

Carnarvon harbour and channel dredging

Department of Marine and Harbours

**Report and recommendations of the
Environmental Protection Authority**

**Environmental Protection Authority
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Summary and recommendations

The Department of Marine and Harbours proposes to dredge the Carnarvon Boat Harbour and its approach channels and dispose of the dredge spoil within the Harbour Lease area. The Harbour Lease area contains environmentally sensitive areas including migratory shorebird habitat and mangroves.

The Authority was concerned that the proposed dredge spoil disposal sites shown in the CER would affect migratory shorebird habitat, contrary to Australia's obligations under the Japan Australia and China Australia Migratory Bird Agreement. Subsequent discussions between the Department of Marine and Harbours and the Authority lead to a new proposed dredge spoil disposal site acceptable to both the Authority and the Department.

Recommendation 1

The Environmental Protection Authority concludes that the proposal by the Department of Marine and Harbours to dredge the Carnarvon harbour and approach channel, as modified during the process of interaction between the proponent, the Environmental Protection Authority, the public and government agencies that were consulted, is environmentally acceptable.

In reaching this conclusion the Environmental Protection Authority identified the main environmental factors requiring detailed consideration as the protection of migratory shorebird habitat, mangroves and seagrass.

The Environmental Protection Authority concludes that the environmental factors mentioned above have been addressed adequately by either environmental management commitments given by the proponent or by the Environmental Protection Authority's recommendations in this report.

Accordingly, the Environmental Protection Authority recommends that the proposal could proceed subject to:

- the Environmental Protection Authority's recommendations in this Assessment Report; and
- the proponent's commitments given in the Consultative Environmental Review (Appendix 2).

1. Introduction

Carnarvon Boat Harbour is located in an environmentally sensitive area because shorebird habitat and mangroves occur within the harbour lease. Australia has obligations under Japan Australia and China Australia Migratory Bird Agreements to protect shorebirds and their environment. Mangroves have an important role in supporting near-shore marine life and sustaining coastal fisheries.

2. Description of proposal

The Department of Marine and Harbours proposes to dredge the Carnarvon Boat Harbour and its approach channels, to improve navigation into the harbour.

The project involves maintenance dredging of the outer approach channel to Teggs Channel and the Harbour entrance channel, and a small extension to the Harbour basin in the north eastern corner as shown in Figure 1. Approximately 85,000 m³ of material would be dredged, comprised of about 40,000 m³ from Teggs Channel, 33,500 m³ from the Harbour entrance channel and 11,200 m³ from the proposed harbour extension area.

It is proposed to realign the approach channel to Teggs Channel to avoid a naturally prograding sandspit which currently causes sedimentation within the existing channel. This realignment is expected to decrease future requirements for maintenance dredging.

The proposed extension to the Harbour would be used to provide facilities for recreational boats which currently share the existing harbour area with fishing boats.

As a result of discussions with the Authority the Department of Marine and Harbours now proposes to dispose of the dredge spoil from Teggs Channel and the Harbour entrance Channel (total 73,500 m³) as shown in Figure 2 and dispose of dredge spoil from the proposed harbour extension area (total 11,200 m³) as originally proposed at dredge spoil area site 2, as shown in Figure 1.

It is proposed to fully contain spoil material within bund walls and to direct wash water away from mangrove and seagrass communities.

3. Consultation

The availability of the CER was advertised in the local newspaper and the CER was circulated to relevant government agencies. The Authority received nine submissions in response to the CER, of which five were from the public or community groups.

The principal topics raised in the submissions related to:

- dredge spoil disposal and stabilisation;
- importance of proposed dredge spoil disposal site for shorebirds;
- potential effects of turbidity and discolouration from wash;
- timing of dredging;
- long-term planning for the region; and
- endorsements for the work to proceed.

A detailed list of issues raised in submissions and the proponent's response to these issues appears in Appendix 1. A list of submissions received also appears in Appendix 1.

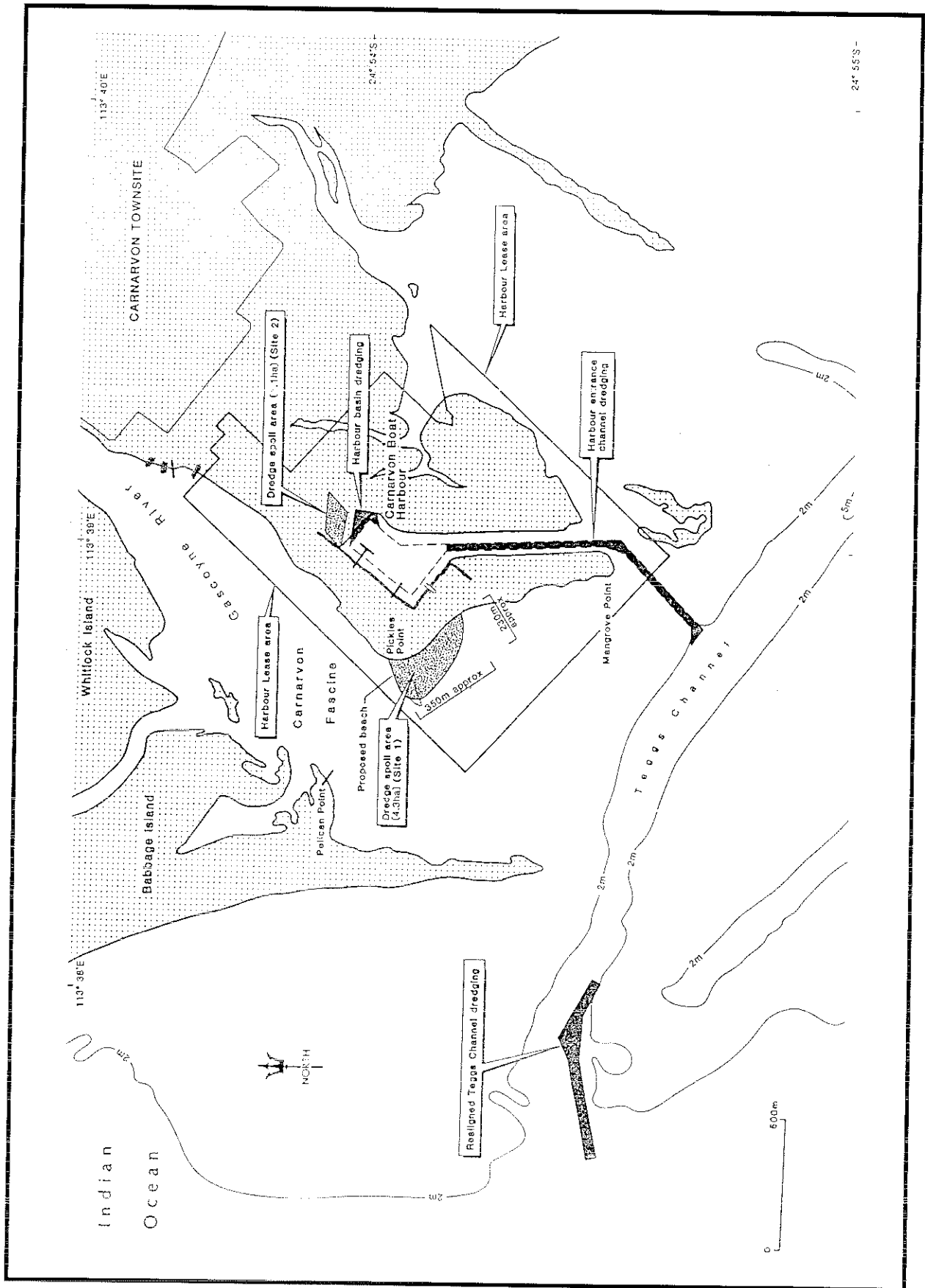


Figure 1: Proposed dredging

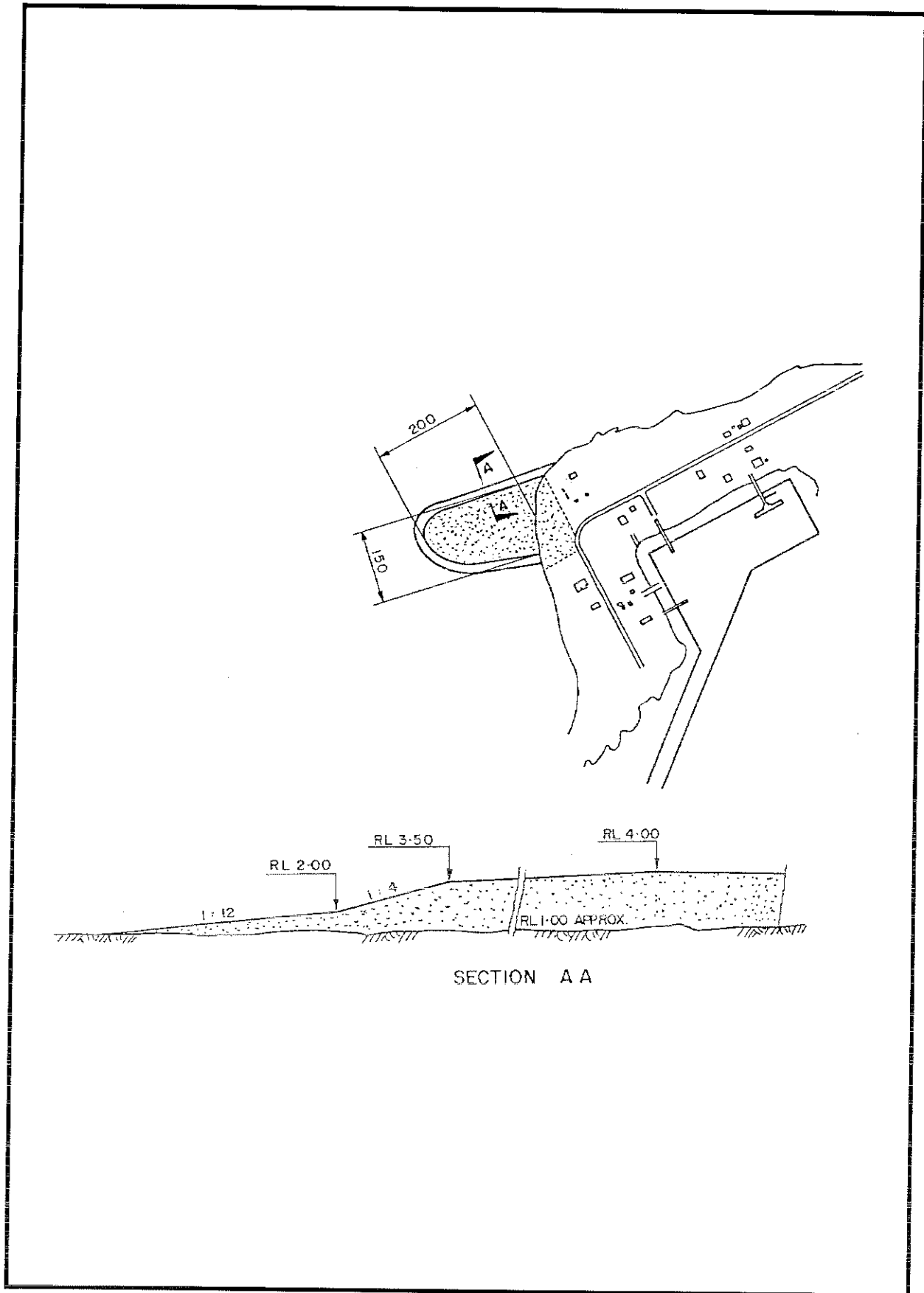


Figure 2: Proposed dredge spoil disposal areas

The Consultative Environmental Review describes most aspects of the existing environment adequately and that information, although useful for environmental assessment, has not been reproduced here. Further information regarding shorebird usage of the area appears below.

4.1 Shorebird usage around Carnarvon Boat Harbour

The Environmental Protection Authority sought more accurate information from the Royal Australasian Ornithologists Union (RAOU) about which areas around the Carnarvon Boat Harbour are used by migratory shorebirds. The RAOU was able to provide information regarding the most commonly used roosting sites, but did not have information on which areas between low tide and high tide are most used or most valuable for feeding. The information provided was based on monthly surveys over a period of six years.

Figure 3 shows the roosting areas identified by the RAOU.

5. Environmental assessment

The Authority considered that the principal environmental issue arising from this proposal was the potential affect on bird and mangrove habitat resulting from dredge spoil disposal.

5.1 Dredge spoil disposal

5.1.1 Location

The Authority expressed some concern to the Department of Marine and Harbours about the dredge spoil disposal areas identified in Figure 3 of the CER, (Figure 1 of this report) because they both affect migratory bird habitat.

Australia has obligations to protect migratory shorebird habitat under Article VI of the Japan Australia Migratory Bird Agreement which states:

"Each Government shall endeavour to take appropriate measures to preserve and enhance the environment of birds protected under the provisions of this agreement. In particular, it shall ... seek means to prevent damage to such birds and their environment."

Disposal of dredge spoil in areas used by migratory shorebirds, particularly along the foreshore, would damage their environment.

Three suggestions were offered in public submissions to the Authority for the disposal of dredge spoil; that an island be created about 500 m south-west of Pickles point; that the spoil site at Pickles Point be redesigned to avoid the known area of importance; and that the spoil be sold or given to authorities requiring fill within the Carnarvon townsite or other less environmentally sensitive areas. All of these options would probably have been environmentally acceptable if properly managed.

Following an on-site inspection by the Authority and officers of the Department of Marine and Harbours, it was agreed that the second of these suggestions was suitable. This new proposed area for dredge spoil disposal at Pickles Point is indicated in Figure 2 and is unlikely to affect the environment used by shorebirds in this area.

Part of dredge spoil disposal area site 2 (See Figure 1) is used by Mongolian and Large Sand Plovers. Up to 230 birds use the area indicated in Figure 3 to shelter from the prevailing south-west wind when high tides occur from March to May. The birds are usually widely spaced. It is anticipated that the filling proposed in this area would effectively provide a wind break and therefore provide some protection from the south-west winds to the area currently used by these birds.

The new proposed dredge spoil disposal sites are unlikely to adversely affect mangrove communities. Mangroves have an important role in supporting near-shore marine life, sustaining coastal fisheries and preventing erosion.

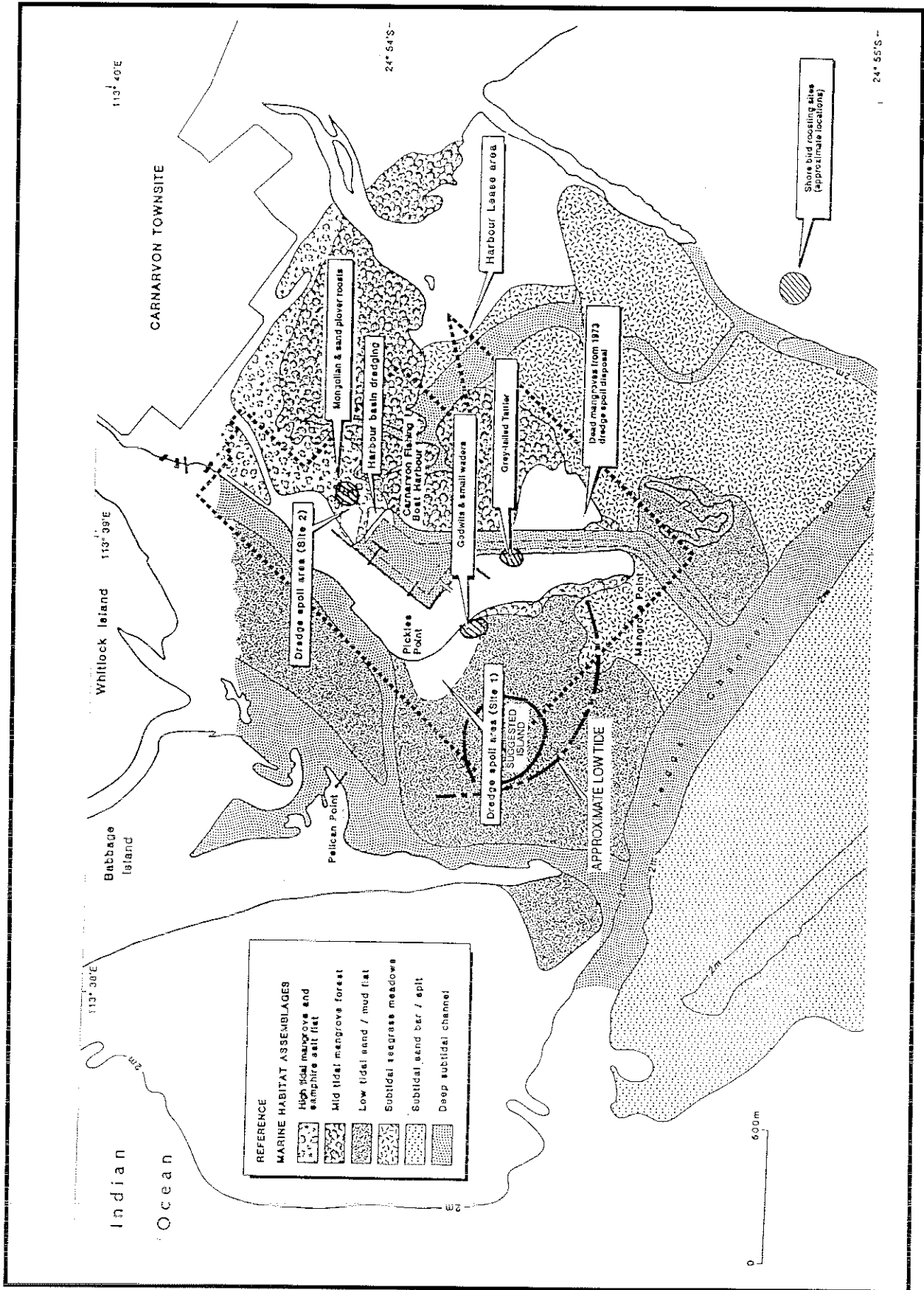


Figure 3: Areas used by migratory shorebirds at Pickles Point

5.1.2 Stabilisation of dredge spoil

The Department of Marine and Harbours have made a commitment to stabilise spoil sites with vegetation to prevent wind erosion and any dust problems.

5.1.3 Bunding and wash water disposal

Commitments by the Department of Marine and Harbours to contain dredge spoil within bund walls and to direct wash waters away from existing mangrove and seagrass communities apply to the new dredge spoil disposal configuration chosen by the Department. The Authority considers that these measures, along with clear pegging of the limit of the spoil area prior to dredging, should be adequate to protect shorebird and seagrass habitat.

5.2 Other issues

5.2.1 Noise and dust

The Department of Marine and Harbours would need to ensure compliance with the Authority's Noise Management Procedure. The procedures described in the Authority's Dust Control Guidelines, issued in September 1990 should be implemented if dust levels give cause for concern or generate complaints.

5.2.2 Timing

The proposed timing of the proposal coincides with the best timing in terms of minimising disturbance to shorebirds and the adjacent egret/cormorant colonies (See Appendix 2, Figure 1 of the CER), with the exception of the Mongolian and Large Sand Plovers.

5.2.3 Ongoing maintenance

Proposals for further maintenance dredging should be referred to the Authority for environmental impact assessment. The Authority suggests that consideration be given to the future disposal of dredge spoil on land.

5.2.4 Project detail and approval period

The Authority's experience is that it is common for details of a proposal to alter through the detailed design and construction phase. In many cases alterations are not environmentally significant or have a positive effect on the environmental performance of the project. The Authority believes that such non-substantial changes, and especially those which improve environmental performance and protection, should be provided for.

The Authority believes that any approval for the proposal based on this assessment should be limited to five years. Accordingly, if the proposal has not been substantially commenced within five years of the date of this report, then such approval should lapse. After that time, further consideration of the proposal should occur only following a new referral to the Authority.

6. Conclusion

The Environmental Protection Authority concludes that the proposal by the Department of Marine and Harbours to dredge the Carnarvon harbour and approach channel, as modified during the process of interaction between the proponent, the Environmental Protection Authority, the public and government agencies that were consulted, is environmentally acceptable.

In reaching this conclusion the Environmental Protection Authority identified the main environmental factors requiring detailed consideration as the protection of migratory shorebird habitat, mangroves and seagrass.

The Environmental Protection Authority concludes that the environmental factors mentioned above have been addressed adequately by either environmental management commitments given by the proponent or by the Environmental Protection Authority's recommendations in this report.

Accordingly, the Environmental Protection Authority recommends that the proposal could proceed subject to:

- the Environmental Protection Authority's recommendations in this Assessment Report; and
- the proponent's commitments given in the Consultative Environmental Review (Appendix 2).

Appendix 1

Proponent's response to issues raised by submissions

List of submissions received

Royal Australasian Ornithologists Union

Carnarvon Tree Society

Mr J Stretch

Western Australian Fishing Industry Council

Nor-West Seafoods Pty Ltd

Shire of Carnarvon

Fisheries Department

Gascoyne Regional Development Advisory Committee

Department of Planning and Urban Development

Your Ref:
Our Ref: PW/5/207/90 V2
Enquiries: Mr P Wilkins

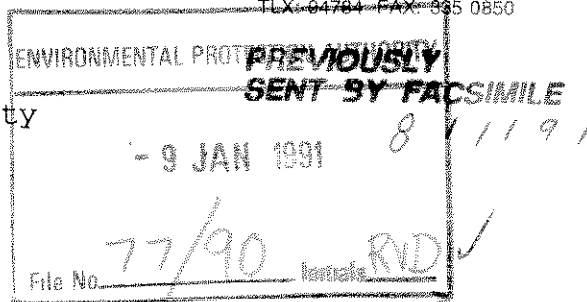
DEPARTMENT OF
MARINE & HARBOURS
WESTERN AUSTRALIA



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The Chairman
Environmental Protection Authority
1 Mount Street
PERTH 6000

ATTENTION : MR RON VAN DELFT



RE: CARNARVON BOAT HARBOUR AND CHANNEL DREDGING - RESPONSE TO PUBLIC SUBMISSIONS

Thank you for your recent letter wherein you summarised the submissions submitted in response to the proposed dredging. The issues raised in the summary have been considered by the Department and are addressed point by point corresponding to the summary as follows:

1. *ALTERNATIVES FOR DREDGE SPOIL DISPOSAL*

1.1 Other sites out of reach of the disposal pipeline have been considered but the high costs associated with the larger dredging plant or double handling needed for spoil disposal at these locations do not make these alternatives viable. The need for fill at locations near the harbour, such as the harbour access road, have been recognised and identified. It is envisaged that these sites would be used as spoil disposal areas either for extensions of the harbour basin or as part of the Proposed Fascine Development for Carnarvon. The close proximity of these sites to the Fascine Channel and harbour basin make them more economic and practicable for spoil disposal from these other operations. These sites are located out of pumping range for the Teggs Channel dredging operations and double handling would be required to facilitate disposal in these areas. Funds to cover the additional high costs associated with double handling are not in the scope of the present approved funding allocation.

1.2 The creation of an island situated southwest of Pickles Point and blanketing an area of existing intertidal flats is not favoured for the following reasons:

43140 INFO

- . the proposed island is not compatible with uses of the existing "harbour purposes" reserve.
- . it may become necessary at some future time to place more spoil in this vicinity from further Teggs Channel maintenance dredging operations.
- . the Department of Marine & Harbours only has an allocation of sufficient funds to carry out the minimum necessary maintenance dredging works.

2. COMMENTS IN RELATION TO SITE 1 AND SHOREBIRDS

- 2.1 Site 1 which has been selected as the proposed spoil disposal area is part of a reserve presently vested in the Minister for Transport for 'Harbour Purposes'. The proposed reclamation is necessary for harbour maintenance purposes and forms an integral part of the harbour development. It is envisaged that the Carnarvon Boat Harbour will continue to be developed and maintained as the need arises. Site 1 meets the immediate maintenance requirement and is compatible with the future development of this facility. Some community benefit would be obtained from use of the new beach. In the longer term the Proposed Fascine Development visualises this area would expand to include both a Development Site and Public Open Space.
- 2.2 The opinion expressed by the RAOU on the value of the proposed dredge spoil site is acknowledged as being based on limited survey data and anecdotal information.

Although the reclamation will result in the loss of approximately 4 ha (or 13%) of the locally available intertidal habitat, the length of intertidal shoreline will increase as a result of the filling. The length of shoreline is an important factor as, on an evenly sloping shoreline, it determines the extent of intertidal habitat available at any given state of the tide. It is important to note that the intertidal habitat is of value to shorebirds when it is either just covered with water, or is freshly exposed, and thus only small parts of the zone are available to shorebirds at any given time.

As a consequence it is considered that the increase in shoreline length will compensate for the loss in intertidal habitat and that the impact on the productivity of the intertidal zone will be minimal.

- 2.3 As illustrated in the CER the proposed dredge spoil disposal site occupies only a small part of the intertidal zone in which it is located and consequently additional bird surveys

conducted prior to dredging would not clearly determine the impact of filling this limited area.

3. *EFFECT OF TURBIDITY/DISCOLOURATION*

- 3.1 Both dredging and spoil disposal operations will be conducted in a responsible and planned manner to minimise the effect on the surrounding environs. The envisaged dredge is of the 'cutter suction' type. Turbidity at the cutting end will be minimised by the natural suction of the cutter head. The wash water at the disposal areas will be conducted away from existing mangroves and seagrass communities. Temporary discolouration of waters adjacent to the overflow will occur but is unlikely to be widespread or adversely affect seagrass populations in the adjacent waters.
- 3.2 Temporary discolouration of the Fascine entrance waters adjacent to the discharge overflow is inevitable. There is no potential for large reduced visual appeal. The majority of the material to be dredged is sand and any discolouration is unlikely to be intense.

4. *STABILISATION OF DREDGE SPOIL*

- 4.1 It is intended that potentially mobile spoil sites will be stabilised utilising local vegetation and brush or if necessary, by means of hydro mulching. The need for topsoiling with a suitable top soil will be further assessed at a later stage, depending on usage and further development of the site.

5.0 *LONG TERM SITE PLANNING*

- 5.1 The harbour development forms part of the overall development concept for the Fascine, however the Fascine foreshore treatment is not integral to the proposed dredging and future consideration to this treatment will be given when the Proposed Fascine Development Concept is finalised.
- 5.2 The mangroves presently being established along the southwest shore of Pickles Point will be unaffected by spoil disposal to Site I. For reasons outlined in 1.2, it is recommended that an island not be created.

6. *TIMING*

- 6.1 Agreed. The Department is well aware of the urgency for the proposed works to commence, particularly with respect to the approaching fishing season, however due to environmental concerns that have arisen and that are presently being

addressed, it will not be possible to have the works executed by 1 March 1991.

7. *ERRATA*

7.1 Noted.

8. *ENDORSEMENTS*

8.1 Agreed.

8.2 Agreed.

8.3 Agreed.

The Department has recently received planning approval from the Carnarvon Shire Council and your further prompt consideration of the proposed project would be appreciated.

Yours faithfully

A handwritten signature in dark ink, appearing to read 'M J Paul', is written over the typed name.

M J PAUL
DIRECTOR ENGINEERING

7 January 1990

(c07ap.stw)

Appendix 2

Proponent's commitments

Appendix 2

Proponent's commitments

The proponent makes the following commitments in order to manage the potential environmental impacts of the proposed Carnarvon Boat Harbour and Channel Dredging and spoil disposal works.

- 1 Construction activity will be confined to daylight hours, six days per week to minimise possible noise impacts on nearby residents.
- 2 Dredging operations will be planned so as to allow the various fishing boats using the harbour to enter and exit the harbour.
- 3 Dredge spoil will be contained within bund walls to prevent smothering of mangroves and other marine assemblages outside the proposed dredge spoil areas.
- 4 Wash waters will be directed away from existing mangrove and seagrass communities. At Site 1 the wash water will flow into the Fascine entrance waters, while at Site 2 the flow will be directed into the basin of the harbour.
- 5 A supervisor will be on site during construction to ensure that the dredging works proceed as designed.
- 6 The final floor levels of the dredge spoil areas used for harbour infrastructure will be above the 1:100 year flood level, with an additional allowance for a possible sea level rise associated with the Greenhouse Effect.
- 7 The northern side of the Site 1 dredge spoil area will be shaped to form a beach profile to maintain the character of the north shore of Pickles Point. The southern side will be allowed to form at the natural angle of repose so as to naturally stabilise and blend into the existing shore.
- 8 The spoil sites will be stabilised by vegetation to prevent wind erosion and any dust problems.
- 9 A fuel and oil spill contingency plan for the Carnarvon Boat Harbour will be prepared within six months of the dredging works, in consultation with the Environmental Protection Authority.
- 10 Monitoring of sediments and navigable depth in the newly aligned channel will be carried out on an annual basis by the Department of Marine and Harbours.