review documents; management plans; monitoring programs, and other relevant information to assist in determining the original extent of BPPH and historical losses; and

3. provide data to determine best, most probable and worst-case estimates of BPPH loss.

6-3 The proponent shall determine best, most probable and worst-case estimates of the historical cumulative loss of Benthic Primary Producer Habitat (BPPH) and state the assumptions used to determine each estimate.

* Note: "Historical distribution of BPPHs" is defined as "the original distribution of BPPHs prior to European impact".

6-4 Where there are scientific difficulties in determining the taxonomy of BPPHs to species level, the proponent shall obtain the advice of appropriate scientific authorities on the practicability of a determination to that level, to the requirements of the Minister for the Environment.

7 Dredging and Spoil Disposal

7-1 Prior to commencement of dredging and/or spoil disposal activities, the proponent shall prepare a Dredging and Spoil Disposal Management Plan, to the requirements of the Minister for the Environment.

Note: The Environmental Protection Authority expects that advice of the following agencies will be obtained:

- Commonwealth Department of the Environment and Heritage;
- Department for Planning and Infrastructure (Maritime Division); and
- Department of Fisheries.

The objectives of this Plan are to:

- establish a quantitative benthic habitat map for marine areas encompassed by the outer boundaries of the predicted zone of influence;

- field-verify the zones of predicted impact, stress and influence of turbidity plumes and sedimentation deposition associated with dredging and dredge spoil disposal;

- minimise the impact on non-hard coral communities/habitats within the actual zone of influence of this dredging and spoil disposal campaign;

- protect the hard coral communities/habitats located outside the predicted zones of impact and stress from the effects of sediment deposition, deterioration in light climate, contamination and other impacts associated with dredging and spoil disposal;

- minimise proposal related impacts on turtles; and

- protect the long-term values of seafood quality, aquaculture production, recreational values and existing industrial water supply (social values) from the environmental effects of dredging and spoil disposal.

Note the term "sensitive marine ecological attributes" means "hard coral, seagrass, soft coral/sponge and mangrove communities/habitat, and biota associated with these communities/habitats."

This Plan shall:

1. identify and spatially define the different sensitive marine ecological attributes within the predicted zone of influence at Cape Lambert in liaison with the Department of Environment and Conservation;

2. address monitoring requirements and management measures to protect hard coral communities and habitats outside the predicted zones of impact and stress and social values of Cape Lambert and minimise the impacts on non-hard coral communities/habitats consistent with the operational requirements of the Port, and any other areas within the potential zone of influence of the environmental effects of dredging and spoil disposal;

3. identify the ecological and social values to be protected as described in *Pilbara Coastal Water Quality Consultation Outcomes: Environmental Values and Environmental Quality Objectives,* Department of Environment (March 2006);

4. identify and spatially define appropriate environmental quality objectives to be met during dredging and spoil disposal activities;

5. establish the environmental quality criteria to protect social values in the long term;

6. describe the type of dredge(s) and their mode of operation;

7. determine most probable and worst-case timing and duration of dredging and spoil disposal activities and contingencies for unforseen delays;

8. contain maps showing the predicted zones of impact, stress and influence arising from the dredging and spoil disposal activities on water quality and sensitive benthic receptors;

9. using information gathered to meet the requirements of point 8 above, specify appropriate reference sites outside the predicted zones of influence of dredging and spoil disposal activities on water quality and coral health;

10. specify potential impact sites adjacent to and between the source(s) of turbidity and hard coral communities/habitats which require protection from the effects of dredging and spoil disposal activities to monitor the effects of this dredging and spoil disposal campaign on hard coral communities/habitats;

11. specify site/s to monitor the effects of this dredging and spoil disposal campaign on non-hard coral communities/habitats;

12. set out procedures, including frequency, probable flight paths and methods of recording information (e.g. photography), for aerial and/or other remote monitoring of the plume and the appropriateness of reference sites for the duration of dredging and spoil disposal activities and for a period after the completion of dredging and spoil disposal to confirm the time taken and area required for dispersion of residual turbidity;

13. set out the procedures for monitoring water quality at appropriate reference sites and potential impact sites;

14. set out the procedures for the deployment of an in-situ data logger throughout the dredging period at the Bezout Island, Bells Reef and Cape Lambert inshore coral impact sites, calibrated to provide an estimate of suspended sediment or sedimentation for continuous monitoring;

15. set out the procedure for the monitoring of sediment particle size at a network of sites adjacent to and at increasing distances from the dredging area;

16. specify the management actions and contingency measures to be implemented in the event of exceedance of the levels specified in conditions 5-8 and 5-9 (See schedule 2);

17 set out management measures and procedures to minimise impacts on turtles during dredging and spoil disposal activities; and

18. specify reporting procedures.

7-2 The proponent shall implement the Dredging and Spoil Disposal Management Plan required by condition 7-1.

7-3 The proponent shall make the Dredging and Spoil Disposal Management Plan required by condition 7-1 publicly available, in a manner approved by the CEO.

8 Water Quality Monitoring

8-1 During dredging and spoil disposal activities, at intervals not exceeding three days between measurements, the proponent shall undertake water quality monitoring at potential impact sites and appropriate reference sites as specified in the Dredging and Spoil Disposal Management Plan required by condition 7-1, to the requirements of the Minister for the Environment.

The objectives of this monitoring are to:

- calibrate and validate relevant numerical models of turbidity and sediment depositions generated through dredging and spoil disposal;
- establish and document the extent and severity of turbidity plumes resulting from dredging and spoil disposal associated with this proposal in the waters off-shore from Cape Lambert;
- facilitate the establishment of relationships between coral health and dredging-related water quality/sediment deposition regimes; and
- establish relationships between total suspended solids/turbidity and light attenuation coefficient in dredging and spoil disposal-induced turbidity plumes.

8-2 The proponent shall take water quality measurements at "near surface", "near bottom" and at other appropriate depths within the water column, where practicable, to the requirements of the Minister for the Environment.

The parameters to be measured shall include:

1. turbidity (in NTUs);
2. total suspended solids (mg/L);
3. light attenuation coefficient;
4. dissolved oxygen (mg/L);
5. potential contaminants in the water column (metals and tributyl tin);
6. pH; and
7. depth in the water column at which each measurement is taken.

Total suspended solids (mg/L) and potential contaminants in the water column (metals and tributyl tin) can be measured less frequently, at intervals not exceeding three weeks.

8-3 The proponent shall report the results of monitoring required by condition 8-1 to the Department of Environment and Conservation for the duration of dredging and spoil disposal activities, at monthly intervals on the same day of each successive calendar month, with the first report being submitted one month after the commencement of dredging.

8-4 The proponent shall prepare a report analysing the results of water quality monitoring required by condition 8-1 against the objectives outlined in condition 8-1 which shall be submitted to the Department of Environment and Conservation.

9 Non-Indigenous Marine Species and Ballast Water

9-1 Prior to commencement of dredging, one of the following management arrangements shall be adopted:

Management arrangement 'A'

Within 48 hours following entry of the dredge and any other equipment or vessels associated with the proposal into the Port of Cape Lambert, the proponent shall have an inspection carried out by an appropriately qualified marine scientist to ensure that:

1. there is no sediment in the dredging equipment; and

2. any fouling organisms on or in any vessels, dredging equipment or ballast water associated with the proposal do not present any social, environmental or economic risk to the marine waters and marine environments within and surrounding Cape Lambert.

or

Management arrangement 'B'

Immediately prior to the arrival of the dredge, associated equipment and vessels, the owner/operator of the equipment shall undertake dry-dock cleaning of all vessels and associated equipment, followed by an inspection carried out by an appropriately qualified marine scientist accompanied by a Department of Fisheries Officer to ensure that:

1. there is no sediment in the dredging equipment; and

2. any fouling organisms on or in any vessels, dredging equipment or ballast water have been removed or treated. Any remaining organisms which cannot be removed or treated do not present any social, environmental or economic risk to the marine waters and marine environments within and surrounding Cape Lambert.

9-2 Prior to the commencement of dredging, the proponent shall report to the Department of Environment and Conservation on the results of the inspection or cleaning referred to in the management arrangements 'A' or 'B' required by condition 9-1.

9-3 The proponent shall manage any sediment or fouling organisms found as a consequence of the inspection required by condition 9-1, to the timing and other requirements of the Minister for the Environment.

9-4 If, following the completion of dredging and disposal activities, the dredging equipment is to be transferred to another location within Western Australia's territorial waters, the proponent shall undertake an investigation employing an appropriately qualified marine scientist to identify the presence of and/or the potential for non-indigenous marine species, to the requirements of the Minister for the Environment.

9-5 In the event that any non-indigenous marine species are detected at any stage, the proponent shall put in place an appropriate Non-Indigenous Marine Species Management Strategy to ensure that non-indigenous marine species are not introduced or transferred to any locations within Western Australia's territorial waters, to the requirements of the Minister for the Environment.

Note: In the preparation of the report required by condition 9-2, and in the development of any actions required by conditions 9-1, and 9-3 to 9-5, it is expected that the advice of the following agencies will be obtained:

- Department of Fisheries; and
- Australian Quarantine Inspection Service.

10 Coral Community Condition

10-1 Prior to the commencement of dredging or spoil disposal activities, the proponent shall prepare a Coral Community Condition Monitoring and Management Plan, to the requirements of the Minister for the Environment on advice from the DEC.

The objectives of this Plan are to:

- establish the baseline health condition of coral prior to any dredging or spoil disposal activities undertaken as part of this proposal as indicated by the extent of living coral at appropriate reference and monitoring sites;
- monitor and assess any changes in the health of corals and coral communities (by measuring mortality and sub-lethal stress as appropriate), as indicated by the net extent of coral mortality which occurs subsequent to the commencement of dredging and/or spoil disposal activities; and
- provide the framework to manage dredging and spoil disposal such that the requirements of conditions 5-8 and 5-9 are met.

This Plan shall include the following:

1. the location of appropriate coral health potential impact monitoring sites and reference sites;

2. protocols and procedures for monitoring and quantitatively determining the extent of coral mortality using fortnightly coral health monitoring surveys at all of the potential impact monitoring sites;

3. demonstration that the monitoring required by the Plan has Statistical Power of 0.8 or greater to detect changes in coral mortality specified in schedule 1 with at least 95 per cent confidence;

4. provision for pre-dredging field surveys at appropriate potential impact and reference sites to be conducted at least two weeks prior to the commencement of dredging, establishing the baseline conditions in terms of live coral cover at those sites;

5. reporting procedures for the regular fortnightly coral health monitoring surveys; and

6. the results of pre-dredging juvenile recruitment surveys at all potential impact sites and related reference sites.

10-2 The proponent shall provide the results of the pre-dredging field surveys referred to in condition 10-1, point 4 above, to the Department of Environment and Conservation before dredging commences.

10-3 During dredging and spoil disposal activities, notwithstanding conditions 5-6 to 5-11, the proponent shall undertake regular fortnightly coral health monitoring at all potential impact sites and appropriate reference sites, in such a manner as set out in the Coral Community Condition Monitoring and Management Plan required by condition 10-1.

10-4 Within three days following each monitoring of coral health required by condition 10-3, the proponent shall determine the gross extent of coral mortality at each potential impact monitoring site and at each reference site, based on the survey data, to the requirements of the Minister for the Environment.

Note: The gross extent of coral mortality is calculated as the total reduction in cover of living coral at a site occurring after the date of establishment of the original extent of live coral cover (See condition 10-1), expressed as a percentage of the established original extent of live coral cover at that site.

10-5 In the event that gross coral mortality at any potential impact monitoring site, as determined in accordance with condition 10-4, is greater than the limits specified in conditions 5-8 and 5-9, the proponent shall determine the net extent of coral mortality at each potential impact monitoring site, to the requirements of the Minister for the Environment.

Note: The net extent of coral mortality at each potential impact monitoring site is calculated by subtracting the gross percentage of mortality measured at the appropriate reference site(s) from the gross percentage of mortality at the potential impact monitoring site.

10-6 The proponent shall continue the fortnightly coral health surveys at potential impact sites for the duration of dredging and spoil disposal, and for at least two months after completion of dredging and spoil disposal.

10-7 Within twenty-four hours of calculating the net extent of coral mortality referred to in condition 10-5, the proponent shall compare the net extent of coral mortality at each potential impact monitoring site with limits specified in conditions 5-8 and 5-9, to the requirements of the Minister for the Environment.

11 Long Term Coral Habitat

11-1 Prior to the commencement of dredging and spoil disposal activities, the proponent shall prepare a Long Term Coral Habitat Monitoring and Management Plan, to the requirements of the Minister for the Environment.

Note: The Environmental Protection Authority expects that advice of the following agencies will be obtained:

- Commonwealth Department of the Environment and Heritage; and
- Department of Fisheries.

The objectives of this Plan are to:

- establish pre-dredging baseline conditions of coral reef location, spatial extent, biodiversity and community structure (e.g. community composition and per cent cover of coral communities), and the different scleractinian coral communities currently present at appropriate reference and monitoring sites;

- monitor the effects of dredging and spoil disposal activities on the biodiversity, structure, health and reproductive success of coral reef habitats which occur within predicted zones of influence of dredging and spoil disposal activities;

- maintain the ecological integrity and biodiversity of coral reef habitats consistent with the operational requirements of the Port; and

- rehabilitate coral communities where impacts during dredging or disposal have been greater than the 10 per cent limit level for net coral mortality or where a significant change to community structure caused by dredging and/or spoil disposal has occurred.

This Plan shall include the following:

1. the location of appropriate potential impact sites and reference sites;

2. provision for pre-dredging field surveys describing baseline conditions at all sites specified in point 1 above in terms of the species of scleractinian corals present and community structure to be conducted prior to dredging commencing;

3. criteria for spawning success and coral health against which to report monitoring data and to evaluate environmental performance;

4. protocols and procedures for monitoring coral reef health;

5. calculations of statistical power of the monitoring procedures in point 4 above to demonstrate that the procedures are appropriate to detect impacts associated with dredging and spoil disposal activities;

6. the timing and frequency of coral reef health monitoring;

7. the management response(s) to be implemented in the event that criteria established in point 3 above are not met;

8. completion criteria for management response(s) in point 7 above; and

9. reporting procedures.

11-2 In the event that the 10 per cent limit level for net coral mortality specified in condition 5-8 is exceeded, the proponent, in liaison with the Department of Environment and Conservation, shall develop a Rehabilitation Plan, including completion criteria, for coral communities where impacts during dredging or disposal associated with the proposal has been greater than the 10 per cent limit level for net coral mortality or where a significant change to community structure caused by dredging and/or spoil disposal associated with the proposal has occurred, to the requirements of the Minister for the Environment.

11-3 The proponent shall implement the Rehabilitation Plan required by condition 11-2.

11-4 The proponent shall make the Rehabilitation Plan required by condition 11-2 publicly available, in a manner approved by the CEO.

11-5 The proponent shall provide the results of the pre-dredging field surveys referred to in condition 11-1, point 2 above to the Department of Environment and Conservation within one month following commencement of dredging.

11-6 Prior to the commencement of dredging, and for at least two years following the completion of dredging and disposal activities, or until completion criteria required by condition 11-1 have been met, the proponent shall implement the Long Term Coral Habitat Monitoring and Management Plan required by condition 11-1.

11-7 The proponent shall make the Long Term Coral Habitat Monitoring and Management Plan required by condition 11-1 publicly available, in a manner approved by the CEO.

12 Ongoing Marine Turtle Management

12-1 The proponent shall within 6 months following the formal authority issued to the decision-making authorities under section 45(7) of the *Environmental Protection Act 1986*, in consultation with the Department of Environment and Conservation (DEC) prepare a Marine Turtle Management Plan to the requirements of the Minister for the Environment.

The objectives of this plan are to:

- Provide a management framework to enable the proponent to manage the ongoing aspects of the project to detect and mitigate as necessary any impact upon the natural abundance, species diversity, geographical distribution, behaviour patterns, breeding success, predation levels, demographics and population viability of marine turtles which frequent and rely, wholly or in part, on Cape Lambert or the waters adjacent to Cape Lambert;

- Identify darkness strategies to reduce as far as practicable lights or light glow interfering with nesting female turtles and hatchlings and determining the impacts thereon; and

- Identify a methodology to measure and detect any changes to affected marine turtle populations.

This Plan shall:

1. Identify project-related stressors, causes of environmental impacts and potential consequences for marine turtles (including impact of noise, vibration, light overspill and glow, vessel strike and changes to coastal processes);

2. Identify and demonstrate the effectiveness of proposed management measures to mitigate project-related impacts and consequences for marine turtles; and

3. Identify a process for identifying, justifying and implementing additional management mitigatory measures in the event that monitoring (by the proponent or otherwise) identifies a change in the abundance, species diversity, geographical distribution, behaviour patterns, breeding success, predation levels, demographics and population viability of marine turtles which, frequent and rely, wholly or in part, on Cape Lambert or the waters adjacent to Cape Lambert.

12-2 The proponent shall implement the Marine Turtle Management Plan required by condition 12-1.

12-3 The proponent shall make the Marine Turtle Management Plan required by condition 12-1 publicly available, in a manner approved by the CEO.

13 Marine Environmental Quality

13-1 The proponent shall within 6 months following the formal authority issued to the decision-making authorities under section 45(7) of the *Environmental Protection Act 1986*, in consultation with the Department of Environment and Conservation (DEC) prepare a Marine Environmental Quality Plan to the requirements of the Minister for the Environment.

Note: In preparation of advice to the Minister for the Environment, the Environmental Protection Authority expects that advice of the following agencies will be obtained:

- Department for Planning and Infrastructure (Maritime Division); and
- Department of Fisheries.

This Plan shall address the following:

1. maps showing the spatially defined Environmental Quality Objectives for the Cape Lambert area and the environmental values shown in figure 4 which are to be protected;

2. maps showing the location of each water, sediment and biota quality monitoring site, including reference sites;

3. the environmental quality criteria to be met;

4. procedures for assessing monitoring data against environmental quality criteria;

5. decision schemes for applying the environmental quality criteria;

6. routine water and sediment quality surveys (e.g. contaminants, turbidity, dissolved oxygen, pH);

7. contaminant accumulation in biological tissue (e.g. deployed oysters);

8. benthic habitat health surveys, including clear objectives to measure spatial and temporal changes/variation;

9. spatial changes to distribution of coral habitat;

10. surveys for non-indigenous marine species every three years or for as long as the Minister for the Environment deems necessary;

11. oil and chemical spill response with regular updates; and

12. a management framework which can be implemented to prevent or mitigate any identified environmental impacts.

13-2 Within three months following completion of dredging and dredge spoil disposal activities, the proponent shall implement the Marine Environmental Quality Monitoring and Management Plan required by condition 13-1.

13-3 The proponent shall make the Marine Environmental Quality Monitoring and Management Plan required by condition 13-1 publicly available, in a manner approved by the CEO.

Procedures

1. Where a condition states "on advice of the Environmental Protection Authority", the Environmental Protection Authority will provide that advice to the Department of Environment and Conservation for the preparation of written notice to the proponent.

2. The Environmental Protection Authority may seek advice from other agencies or organisations, as required, in order to provide its advice to the Department of Environment and Conservation.

3. A Dredging Management Group will be established by the proponent comprising an independent chairperson appointed by the Minister for the Environment, representatives of the proponent, a representative of the Department of Planning and Infrastructure and a person nominated by the CEO of the Department of Environment and Conservation.

   The Dredging Management Group shall:

   1) provide advice to the proponent on the additional management actions / options which could be implemented by the proponent where the 10 per cent limit level for net coral mortality has been exceeded at a monitoring site or is likely to be exceeded at a monitoring site;

   2) provide advice to the proponent on the additional management actions / options which could be implemented by the proponent where limits of acceptable change as described in schedule 1 of this statement have been exceeded at a monitoring site or are likely to be exceeded at a monitoring site;

   3) provide incident-specific advice on which management options should apply on a case-by-case basis if the 'limit' referred to in conditions 5-8 and 5-9 has been exceeded or is likely to be exceeded;

   4) provide advice on the timing for recommencement of dredging and/or spoil disposal; and

   5) provide regular briefings to the Department of Environment and Conservation.

Notes

1. The Minister for the Environment will determine any dispute between the proponent and the Environmental Protection Authority or the Department of Environment and Conservation over the fulfilment of the requirements of the conditions.

David Templeman MLA
MINISTER FOR THE ENVIRONMENT; CLIMATE CHANGE; PEEL

Schedule 1

The Proposal (Assessment No. 1672)

General Description
To undertake a capital and maintenance dredging program to remove up to 2.5 million cubic metres of marine sediment from within State Waters adjacent to Cape Lambert as defined in Figures 1 and 2. Disposal of up to 2 million cubic metres of uncontaminated capital and maintenance dredge material to Spoil Ground 1.

The major components of the dredging program are to:

- extend the existing berth pockets at the Cape Lambert wharf to enable four vessels (two on the east side and two on the west side) to berth alongside the wharf at any one time;
- widen and deepen both departure basins to provide safe departures for vessels using the berths;
- remove anomalies in channel depth in the existing northern approach route at Cape Lambert; and
- dispose of dredged material at Spoil Ground 1 located approximately 5.6 kilometres off-shore to the north of Cape Lambert.

Summary description
A summary of the key proposal characteristics is presented in Table 1.

Table 1 - Key Proposal Characteristics

Element	Description
Amount of material to be dredged within State Waters	2.5 million cubic metres.
Major Components (See Figure 2) New Berth Pockets Basin widening west and east Main Channel	 0.2 million cubic metres 1.9 million cubic metres 0.4 million cubic metres
New Spoil Ground 1 (State Waters)	Approximately 1km wide by 2km long. Maximum capacity of dredged material 2 million cubic metres.
Period of dredging and disposal	Dredging duration of approximately 13 to 19 weeks.
Impact on Benthic Primary Producer Habitat	Maximum zones of impact, stress and influence ** as shown in Figure 3.

**** Definition of Terms**

Impact – Temporary reduction in live coral cover not exceeding 10 per cent at any monitoring station.
Stress – Temporary sub-lethal stress.
Influence – Visible plume, no effect on coral.

Table 2 - Coordinates of Area to be Dredged (See Figure 1 attached)

"Point_ID"	"X_Coord1"	"Y_Coord1"
2	520708.31	7724500.44
3	521140.24	7724970.01
4	521697.33	7725638.30
5	522203.30	7726246.36
6	522680.86	7726812.26
7	522962.30	7727152.40
8	523258.06	7727573.89
9	523565.18	7727989.32
10	524003.16	7728597.43
11	524463.91	7729229.60
12	524644.23	7729476.42
13	524697.06	7729316.63
14	524714.37	7729257.28
15	524682.46	7729213.61
16	524516.05	7728969.76
17	524063.83	7728346.62
18	523095.54	7727035.30
19	522959.03	7726832.08
20	522225.62	7725956.14
21	521743.86	7725405.30
22	521662.80	7725269.79
23	521581.73	7725120.73
24	521436.62	7724818.06
25	521359.86	7724714.19
26	521223.45	7724556.16
27	521014.69	7724411.77
28	520857.09	7724335.12
29	520746.56	7724452.78
30	520712.56	7724493.50

Figures (attached)

Figure 1 – Project Location and Proposed Dredging. (See Table 2 – Coordinates of Area to be Dredged)
Figure 2 – Proposed Berth Pocket and Departure Basin Dredging Overview.
Figure 3 – Predicted Zones of Impact, Stress and Influence.
Figure 4 – Environmental Quality Objectives for Cape Lambert.

Figure 1: Project Location and Proposed Dredging (See Table 2).

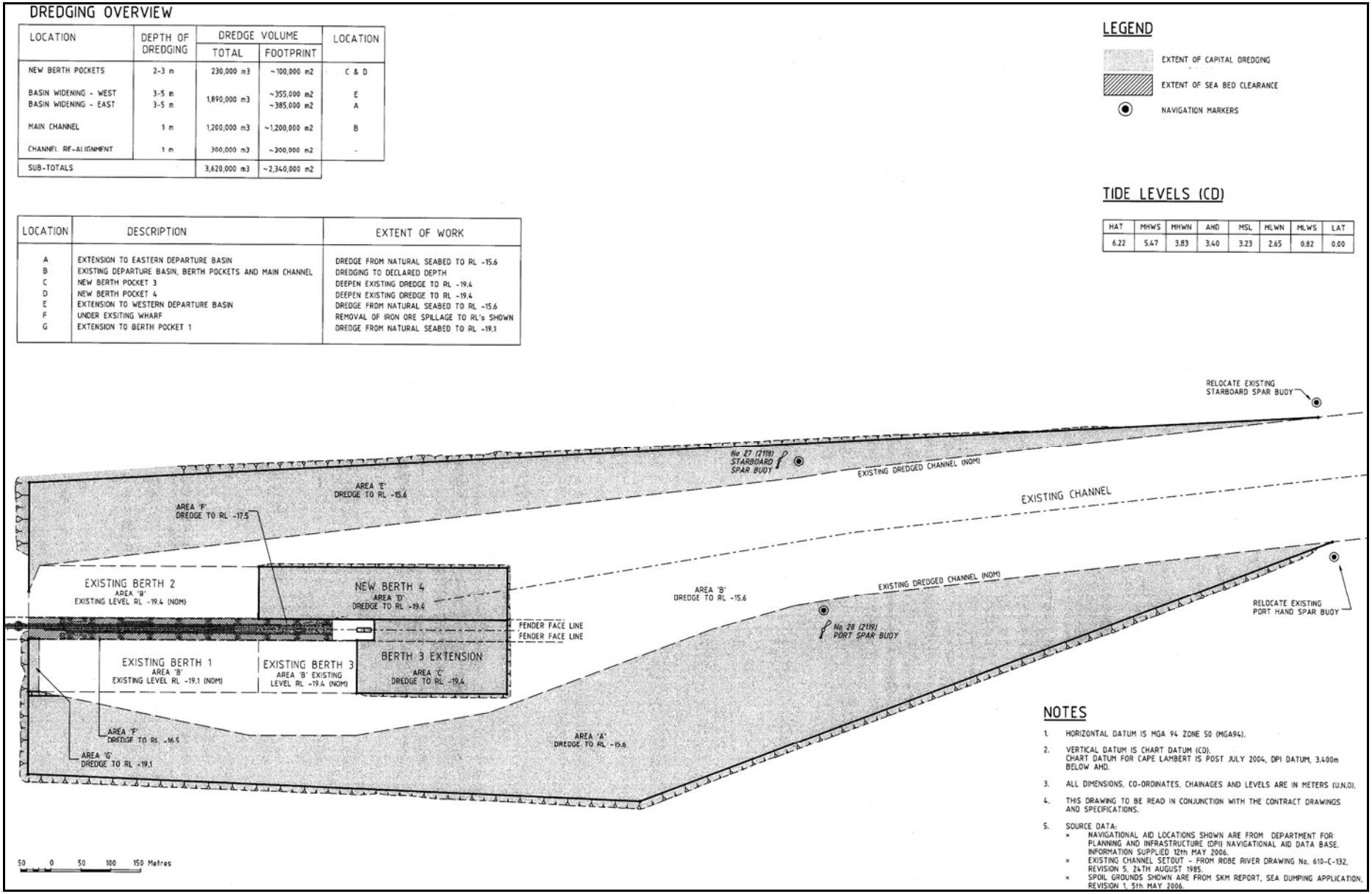

Figure 2: Proposed Berth Pocket and Departure Basin Dredging Overview.

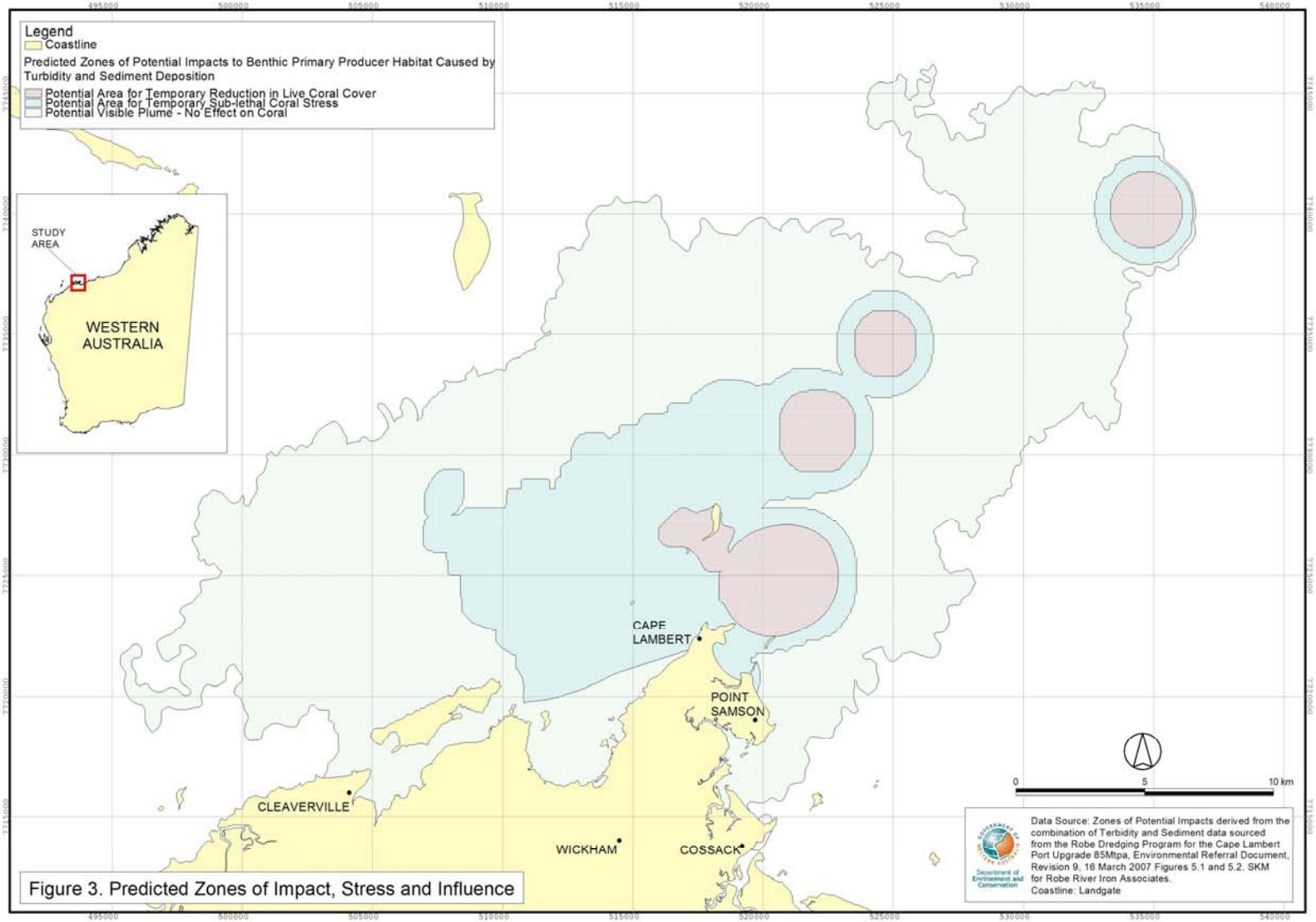

Figure 3: Predicted Zones of Impact, Stress and Influence.

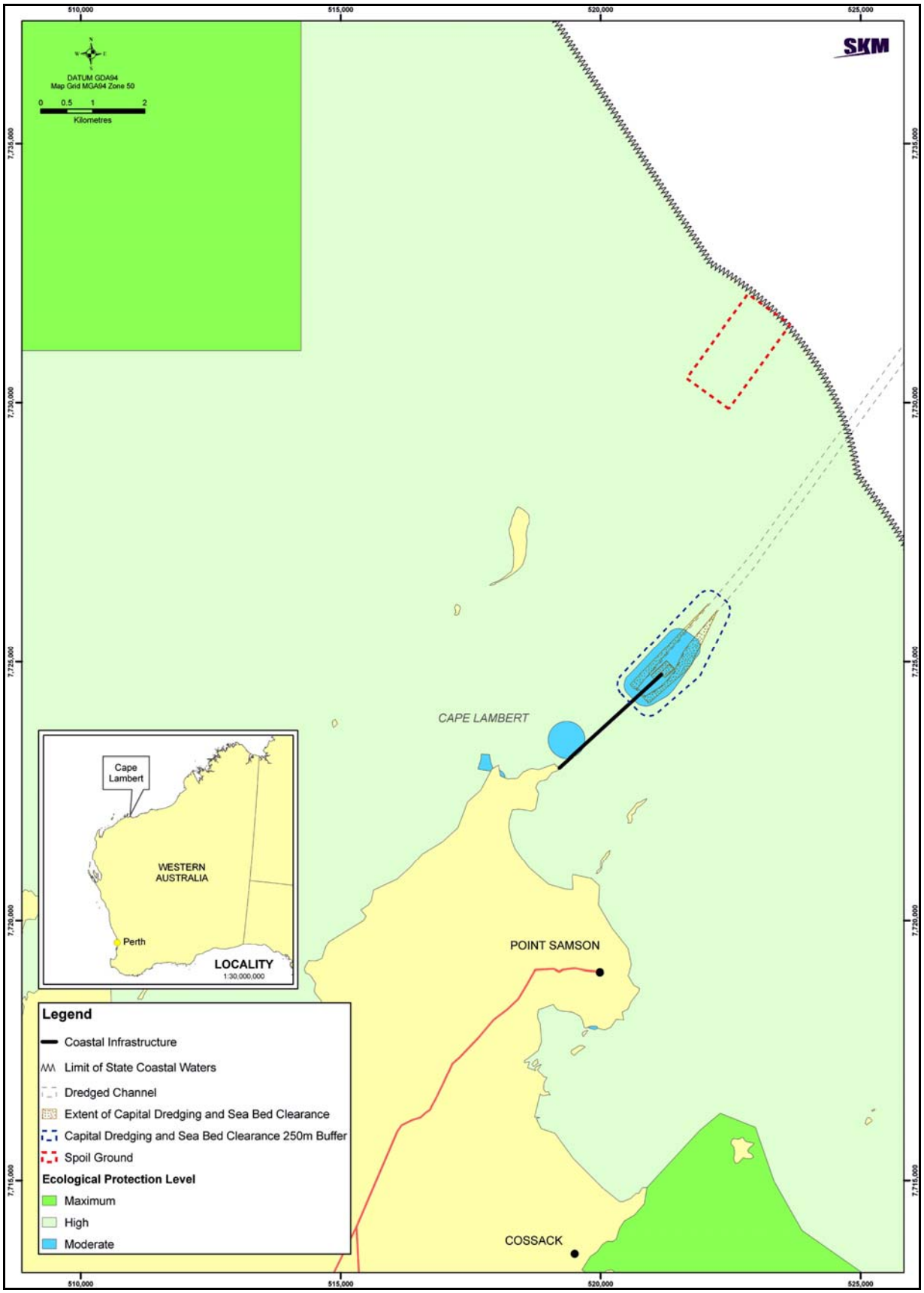

Figure 4: Environmental Quality Objectives for Cape Lambert.

Schedule 2

Dredging Program for the Cape Lambert Port Upgrade (Assessment No. 1672)

Possible management measures required by condition 7-1 (15)

Possible Management Measures Any combination of at least one of the following management actions.
1. Relocate dredge; 2. Relocate position for spoil disposal within spoil ground; 3. Use alternative spoil ground; 4. Reduce dredge overflow; 5. Deploy silt curtain barrier between dredging and/or disposal areas and coral sites; and 6. Reduce dredging to single shift.