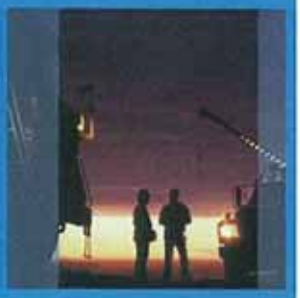
APPENDIX 8 - Batemans Bay Marina Re-development
- Preliminary Enviromental Assessment (August, 2006)

BATEMANS BAY MARINA RE-DEVELOPMENT





Batemans Bay Marina Redevelopment

Preliminary Environmental Assessment

Department of Lands

August 2006

MAUNSELL | AECOM

Batemans Bay Marina Redevelopment

Prepared for

Department of Lands

Prepared by

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Introduction

The Department of Lands seeks approval under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act) for redevelopment of the existing Batemans Bay Marina.

Need for development

The Department of Lands (the 'Department') is responsible for the care and control of 25 Minor Ports situated on Crown Land in NSW. Many of these ports were development by the former Department of Public Works during the 1970's and 1980's for the commercial fishing industry. Changes in demand over time have witnessed an increase in demand to accommodate a greater proportion of recreational boat users.

Department of Lands are experiencing pressure from a number of groups to make changes to Batemans Bay Marina. These groups are requesting the Government respond to the following issues.

- most of the mooring facilities are inadequate, have reached the end of their intended service life and should now be replaced
- there are no dedicated vessel refuelling and waste pump out facilities
- the layout for the marina is constrictive, making manoeuvring of vessels in the channels and fairways quite difficult and dangerous. Additionally, the layout doesn't comply with current Australian Standards specifically AS3962-2001: *Guidelines for design of marinas*
- there is a growing demand for additional mooring facilities in the marina (the Batemans Bay Marina Co-operative Ltd has indicated there are over 60 names on the marina waiting list)
- the availability of only 25 car parking spaces in the marina and the need to provide safe vehicle access to Beach Road from the Marina
- there is a need for land-based facilities for activities associated with the marina that are attractive for boat owners, residents and visitors (including tourists/sightseers).

The recently advertised *Draft South Coast Regional Strategy* (Department of Planning, 2006) identifies Batemans Bay as a "*Major Regional Centre*" and the Batemans Bay Marina as "*regionally significant employment lands and infrastructure*". As part of the overriding objective to add to the available employment lands in the Region, the Strategy states a key action is the protection of all available employment lands near to the Marina.

Due to its location in the heart of Batemans Bay, the Marina has the potential to become a significant regional asset that caters not just for boat owners, but for a range of user groups. The *Batemans Bay Marina Redevelopment Feasibility Study* (Maunsell, 2005) found the following key outcomes.

- for all economic indicators, development of land areas associated with the marina to provide commercial and other land uses are favoured over the option of increasing the number of berths only
- A breakdown of costs and benefits reveals that employment benefits, stemming from the provision of commercial space, along with the upfront construction costs have the greatest positive impact on the economic appraisal
- construction costs account for approximately 80% of (incremental) economic costs for each development option
- an additional $1m^2$ of land area through reclamation would produce approximately $1,960 per annum in flow on (indirect) economic benefits to the wider community. In comparison, the flow on

(indirect) economic benefits to the community from an additional marina berth range between $550 and $750 per annum

- sensitivity analysis found that variations in berthing rates, commercial rental rates and construction costs had little impact on economic returns, given the large value of employment benefits.

The findings of the economic analysis means that for a developer to achieve a return on the initial capital investment (the investment that is required to upgrade the marina) and for the community to gain maximum benefit in the long term through economic growth, the marina redevelopment must include the development of complementary commercial opportunities.

In light of the findings discussed above, a number of non-price options have been identified as possible options to further improve the economic outcome of each development option:

a) reclamation of land
b) purchasing of residential properties along Beach Road
c) rezoning
d) deferral of optional extras
e) sale of dredged material
f) sale of land.

Increased amenity can be generated to benefit the wider community from the development of the boat harbour for boat owners and non-boat owners (i.e. tourists, sightseers, residents and visitors), which results from increased numbers of berths and greater access to the boat harbour foreshore.

Improved safety and environmental outcomes are expected through the removal of potentially unsafe structures and the installation of permanent sewerage pump-out and refuelling facilities. Additional benefits of the proposal are to improve safety and navigation in the Clyde River through providing permanent marina berths in place of swing moorings. Also the marina will generate environmental benefits as a result of providing sullage pump out facilities, which currently impact on the aquatic ecology in the Clyde River through indiscriminate discharge of wastes/pollutants.

Marina redevelopment concept design

The proposed Marina Redevelopment concept is a base case layout that aims to balance the needs of boat users, residents and visitors on available Crown land. The development of the Batemans Bay Marina into a multi-use Marina Redevelopment will generate significant tourism and flow on economic benefits to the wider Batemans Bay community.

This document is a Preliminary Environmental Assessment prepared in accordance with the provisions of the *Environmental Planning and Assessment Act 1979* and has been prepared on behalf of the NSW Department of Lands (the proponent). The purpose of this Preliminary Environmental Assessment is to describe the key elements of the proposed Marina Redevelopment Concept for which project approval is being sought, with the view to:

- seeking formal requirements from government agencies for the detailed Environmental Assessment (to be prepared as part of the application for Project Approval)
- providing conceptual design information to the community for feedback to inform the detailed design process.

The Concept Design presented in this preliminary assessment represents the Department of Lands stated minimum requirements for redevelopment, with respect to:

- optimal open space, ancillary land uses and flow on socio-economic benefits to the wider community
- optimal marina facilities, consisting of berths, maintenance facilities and dry storage.

The Concept will be further developed as part of ongoing design development and as part of detailed environmental assessment. The detailed design will need to establish an optimal balance of these objectives within limited available land and water space.

To deliver the redevelopment, the Department of Lands is currently undertaking a tender process to identify a third party developer who will be responsible for preparing the design for which project approval is sought. The preferred proponent will also construct and operate the redeveloped Marina.

Due to the concurrent tendering process being managed by the Department of Lands, the proposed Marina Redevelopment Concept presented in this report is not intended to represent the final marina design, instead it establishes parameters for future design development and provides the basis for detailed environmental assessment. The environmental impacts of the concept proposed will be consistent with other concepts and will be readily adapted to reflect designs formulated by the preferred proponent.

The proposed Marina Redevelopment comprises the following key components:

- 270 marina berths (minimum)
- dredging of sand flats and re-configuration of existing training wall
- reclamation of land to provide space for ancillary activities, including:
  - boat dry stack storage facility for 60 vessels (minimum)
  - maintenance facility with hardstand, shed, wash down and boat lift
  - 4,500m^2 of floor space in two buildings, capable for use as retail, clubs, community facilities and offices
  - car parking for a minimum of 207 vehicles
  - open space and landscaping
- refuelling and sullage pump out facilities.

Environmental assessment

It is proposed to continue the stakeholder and community engagement process that has been initiated during the initial Concept Design stage (August 2006). Consultation will be undertaken during the preparation of the detailed Environmental Assessment and also during the detailed design development by the preferred proponent.

The key issues that have been identified and will be addressed as part of the detailed Environmental Assessment include:

- coastal processes
- flora and fauna
- water quality
- traffic and transport
- visual and landscaping issues

- noise and vibration
- socio-economic impacts
- strategic planning implications.

It is proposed that these issues be addressed as part of the detailed Environmental Assessment in accordance with Part 3A of the EP&A Act. The Department of Lands will prepare a statement of commitments to describe how these issues will be managed through design, construction and operation of the Marina Redevelopment.

1.0 Introduction

1.1 Overview

1.1.1 Purpose of report

The Department of Lands is the proponent and seeks approval under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act) for redevelopment of the existing Batemans Bay Marina.

The Department of Lands is responsible for the care and control of 25 Minor Ports situated on Crown Land in NSW. Many of these ports were development by the former Department of Public Works during the 1970's and 1980's for the commercial fishing industry. Changes in demand over time have witnessed an increase in demand to accommodate a greater proportion of recreational boat users.

The Department of Lands has a responsibility to the people of NSW to manage Crown Land in a manner that is economically, socially and environmentally sustainable.

This document is a Preliminary Environmental Assessment prepared in accordance with the provisions of the EP&A Act and has been prepared on behalf of the Department of Lands. The purpose of this Preliminary Environmental Assessment is to describe the key elements of the proposed Marina Redevelopment Concept, with the view to:

- seeking formal requirements from government agencies for the detailed Environmental Assessment (to be prepared as part of the application for Project Approval) and further design development
- providing conceptual design information to the community for feedback to inform the detailed design process.

The Concept Design presented in this preliminary assessment represents the Department of Lands' minimum requirements for redevelopment with respect to:

- optimal open space, ancillary land uses and flow on socio-economic benefits to the wider community
- optimal marina facilities, consisting of berths, maintenance facilities and dry storage.

Detailed design will need to establish an optimal balance of these objectives on limited available land and water space. The Concept will be further developed as part of ongoing design development and as part of detailed environmental assessment.

To deliver the Marina Redevelopment, the Department of Lands is currently undertaking a tender process to identify a third party developer (for the purposes of this report referred to as the 'preferred proponent') who will be responsible for preparing the design for which project approval is sought (refer Section 1.1.3). The preferred proponent will construct and operate the Marina Redevelopment.

In light of this, the proposed Marina Redevelopment Concept presented in this report is not intended to represent the final marina design, instead it establishes parameters for future design development and provides the basis for detailed environmental assessment. The environmental impacts of the concept proposed will be consistent with other concepts and will be readily adapted to reflect designs formulated by the preferred proponent. To this end the Environmental Assessment will establish the management measures and design response required as a minimum for the preferred proponent to avoid or mitigate adverse impacts of the development.

The proposal comprises the following key components:

- 270 marina berths (minimum)
- dredging of sand flats and re-configuration of existing training wall
- reclamation of land to provide space for ancillary activities, including:
  - boat dry stack storage facility for 60 vessels (minimum)
  - maintenance facility with hardstand, shed, wash down and boat lift
  - 4,500m^2 of floor space in two buildings, capable for use as retail, clubs, community facilities and offices
  - car parking for a minimum of 207 vehicles
  - open space and landscaping
- refuelling and sullage pump out facilities.

An area on the landside is identified for future development, which does not form part of this application.

1.1.2 Project aims

In light of the need to balance the requirements of a range of potential user groups, from boat owners through to visitors, the aims for redevelopment of the Batemans Bay Marina, which are central to the formulation of the proposed project, include:

- meet future demand by increasing long term marina capacity
- provide regional community benefits through improving water access and flow-on social and economic benefits
- improve efficiency of marina operations and the land-water interface
- establish a commercially viable marina complex
- protect significant ecological areas
- enhance opportunities for local businesses
- provide a high quality marina facility with integrated public open space.

1.1.3 Design process

Figure 1 shows a summary of the concurrent tender and environmental assessment processes adopted by the Department of Lands.

Figure 1: Marina Redevelopment process

The indicative timeframes involved in the concept design and approval process are:

1. Feasibility assessment and options analysis (October 2005)
2. Preferred base case option developed by Department of Lands (Option 5 – April 2006)
3. Concept Design reviewed (August 2006)
4. Stakeholder and community engagement (August 2006)
5. Preliminary assessment and refinement of Concept Design (August 2006)
6. Detailed environmental assessment of concept (August 2006 – October 2006)
7. Selection of Preferred Tenderer and Design Concept (Indicative date: October 2006)
8. Detailed design (Indicative dates: October 2006 – February 2007)
9. Refinement of environmental assessment (Indicative dates: October 2006 – February 2007)
10. Submission of project application to Department of Planning (Indicative date: February 2007).

1.2 Overview of preliminary environmental assessment

The Preliminary Environmental Assessment will address all relevant matters concerning redevelopment as outlined in "*Marina and Related facilities-EIS Guideline*" (DUAP 1996). These guidelines outline the following key issues for marina and related facilities:

- visual impact
- noise
- traffic and parking issues
- hydrological and water quality issues.

A planning meeting between the Department of Lands and the Department of Planning on 19th April 2006 outlined the following specific issues for the Batemans Bay Marina Redevelopment:

- development within the context of broader strategic planning
- coastal processes (i.e. hydrodynamics, flooding/inundation, sediment movement)
- construction Issues (i.e. noise, traffic, dredging/reclamation, water quality)
- operational Issues (i.e. noise, traffic water quality, visual impacts and waste management)
- traffic and car parking.

The Environmental Assessment will address the above issues in detail, in addition to other issues described in this section, that we expect to be specified in the Director-General's Requirements.

1.3 Community and stakeholder engagement

The following section summarises the initial stakeholders and community engagement activities carried out as part of formulating the proposed concept. In light of the large number of matters raised by stakeholders and the need to balance user requirements, a comprehensive description of community and stakeholder discussions, including responses to issues raised, will be contained in the detailed Environmental Assessment.

1.3.1 Planning focus meeting

Preliminary consultation has been undertaken with key government agencies as part of a Planning Focus Meeting held in December 2005 and a site meeting held in May 2006. The Department of Lands advised their intention to submit an application for Project approval for the proposed Marina Redevelopment. The Planning Focus Meeting held by the Department of Lands was attended by the following government agencies:

- Department of Planning
- Department of Natural Resources
- Department of Primary Industries (Fisheries)
- Department of Environment and Conservation.

Issues raised at this meeting included:

- traffic impacts and circulation
- car parking numbers
- flooding
- coastal processes and hazards
- prevention of pollution and maintaining water quality
- ecological impacts (threatened species)
- inclusion of marina facilities
- sediment circulation and harbour resonance
- visual impact
- public access.

Correspondence was received outlining preliminary assessment requirements from the following government agencies:

- Department of Planning
- Department of Environment and Conservation
- Roads and Traffic Authority
- Department of Primary Industries (Fisheries)
- Department of Natural Resources
- NSW Maritime
- Eurobodalla Shire Council.

1.3.2 Community engagement

The Department of Lands has conducted three rounds of consultation to date, which are described as follows.

- approximately 180 letters were sent to directly affected landowners and boat owners on Tuesday 30 May 2006 informing them of the process and inviting submissions to be sent to the Department. A total of 29 responses were received
- two stakeholder workshops were convened by the Department of Lands on Thursday 3 August 2006. Approximately 40 people attended these sessions
- a public meeting was convened by the Department of Lands on Wednesday 9 August 2006 at the Batemans Bay Community Centre. Approximately 60 people attended this meeting.

Some of the key issues raised during stakeholder and community engagement included:

- foreshore walkway in front of private properties not supported
- supply and demand versus price of berths
- commercial building and tourist facility not appropriate
- preservation of existing public areas
- impact of dredging the sand flat area
- impact of traffic and noise
- socio-economic impacts
- building heights and visual impact
- climate change and sea level rise
- impacts on Hanging Rock Creek
- pollution and pest control
- impacts on adjoining land
- need to establish a commercially sound marina complex
- potential for club activities in the buildings
- car parking underground should be investigated
- visitor berths and temporary berths need for special events (for example, regattas)
- EOI process requires clarification
- marina berth costs should be kept low
- proposed marina depth needs to be greater than -3.0m AHD
- contaminants in existing basin
- establish a hardstand for yachts opposite Corrigan's Beach as an alternative to the proposed dry stack boat storage
- Coastal Hazard Strategy
- need high quality design outcome
- construction staging
- reclamation of land should be avoided
- more marina berths needed than proposed
- boat circulation space should be increased
- emergency services berths should be designated
- marina needs redevelopment so proposed Marina Redevelopment is positive
- public access to waterfront should be maintained
- use of public land for commercial purposes
- assessment of impacts on shorebirds

- moorings for adjoining residents
- tourist facility appropriateness
- house boat and larger boat access
- public open space needed near city centre
- distance from car park to moorings
- sand bar restrictions on boat access.

Subsequent correspondence is continually being issued to the Department of Lands from local persons, which is a valuable source of design guidance. A full discussion addressing all matters raised by the community will be provided as part of the detailed Environmental Assessment.

2.0 Site and surrounds

2.1 Site description

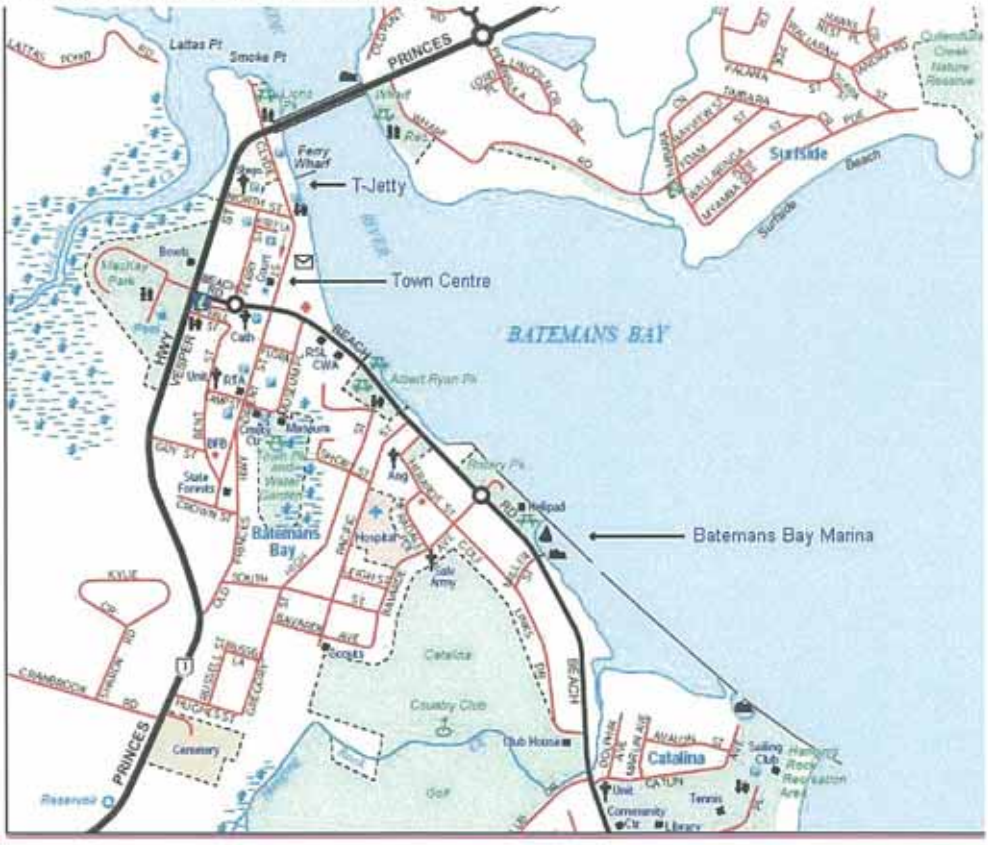
The Batemans Bay Boat Harbour is located wholly within the Eurobodalla Shire Council Local Government Area in Batemans Bay, on the NSW South Coast, and approximately 300 km south of Sydney.

The study area includes the following features:

- the existing marina area (the western portion of the Batemans Bay boat harbour)
- the undeveloped eastern portion of Batemans Bay boat harbour comprising tidal sand flats to the east of the harbour entrance
- the existing ship maintenance area, namely the boat hardstand and slipway area located along the western boundary of the existing harbour
- Rotary Park Crown Reserve
- port land namely Crown Reserve Lot 1 DP 788029 located north of Beach Road and currently utilised as a picnic area.

The study area is located on the southern bank of the Clyde River approximately 3 km south east of Batemans Bay central business district (Figure 2). The boat harbour is protected from the Clyde River by a training wall and breakwaters constructed to regulate the entrance to the Clyde River for navigational and boating purposes.

Figure 2: Batemans Bay Marina Locality Map



Source: Adapted from NRMA Road Users Map

Figure 3: Existing boat harbour aerial

The current site has a land area of approximately 3,500m² with a total site area of approximately 10 ha.

The Boat Harbour is characterised by a marina basin at the western end, containing existing marina berths, and a large sand flat area to the eastern end, which is exposed during low tides. The Batemans Bay boat harbour is protected from the Clyde River by a training wall, thought to have existed since the early 1900's.

Hanging Rock Creek drains onto the existing sand flat and into the existing boat harbour from the south adjacent to Beach Road. The eastern portion of the sand flat has been dredged in the past, creating a small pond during low tides (as shown in Figure 3 above).

The existing marina basin is situated within the western portion of the site with road access from the Batemans Bay Central Business District (CBD) via Beach Road. Beach Road is an arterial route serving the townships of Batehaven, Denham Beach and Surf Beach to the south.

Structures on the site include the two-storey Batemans Bay Marina Co-operative Ltd (the Co-op) administration and storage building and a concrete hardstand area used as parking for approximately 15 vehicles (public parking but used by marina operators). Vehicle access is provided via Rotary Park and the Beach Road roundabout.

Figure 4: Eastern portion of boat harbour

Figure 5: Slipway and amenities building on western edge of site

Figure 6: View west along pathway toward Rotary Park

Figure 7: View of 'Port Land' over helipad

2.2 Existing marina facilities

The Batemans Bay Marina Co-operative Ltd (the Co-op operates the marina under a management agreement with the Department of Lands. Under this agreement, the Co-op administers on behalf of the Department of Lands the mooring of vessels in the boat harbour. In addition, the Co-op has care and control (by way of a Crown land Licence) of the existing slipway and vessel hardstand area, for the maintenance of vessels.

Generally the marina caters for private recreational boating with approximately 95% of marina berths currently allocated for private recreational purposes, although this may not account for a number of commercial charters that operate from the marina using berths that have been recorded for private recreational use.

The marina has a maximum capacity of 126 berths. The existing number of berths at the Marina has remained unchanged since 1986, despite significant increases in vessel registrations over the past decade The current layout of the Marina allows for vessels up to 12m in length to be accommodated. However, only a small proportion of current marina capacity is designated for boats that are longer than 10m while considerable capacity exists for boat lengths of less than nine metres.

Pedestrian access to the finger jetties is provided via timber gangways from the pedestrian footpath on Beach Road and from the marina car parking area. Pedestrian access to the floating pontoons is provided via two gangways from the breakwater.

The existing timber finger jetties, built in the early 1980s, are generally in poor condition with the majority of structures potentially unsound and under continual replacement/repair. Their configuration and the space between the existing timber jetties are no longer adequate for larger modern vessels. The floating pontoons are more recent structures that could potentially be reused in any redevelopment option.

Vessel maintenance services currently take place within a fenced and uncovered hardstand area. Access for vessels to the hardstand maintenance area is via an inclined slipway. The slipway operates via a rail car which is submerged for vessels to be positioned and secured and then winched from the water. Plant (i.e. motor and winch) to operate the slipway is contained in a small shed on the western edge of the hardstand area. The rail car then operates on tracks in the hardstand area to position the vessel in dedicated storage spaces.

The vessel maintenance facility also provides maintenance services to houseboats. Houseboats are located and operate in the Clyde River upstream from the Princess Highway Bridge. Houseboats generally require annual maintenance and survey (i.e. registration for sea worthiness).

A small shipping container is located on the northern edge of the hardstand and has been converted to an administration office. A temporary refuelling facility is currently operating adjacent to the existing hardstand area.

A two storey amenities block is situated on the western edge of the maintenance area, which houses public toilets and an office (second floor) for the Marina administration officer.

Figure 8: Marina slipway

Figure 9: Timber wharf and shipyard

Figure 10: Training wall and floating pontoons

Figure 11: Marina gangway from Beach Road

2.3 Surrounding development

Surrounding land uses that are specifically relevant to the redevelopment of the site include Rotary Park, Hanging Rock Boat Ramp, Harbour Marine (boat sales and service), Coach House Marina Resort, the adjacent residential properties (including a foreshore reserve) and the Batemans Bay CBD. Surrounding land uses are shown in Figure 12.

Rotary Park

Rotary Park is situated to the east of the Batemans Bay Marina Redevelopment site. Rotary Park contains a public car parking area, which is accessed from the roundabout at Beach Road and Bavarde Road intersection.

The park contains scattered mature trees, but landscaping is limited to grasslands only. Rotary Park currently serves to provide public access to the waterfront. However, considering its close proximity to the CBD and to surrounding residential development, usage of the park is relatively small.

The reserve contains a helicopter-landing pad, used during emergencies as access to the regional hospital located in Batemans Bay.

Figure 12: Surrounding land uses

Hanging Rock Boat Ramp

The Hanging Rock Boat Ramp is a small partially enclosed boat harbour adjoining the eastern end of the harbour and providing a protected public boat-launching ramp. Car and trailer parking is provided within a large unsealed parking area (approximately 100 car / trailer spaces), with access from Beach Road via the Hanging Rock recreation area. Facilities at Hanging Rock include:

- concrete boat ramp (three-lanes wide)
- floating pontoon with timber piles
- fixed timber jetty on timber piles
- boat wash down and fish cleaning tables.

A surf rescue facility, comprising an administration office and storage is situated on the site. The surf rescue boat remains located in the marina. A four-metre wide unsealed track around the southern side of the harbour provides access to the large boat harbour breakwater.

Harbour Marine

The Harbour Marine is a marine retail and sales operation that adjoins the eastern side of the marina car park. Structures and facilities associated with the operation include the following:

- two-storey commercial building comprising boating and fishing sales and service / repair workshop
- concrete hardstand for boating display and sales
- floating timber decked pontoon
- informal concrete boat ramp.

The foreshore area occupied by the Harbour Marine is located on freehold land. Part of the informal boat ramp is on freehold land while the timber jetties and associated floating pontoon is located on crown reserve.

Coach House Marina Resort

The Coach House Marina Resort is located on the large area of land adjoining much of the eastern part of the boat harbour. Formerly a caravan park, the resort contains holiday accommodation in the form of cabins and a motel, plus a large marquee, used as a restaurant and function centre. Access to the resort is via a minor access way from Beach Road.

Residential properties and foreshore reserve

Nine residential properties are located between Beach Road and the boat harbour. The development on these properties is a mix of two storey detached dwellings and two storey multi-unit buildings. The ownership of these buildings is a mix of owner-occupier and holiday home accommodation.

Three of the dwellings currently have direct water frontage and have marina access via small floating pontoon, small ramp and a small wooden jetty (refer to Figure 13 and Figure 14).

Figure 13: Timber access to marina

Figure 14: Floating pontoon

A small strip of land owned by Council is located between about six of these properties and the boat harbour is identified as 'public reserve', which means these properties do not have direct water frontage. This reserve strip is controlled by Council and intended for public foreshore access. However, no formal access is proposed by this application and we understand Council does not have any proposals to establish access in this location. The boundary of the reserve is not clearly defined, as the adjoining residential properties do not tend to be fenced along the front boundaries.

Hanging Rock Creek

Hanging Rock Creek is a tidal waterway that drains into the southern part of the boat harbour. The catchment of the creek appears to comprise much of the adjoining Golf Course and some of the area beyond. Below the tidal limit the banks of Hanging Rock Creek are characterised by mangroves and other estuarine vegetation.

Batemans Bay Central Business District

The town centre is approximately two kilometres to the west of the Batemans Bay Boat Harbour. Beach Road connects the site to the CBD, with a cycle and pedestrian path alongside the road.

The CBD is currently undergoing a comprehensive process of redevelopment. Examples of this redevelopment include:

- Stockland shopping centre recently completed
- current plans by Woolworths to redevelop land in the CBD
- revamp of the Batemans Bay foreshore including reconstruction of the coalbunker wharf, extension of the Murra Murra Mia Walkway, additional timber jetties and new foreshore parks.

To facilitate orderly development of the CBD, Council are currently engaged in a structure planning process. It is understood that as part of planning for future growth in central Batemans Bay, Council is undertaking a complementary structure planning process for the land surrounding the Batemans Bay Boat Harbour.

3.0 Project need and alternatives

3.1 Introduction

In response to demand pressures at Batemans Bay Marina, the Department of Lands prepared *Batemans Bay Marina Redevelopment Feasibility Study* (prepared by Maunsell Australia) in October 2005, which investigated the feasibility of redeveloping the study area. This study used projections and opportunities as the basis of developing concept design options capable of providing sufficient supply to accommodate demand as it comes into the market in the medium to long term.

In Maunsell's findings it was noted that over the next 20 years:

- up to 322 moorings will have to be provided in the Batemans Bay catchment to meet the demand over that period
- some 4,000 m^2 commercial floor space for land base marina activities was necessary to support the boat mooring facilities.

This section provides a summary of the findings of this study as background to the Marina Redevelopment Concept Design presented to the community and Government agencies.

3.2 Need for upgrade of marina berths

The *Batemans Bay Marina Redevelopment Feasibility Study* (Maunsell, 2005) investigated the need to redevelop and expand current berths and infrastructure at the marina, against four main components:

- market assessment
- concept design
- economic appraisal
- financial appraisal.

The study investigated the commercial viability of upgrading marina berths and the required ancillary services and infrastructure associated with that upgrade.

3.2.1 Demand

The key market areas for boat moorings within Batemans Bay Marina are the Eurobodalla Statistical Local Area (SLA)[1], the Australian Capital Territory (ACT) and the Queanbeyan Statistical Sub-Division (SSD), which collectively account for close to 75% of current demand. As such, the Marina is a strategic local and regional asset and consequently, projections will need to account for movements in regional growth.

Vessel registration growth within key market areas has been above the NSW average of 3.0% over a ten-year period since 1994. Vessel registrations have increased by 5.9% p.a. within the Eurobodalla region whilst increasing by 3.4% p.a. within the ACT–Queanbeyan region.

Increasing population growth resulting from 'baby boomers' retiring from Sydney and Canberra to the coast, and increasing levels of tourists visiting the area have resulted in demand to accommodate

[1] The Eurobodalla Statistical Local Area (SLA) is equivalent to the Eurobodalla Local Government Area (LGA). Both terms may be used interchangeably throughout this document.

additional private yachts and charter boat operators. Consequently, high vessel registration growth rates have contributed to unmet demand for marina berths at Batemans Bay, indicated by growing waiting lists, long waiting times and greater use of swing moorings. As at October 2004, the Batemans Bay Marina Co-operative estimated that the length of the waiting list stood at 60 applications whilst the average waiting time stood at approximately two years.

In the absence of vacancies at the Marina, a significant number of swing moorings have been used. Currently, approximately 100 swing moorings are being used within the Clyde Estuary. With the number of vessel registrations in the two key markets areas for the Batemans Bay Marina set to increase, pressure on waiting lists and demand for swing moorings can also be expected to increase.

The feasibility assessment estimated that there is a range of future demand (by 2026) for marina berths, which are described as:

- using current berth holders and incorporating unmet demand as a basis for establishing the demand (base case scenario) – 272 to 287 berths
- using current berths holders and incorporating both unmet demand and upward trends in vessel registration over past 10 years (optimistic scenario) – 305 to 322 berths.

3.2.2 Other factors

In addition to the need to cater for increased demand, a redevelopment of the Marina is warranted for the following reasons:

- **Need for maintenance and replacement of seaside facilities:** Four timber walkways that service 90 berths require attention and currently require significant maintenance. These structures are likely to require replacement.

- **Limited facilities:** In comparison to similar sized coastal NSW marinas, the Batemans Bay Marina is limited in the range of facilities provided. The Marina is limited in the following aspects:

  - absence of permanent refuelling facilities;
  - absence of sewerage pump-out facilities;
  - limited car parking;
  - limited administrative space for government and community organisations; and
  - limited retail space.

  A redevelopment of Marina facilities will provide opportunities to increase service levels and amenity to users and to the wider/non-boating community.

- **Non-compliance with standards:** The current marina configuration is unlikely to comply with current Standards Australia design requirements (AS 3962-2001) and NSW Maritime Authority Guidelines (Waterways Guidelines for Maritime Structures) and does not cater appropriately for vessels of all sizes, with 40 percent of boats at the marina oversized for their designated berth.

- **Better manage safety and environmental outcomes:** Potential for establishment of additional swing moorings on the Clyde Estuary to cater for extra demand is not seen as being attractive for safety, environmental, access and traffic management reasons. There is also a need to establish environmentally acceptable facilities such as permanent refuelling and sewerage pump-out facilities, better managing the adverse effects of boating.

3.3 Economic appraisal

The *Batemans Bay Marina Redevelopment Feasibility Study* (Maunsell, 2005) found that for all economic indicators, development of land areas associated with the marina to provide commercial and other land uses are favoured over the option of increasing the number of berths only.

A breakdown of costs and benefits reveals that employment benefits, stemming from the provision of commercial space, along with the upfront construction costs have the greatest positive impact on the economic appraisal. The provision of commercial floor space can be expected to increase employment, with 56 full time equivalent direct and indirect positions estimated to be created under the development options. As such, employment benefits account for approximately 60-65% of (incremental) economic benefits for each development option.

Conversely, construction costs account for approximately 80% of (incremental) economic costs for each development option.

The activity matrix estimates that an additional $1m^2$ of land area through reclamation would produce approximately $1,960 per annum in flow on (indirect) economic benefits to the wider community. In comparison, the flow on (indirect) economic benefits to the community from an additional marina berth range between $550 and $750 per annum.

Sensitivity analysis found that variations in berthing rates, commercial rental rates and construction costs had little impact on economic returns, given the large value of employment benefits.

Options to improve economic outcomes

In light of the findings discussed above, a number of non-price options have been identified as possible options to further improve the economic outcome of each development option:

a) reclamation of land
b) purchasing of residential properties along Beach Road
c) rezoning
d) deferral of optional extras
e) sale of dredged material
f) sale of land.

Without generating sufficient economic benefits through ancillary development, prices may have to increase to finance improvements to the Marina. Strategies identified include:

a) increase base berthing rates
b) implement above-inflation increases
c) yield management
d) discriminatory pricing.

Qualitative assessment

Economic activity was expected to increase under all development options. Option four is assessed to expand the economy by $20.9 million in the long run based on a capital expenditure of $13.9 million in the short term. In comparison, economic activity under Option 1 was estimated to increase by $7.8 million from $5.2 million in expenditure.

Increased amenity can be generated to benefit the wider community from the development of the boat harbour for both marina users and tourists, which results from increased numbers of berths and greater access to the boat harbour foreshore.

Values of properties located in proximity of the Marina are expected to be significantly influenced by any marina development, with changes in land use, amenity and demand expected. Improved safety and environmental outcomes are expected through the removal of potentially unsafe structures and the installation of permanent sewage pump-out and refuelling facilities.

3.4 Redevelopment options

3.4.1 Introduction

The Feasibility Study (Maunsell, 2005) found that there are limited options other than expanding the Marina to cater for current unmet demand and future demand for marina berths. The T-Jetty near the town centre appears to be best suited to cater for increases in commercial demand and visitor moorings. As such, additional capacity is required to cater for permanent private vessel storage in the marina. The establishment of other marinas along the South Coast is uncertain in timing and capacity and are unlikely to conveniently cater for demand from the key market areas of the Eurobodalla, the ACT and Queanbeyan regions.

The further establishment of swing moorings may provide some opportunity to alleviate demand for berths at the Marina. However, the establishment of swing moorings is seen as undesirable as they can have a number of adverse safety, environmental and traffic management impacts, including the creation of additional navigational hazards, potential for an increase in water pollution, health and safety implications and the destruction of native sea grass beds.

Accordingly, the feasibility study did not recommend the 'do nothing' option.

3.4.2 Options considered

The Options are shown in plans provided in **Appendix B** to this report.

Alternative sites

The *Batemans Bay & Clyde River Estuary Management Plan - FINAL REPORT* (2005), prepared for Eurobodalla Shire Council by WBM Oceanics Australia contained a number of recommendations to "*assist government authorities and other stakeholder groups to sustain a healthy estuary through appropriate waterway, foreshore and catchment usage and in the longer-term achieve the "vision" for the estuary*".

In accordance with this aim, a High Priority Object (Objective No. 2) is to ensure "*recreational and commercial uses of the estuary are sustainable*". In particular, the objective seeks to promote waterway and foreshore based activities consistent with appropriate social and environmental impacts and waterway capability.

Under this objective, the Estuary Management Plan proposes the strategy to "*expand existing marina at Batemans Bay as a regional centre*". This proposal is aimed at addressing this strategy to expand the existing marina. Further, in the interests of minimising resource usage over time, the most appropriate method for increasing marina berths and promoting economic growth of the region is to utilise the existing marina basin.

Design options concerning the configuration of facilities on site are discussed in section of this report, which includes the option for locating a hardstand facility on the eastern end of the site, near

Corrigan's Beach. These options will be investigated as part of detailed design consideration by the preferred proponent.

Base Case (Option 1)

This option looks at redeveloping the existing marina to provide a level of facilities desired by existing boat owners and commercial operators. The outcome of this option is to satisfy legal, community and political objectives for the site including conformance with structural safety standards, potential liability implications arising from existing unsafe structures and to provide a level of services consistent with other similar-sized marinas in NSW, such as such as fuel and sewerage pump out facilities.

Full Development (Option 2)

The full development option considers maximising the number of berths, associated facilities, services and operations. Commercial opportunities and car parking is maximised under this option. The findings in relation to this option are:

- 319 marina pens provided
- dual access to the site not supported by RTA and Council
- 4,000m^2 commercial to meet required floor space
- minimal works required to training wall (no vehicle access/parking to training wall provided)
- impacts on surrounding land owners are considered detrimental
- relies on an optimistic layout (high car parking, commercial development and a new access)
- retention of passive recreation activities within Rotary Park and foreshore access opportunities
- multiple ownership of operations and marina precincts is considered a commercial advantage
- outlay costs are high (approximately $19 million), with limited opportunities for staged development
- ranked behind Options 3 and 4 – Option 2 not recommended.

Staged Development (Option 3)

The development option considers optimising the number of marina berths available while catering for the desired level of facilities, operations and appropriate scale of commercial activities. This option considers a 'staged' approach to development in order to better respond to market demand over time.

The findings in relation to this option are:

- 264 marina pens provided in three marina precincts
- occupies land used by helipad (moved to eastern corner)
- 4,000m^2 commercial to meet required floor space
- requires significant widening of training wall to cater for vehicle access/parking
- 'multiple layout' providing car parking within the boat harbour with single access
- Rotary Park and 'port land' is occupied for all commercial development and car parking
- multiple configuration of operations and precincts, meaning the main advantages relate to opportunities for staged development and lower impacts on the surrounding community
- total costs approximately $17 million
- ranked behind Option 4 and not recommended.

Preferred Option (Partial Development – Option 4)

This option considers utilising a reduced number of berths with an optimum layout to reflect the desired level of facilities, operations and appropriate scale of commercial activities. Option 4 was identified as the preferred option as it best supported the Departments key objectives, economic and financial analyses, and the provision of suitable marina and commercial facilities. The preferred option is shown in Figure 15.

The characteristics of the preferred option include:

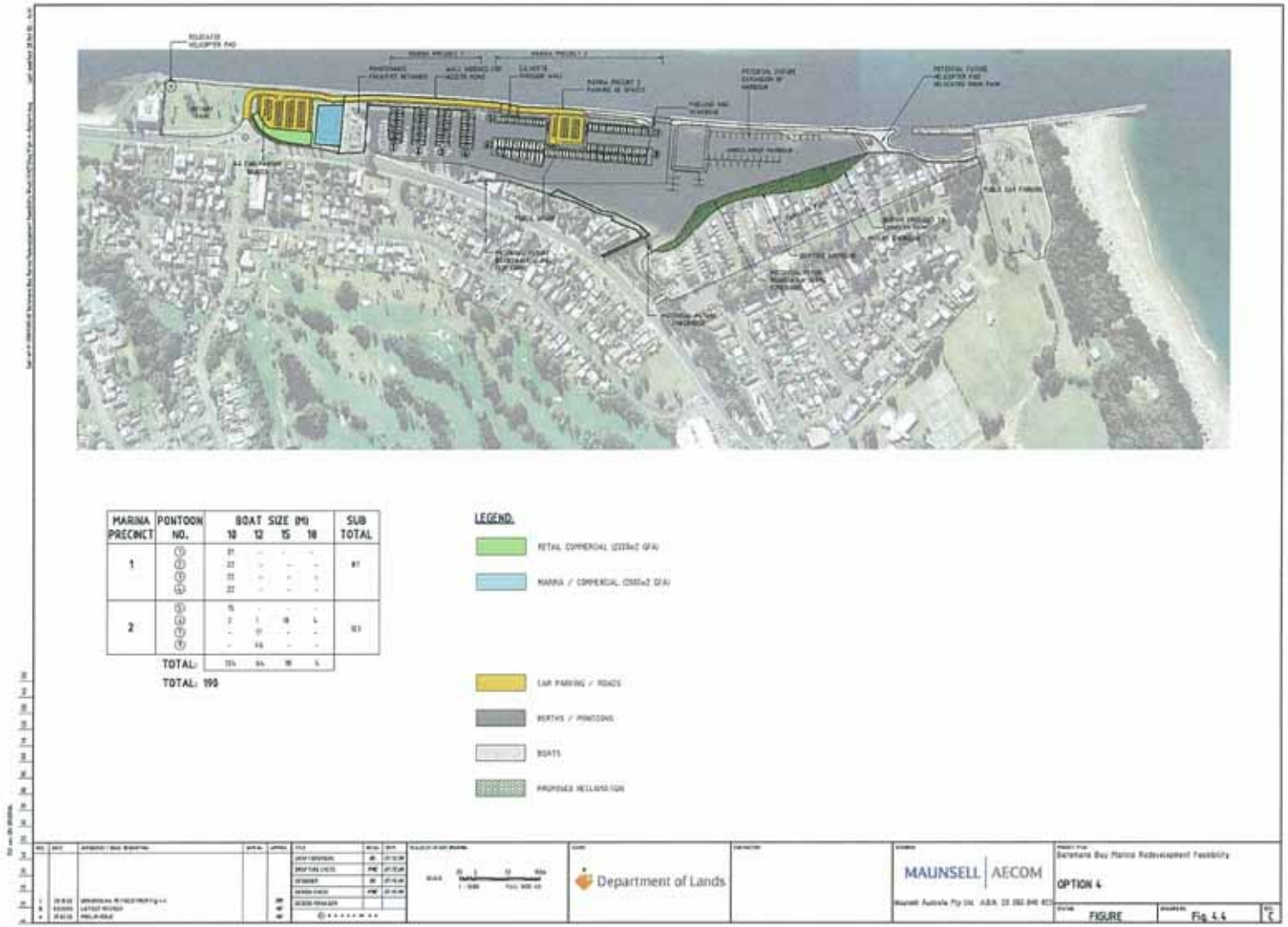
- 190 marina berths with potential for future increase to approximately 260 berths in a staged development scenario
- retail and commercial development 'wrapped' around frontage to Rotary Park and Beach Road
- occupies land used by helipad (moved to Rotary Park)
- 2,000m^2 commercial and 2,000m^2 retail to meet required floor space
- long building façade facing Beach Road
- waterfront occupied by car parking reducing promenade
- requires significant widening and heightening of training wall
- relies on developing only one of the marina precincts
- low outlay costs (approximately $12 million) and less significant environmental impacts.

Summary

Key findings of Maunsell's feasibility analysis included:

- there is a need to redevelop the marina
- an unmet demand of 60 berths (from a waiting list, therefore potentially not representative of latent demand)
- an estimated demand range of between 272 (based on current demand rates) and 322 (using optimistic demand rate) moorings by 2026 in the Batemans Bay catchment
- some 4,000 m^2 commercial floor space for land based related activities is needed to financially support the construction of marina facilities
- one preferred design concept (Option Four – Partial Development) was identified that supported the Departments key objectives, economic and financial analyses, and the provision of suitable marina and commercial facilities.

Figure 15: Option Four



3.5 Preferred base case option

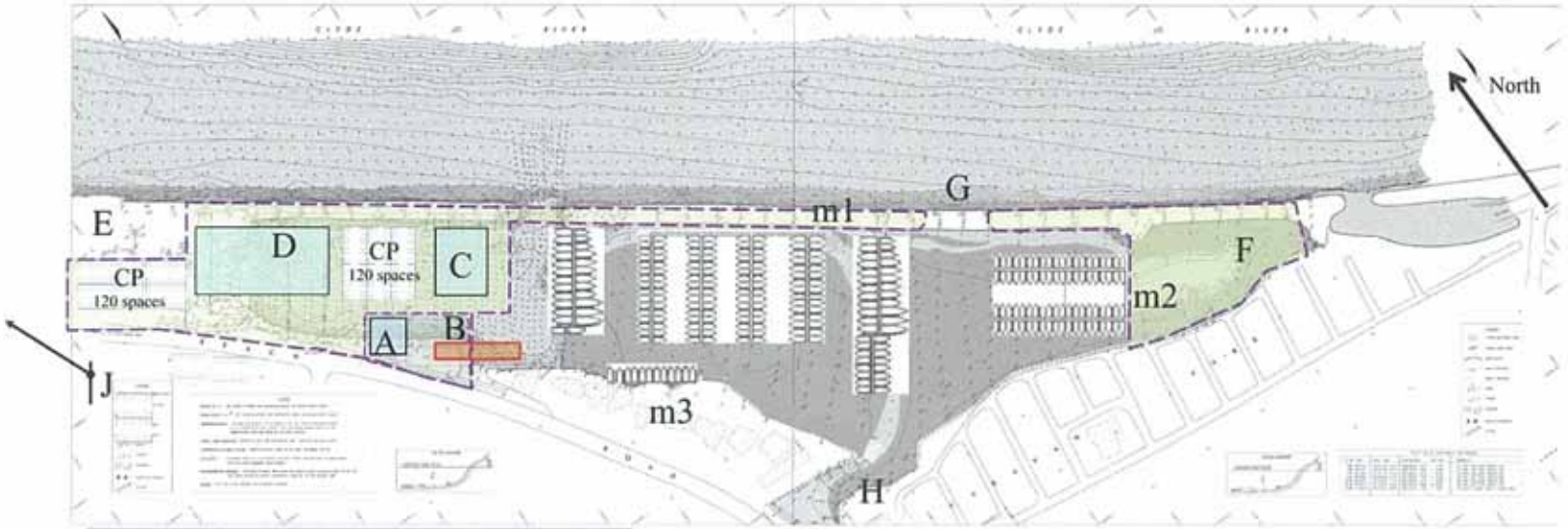
Following detailed consideration of the findings of the Feasibility Study, the Department of Lands developed a preferred base case option (also referred to as Option 5) as a starting point for the environmental assessment. The preferred base case is shown in Figure 16.

The focus of the preferred concept for the Batemans Bay Marina Redevelopment was the operational requirements for enhancing the facilities available in the marina. As described above, the base case option was formulated by Department of Lands

The key characteristics of the preferred base case option include:

- land reclamation in the area of the existing marina basin
- car parking areas are at grade and penetrate into the site
- 266 wet berths
- marina facilities located at the western edge of the marina
- new entrance moved to the east from the existing entrance location
- wet storage berths located on the eastern shore
- no encroachment on Rotary Park for car parking.

Figure 16: Preferred base case option



LEGEND

m1 western mooring area (190 vessels)
m2 eastern mooring area (boat wet storage area) (64 vessels)
m3 southern mooring area (12 vessels)
Total 266 vessels

CP main car parking area (200-250 cars)

A Boat Maintenance Shed (27m x 27m x 10m high)
B Boat Ship Lift
C Commercial Building (50m x 40m x two storeys)
D Tourist Facility (100m x 50m x three storeys)
E Existing Helicopter Landing Pad
F Reclaimed area (Possible Passive Recreation)
G New Boat harbour Entrance
H Low Level Weir
J Vehicle Entrance off Beach Road roundabout to marina car parking area

Department of Lands

BATEMANS BAY MARINA
REDEVELOPMENT
DRAFT OPTION 5

Date: 10 April 2006
Drawn: J Pascoe

4.0 Project description

4.1 Design review

The Department of Lands formulated a preferred Base Case Concept Design using the findings of the feasibility assessment. This Base Case Concept was reviewed in detail in order to refine the concept for purposes of undertaking an environmental assessment and engaging with the local community. Key outcomes of the review of the preferred Base Case option include:

- car parking is allocated using a single point of access
- commercial distribution adjoining the marina creates a conflict between the operational nature of the marina and the potential public uses of the commercial building
- limited land available for marina facilities is overcome by reclamation of area closest to site access (Rotary Park)
- limited design resolution and open space strategy
- waterfront arrangement conflicts with existing land uses
- configuration of land uses and built form on site not realising site potential to provide public access to waterfront and active uses to generate attractive Marina Redevelopment
- wet storage at eastern end of marina is difficult to secure and no direct access from marina administration area
- long building facades east to west (facing Beach Road and Clyde River).

One of the goals for this review is to generate broader benefits of an integrated spatial plan that deals with built form, landscape and operational requirements as a single entity.

As a result of the concept design review a preferred Marina Redevelopment Concept was formulated, which is the subject of this assessment, accompanying plans and the application for project approval. As the concept presented for purposes of environmental assessment is not likely to be the final design, the assessment will discuss a range of potential options for various components of the design. These options are discussed in Section 4.4 of this report and will be expanded upon as part of the detailed Environmental Assessment.

4.2 Project overview

In general terms, the proposed Batemans Bay Marina Redevelopment concept design involves reconfiguring and increasing the number of available berths along with establishing ancillary land uses on adjacent reclaimed land to enhance the marina efficiency, achieve commercial viability and improve community access to marina activities. The proposed development is shown in plans provided in Appendix A to this report, comprising:

- Drawing 1 – Existing Features Plan
- Drawing 2 – Marina Development Plan
- Drawing 3 – Marina Development Plan – Dredging and Reclamation Plan
- Drawing 4 – Marina Development Plan – Waterfront Arrangement Plan
- Drawing 5 – Marina Development Plan – Landside Arrangement Plan
- Drawing 6 – Marina Development Plan – Maritime Arrangement Plan
- Drawing 7 – Marina Development Plan – Typical Details
- Drawing 8 – Marina Development Plan – Construction Sequencing Plan (Stages 1-3)
- Drawing 9 – Marina Development Plan – Construction Sequencing Plan (Stages 4-6).

Proposed master plan for the landside elements and the massing drawings are shown in Figure 18and Figure 19 respectively.

The proposed Marina Redevelopment data is described in the following table.

Table 1: Project data overview

Component	Data
Vessel storage capacity	• Total of 270 permanent wet berths, comprising: - 11 jetties - berth lengths of between 10m to 18m • Hardstand storage and maintenance area, with wash down slab, catering for storage of up to 12 vessels of varying sizes.
Boat Maintenance Shed	Office, storage and maintenance building associated with marina maintenance facility. 240m^2 GFA (including mezzanine office)
Boat Dry Stack Storage (Capacity)	60 dry berths in a dry stack storage facility over three levels, catering for boats up to 8m in length. Total of 720m^2 GFA
Waterfront facilities: • refuelling and sullage pump out jetty • boat lift platform • forklift platform and temporary mooring jetty	As shown on plans.
Landscaping area	Approximately 1 ha landscaped open space.
Commercial floor space (GFA)	• 1,500m^2 GFA retail / café / restaurant floor space • 3,000m^2 GFA commercial office (government offices, professional offices, marina offices, community facilities or clubs and the like).
Car parking spaces	207
Dredge material (extracted)	200,000m^3 113,000m^3 to be disposed off-site.
Reclaimed land	• Reclaimed land area 17,150m^2 • Reclamation volume 87,000m^3

Note to table: The tourist facility footprint shown on plans is to demonstrate potential for future development, and does not form part of this application for approval.

Figure 17: Proposed concept layout

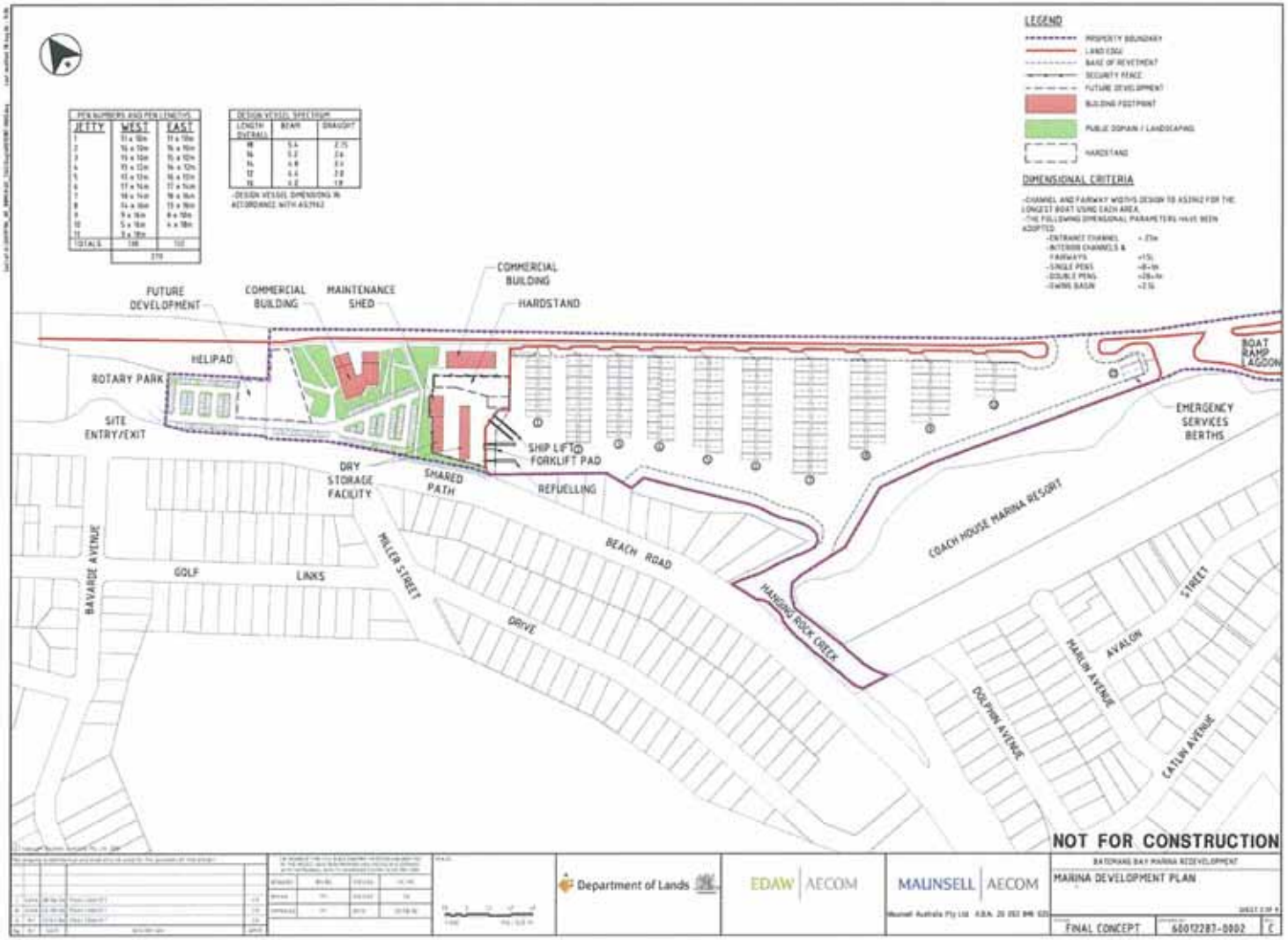


Figure 18: Proposed master plan concept

Figure 19: Proposed massing concept

4.3 Design principles

Key issues that were considered in determination of the Marina Redevelopment concept include:

- heights – relationship to the water, surrounding topography, existing contextual vegetation and diverse range of surrounding development heights
- street edge – with regard to existing street character of the surrounding developments and aim to improve street edge
- views – consideration of existing and potential view corridors
- activation – in particular the pedestrian, cycle and waterfront access system in order to create a vibrant precinct and a vital, safe circulation system for users of the site at all times of the day
- sense of place – desire to create a memorable, contemporary, distinctive public domain that addresses the inherent qualities of the site and to compliment the vernacular of existing development in Batemans Bay
- address – the need for a clear sense of address and identity to the various functional elements of the marina.

The existing Clyde River bar limits the size of vessel drafts, although the list of presently berthed vessels indicates that some yachts with drafts over two metres are kept in the existing marina. The final arrangement takes this into account whilst ensuring consistency with Australian Standard (AS) 3962-2001: *Guidelines for design of marinas*. The aim of the marina infrastructure concept is to provide a berth mix for vessels ranging in length from eight metres to 18m, with shorter length power boats (less than eight metres) housed in a dry storage facility.

4.4 Detailed design considerations

The following design considerations have arisen as a result of stakeholder and community consultation, and will be investigated as part of either the detailed Environmental Assessment or as part of the preferred proponent's design and feasibility program, as appropriate.

- Increasing the built floor space to allow greater areas for a combination of commercial and community facilities or sporting/sailing club.
- Reducing reclamation area to provide additional marina berths.
- Contributing towards landscape treatment of Rotary Park and cycle / pedestrian path to CBD.
- Investigate opportunities for reconfiguring the access through Rotary Park to provide better quality open space and minimise vehicle – pedestrian conflicts.
- Establishing a swing bridge at the location of the existing entrance to facilitate access for larger boats (including house boats and multi-hull vessels) to the maintenance area. Initial feasibilities indicate that a lightweight swing bridge structure would be suitable for this purpose, assuming infrequent openings and allowing vehicles to access the training wall for maintenance and emergencies.
- Re-locating the refuelling and sullage pump out to the entrance, on Clyde River side of training wall or on a jetty within the marina layout.
- Investigate options to incorporate visitor moorings within the Marina (up to 40 visitor berths have been requested by stakeholders). An alternative location for visitor berths is within the Batemans Bay CBD.
- Opportunities for allowing private vehicle access to the training wall and potential vehicle parking on training wall. Considerations include overtopping of training wall during storm events, reduction in marina berths and managing potential conflict with pedestrians/cyclists.
- Investigate opportunities for increasing the dry storage capacity to 100 vessels and/or proving dry storage for vessels with a length of 11m.

The above design considerations are identified for three reasons, which are:

- to reflect stakeholder and community issues raised
- to mitigate against adverse environmental impact
- to generate a commercially viable Marina Redevelopment.

4.5 Project description

4.5.1 Marina berths

A total of 11 jetties provide berths for 270 vessels, with the following berth mix.

Table 2: Concept design minimum berth mix

Vessel Length	No. of Berths	Berth Mix
10m	99	36%
12m	79	29%
14m	50	19%
16m	35	13%
18m	7	3%
Total	**270**	

It is understood that developments are planned for the jetties in Batemans Bay CBD, which would provide opportunities for visitor berths. Visitor berths in the marina are not specifically identified. However, there are opportunities for the operator to utilise berths on Jetty 1 or Jetty 11 for visitors to the marina.

4.5.2 Training wall and basin wall modifications

The training wall will provide pedestrian and vehicular access from its western end to the floating jetties. A navigable marina entrance is proposed at the eastern end of the boat harbour, which is proposed at a minimum width of 27m.

The configuration proposed provides for regular training wall access for marina users via electric buggies or trolleys. The proposed works do not provide for private vehicle (car) access along the training wall. However, the training wall, at approximately five metres wide, provides sufficient width to allow emergency or maintenance vehicle access.

As part of the Marina Redevelopment project, works are required to the existing training wall, which are:

- bridging the existing navigation entrance
- locally widening the training wall on its lee side to provide passing/temporary parking places at the bases of each of the mooring jetties
- armouring the lee side of training wall with rock riprap after the tidal flats have been deepened to approximately -4.0m AHD.
- armouring the basin wall with rock riprap after the tidal flats have been deepened to approximately -4.0m AHD.

4.5.3 Maintenance facility

It is proposed to provide boat lifting and maintenance facility at the western end of the new marina basin. To service this facility, waterfront marina infrastructure will comprise the following.

- Maintenance shed – with dimensions of:
  - Height – 10m
  - Area – 12m by 18m
  - Floor space – 240m^2 (including mezzanine office).
- Boat lift – comprising:
  - pair of boat lift runways capable of catering for a 40 tonne boat lift (note the dimensions shown on plans allow for a 50 tonne boat lift if increased capacity is warranted in the future
  - capacity for vessels ranging in length from eight metres to 18m.
- Wash down slab – with dimensions of 20m by 10m.
- Boat hard standing area – a hardstand area of approximately 2,600m^2, which can be used as permanent yacht storage or as temporary storage for boat maintenance
- Refuelling and sullage pump out jetty – refuelling comprises associated underground fuel tank(s) and pipelines (location of tanks below hardstand area to be confirmed by preferred proponent), while sullage pump out will be connected to sewer.

The proposed maintenance shed will be used for regular boat maintenance as well as storage and administration purposes. Activities such as spray painting, fibre glassing and other similar boat maintenance activities with potential for generating air borne particulates/fumes/gases will be conducted inside the shed.

In relation to proposed buildings, this application seeks approval for the building envelopes, floor space and use. Built form design principles will be established as part of detailed Environmental Assessment to guide subsequent detailed design.

4.5.4 Boat dry storage facility

This application seeks approval for the dry stack storage facility building envelope, floor space and use. The facility will provide capacity for dry storage of up to 60 smaller power boats with overall lengths of less than eight metres. Built form design principles will be established as part of detailed environmental assessment to guide subsequent detailed design.

The proposed dry stack storage facility is proposed to be split into three building units, of which the dimensions are:

- Height – 12m
- Area:
  - Building One – 32m by 9m (288m^2)
  - Building One – 48m by 9m (432m^2)
- Total Floor space – 720m^2.

The proposed dry stack buildings will each contain three rack levels vertically arranged around a central aisle, which is wide enough to allow the forklift carrying the boat to manoeuvre.

The internal configuration of the dry storage facility is comprised of:

- a lower rack capable of taking a Bertram 26 (eight metres long) with a lower rack height of 4.0m
- a second rack of 3.5m high
- a top rack 3.0m high.

A marine forklift is required for the launching and retrieval of boats to be stored on land, which would utilise the proposed launching platform and temporary mooring jetty alongside.

4.5.5 Public domain improvements

A central focus of the proposed Marina Redevelopment is to improve attractiveness, efficiencies and accessibility of the public domain surrounding the marina for the local community. Permeability has been achieved across the site through the integration of green corridors, allowing access to the water front for the public. The proposed location of the marina and facilities facilitates the secure zoning between accessible and non accessible areas.

Approximately 1 ha of the site is dedicated to landscaped open space.

4.5.6 Site access and parking

Vehicular access is gained from the Beach Road / Bavarde Avenue roundabout via the Rotary Park parking area. The proposed Marina Redevelopment includes a total parking allocation for 207 vehicles. The proposed car park and access configuration allows for good access by private vehicles and would also be suitable for large articulated vehicles or large cranes that would be used for boat transportation to access the hard stand area. The main route through the site supports two way vehicle movements and access for the various land uses for service and emergency vehicles is appropriate.

The shared cycle / walk way that presently runs along Beach Road is linked in to the site allowing direct access to the waterfront and the proposed amenities. This path facilitates the extension of the path from the Marina to the CBD along the waterfront.

4.5.7 Ancillary buildings

This application seeks approval for two building envelopes, floor space and use for a range of maritime related land uses. Built form design principles will be established as part of detailed environmental assessment to guide subsequent detailed design. The total development floor space is 4,500m^2, which is made up of:

- 'commercial'[2] floor space of 3,000m^2
- active retail/cafes/waterfront uses of 1,500m^2.

The types of land uses proposed within the 'commercial' buildings comprise:

- chandlery, marine sales and retail, sail making, food (seafood) retailing, cafes and restaurants, clubs (sailing club, marine related sports clubs), small maritime business offices, government offices, charter boats, dive boats, cruise offices, tourism-related commercial businesses.

[2] Although a range of community, office and maritime activities are likely in the proposed buildings, 'commercial' is used for the purposes of describing the proposed floor space that is not retail.

The proposed ancillary floor space is split into two separate building forms, which comprise:

- two storey building with dimensions:
  - dimensions – 45m by 15m
  - height of eight metres
  - total floor space – 1,350m^2
- three storey building with dimensions:
  - building area – 35m by 35m
  - height of 12m
  - total floor space – 3,150m^2.

4.5.8 Dredging and reclamation

It is proposed to dredge the tidal sand flats in the eastern end of the existing boat harbour to permit all tide mooring of vessels. Dredging this area will result in approximately 200,000m^3 of dredged sand material.

Approximately 87,000m^3 will be used for reclamation fill to extend the western land area. Land will be reclaimed to a ground level of approximately +2.5m AHD, which is aimed at allowing a built floor level above the 1 in 100 year flood level and to minimise impacts of sea level rise over the life of the development.

There will be an excess of approximately 113,000m^3 of dredged sand that may be sold and exported off site. Testing undertaken by GHD indicates that the sand is generally clean and does not contain other materials that might compromise its use for beach nourishment or other general filling uses.

The options for off site disposal of the dredged sand will be investigated and provided as part of the detailed Environmental Assessment.

4.5.9 Marina construction staging

Conceptual dredging sequencing is shown in attached Drawings 8 and 9 (Appendix A). The aim of the construction sequencing plan is to provide continual berths for existing vessels in the marina and for continued operation of the maintenance facility, while avoiding double-handling of the dredge material.

In order to export the excess dredge sand by truck, the eastern end of the new marina basin will be deepened at the outset using large excavators. Temporary access routes may be required for the trucks over the present sand surface to prevent bogging and temporary access will need to be arranged around the east end of the Coach House Marina Resort. Approximately 113,000m^3 dredge material will be removed via excavator in the first stage of dredging.

The preferred proponent will investigate options for dredging the initial stage using a cutter suction dredge and potentially de-watering the sand off-site.

A small cutter suction dredge would pump the remaining dredged sand via pipeline to the reclamation area. This western service area is to be extended to the east into the present marina basin once the jetties have been demolished.

4.5.10 Future development area

The Concept Design identifies an area for potential future tourist facility, which may be pursued by the third party developer. This application does not seek project approval for development of this area.

The types of development would be investigated by the preferred proponent and may include:

- removal of area and adjusting of reclamation area to increase number of berths
- expansion of dry storage facility
- education/learning centre
- aquarium, maritime museum or similar attraction
- tourist development
- increased floor space for commercial/retail/community facilities
- or a combination of above.

In determining the most appropriate solution, the preferred proponent will be required to give support to the boating community as well as meeting the objectives to provide wider community benefits in terms of social and economic growth.

5.0 Planning and legislative requirements

5.1 Approval process

5.1.1 State Environmental Planning Policy (Major Projects) 2005

State Environmental Planning Policy (Major Projects) 2005 (SEPP Major Projects) was gazetted on 25 May 2005 and duly amended on 1 August 2005. It replaces all previous provisions related to former State significant development in planning instruments, directions and declarations.

Works proposed for the Batemans Bay Marina Redevelopment are defined as a major project, under Schedule 1, Section 14 (Marina facilities) of *State Environmental Planning Policy (Major Projects) 2005* (SEPP Major Projects). The definition of marina facilities within Section 14(1) includes:

'(1) Development for the purpose of marinas or other related land or water shoreline facilities that moor, berth or store vessels (excluding dinghies and other small craft) at fixed or floating berths, at freestanding moorings, alongside jetties or pontoons, within dry storage stacks or on cradles in hardstand areas and that:

(b) moor, berth or store more than 80 vessels in other waters, or

(c) are located in environmentally sensitive areas of State significance, but excluding any development that, in the opinion of the Minister, is only of local environmental planning significance.

Clause 14(2) states that in the case of upgrades to existing marines, references to the number of vessels (as in sub clause 1, above) are referring to number of additional vessels to be moored, berthed or stored at the facility.

The Batemans Bay Marina Redevelopment proposes approximately 136 additional moorings, and is located within an environmentally sensitive area of State significance (Section 3(1) includes coastal waters of the State). The proposed works can therefore be defined as a Major Project within the meaning of this SEPP. Section 6(1) states that development described in Schedule 1 of the SEPP is declared to be a project to which Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act) applies.

5.1.2 Environmental Planning and Assessment Act 1979

The EP&A Act and the *Environmental Planning and Assessment Regulation 2000* provide the framework for the assessment and approval of proposed developments in NSW.

Part 3A of the EP&A Act consolidates the assessment and approvals process for all major projects requiring approval of the Minister for Planning, which were previously dealt with under Parts 4 and 5 of the Act. Part 3A applies to State government infrastructure projects, developments previously classified as State significant and any other projects, plans or programs declared by the Minister. It provides a separate streamlined and integrated development assessment and approvals regime for projects of significance to the State.

Clause 75B(1) of the EP&A Act states that *'This part applies to the carrying out of development that is declared under this section to be a project to which this part applies... by a State environmental planning policy'.*

According to Clause 75D, the Minister is the approval authority for Part 3A projects:

'(1) A person is not to carry out development that is a project to which this Part applies unless the Minister has approved of the carrying out of the project under this Part.

(2) The person is to comply with any conditions to which such an approval is subject.'

Clause 75E of the EP&A Act provides that a proponent may apply for approval of the Minister to carry out a major project. This document constitutes the Department of Land's Preliminary Environmental Assessment for the Batemans Bay Marina Redevelopment. Accordingly, the Marina Redevelopment will be subject to assessment by the Director General of the Department of Planning and determination by the Minister for Planning in accordance with the EP&A Act.

It is noted that under section 75J(3)(b) of the EP&A Act, the Minister cannot approve the proposed development if it is wholly prohibited under an Environmental Planning Instrument (State Environmental Planning Policy, Regional Environmental Plan or Local Environmental Plan). The proposed development is not prohibited under any relevant Environmental Planning Instrument. The relevant planning framework is discussed in the following sections.

5.2 Commonwealth legislation

5.2.1 Environmental Protection and Biodiversity Conservation Act 1999

The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) governs the Commonwealth Environmental Assessment process and provides protection for matters of National Environmental Significance (NES), which include:

- Nationally threatened species and ecological communities;
- Australia's World heritage properties;
- Ramsar wetlands of international importance;
- Migratory species listed under the EPBC Act (species protected under international agreements);
- Commonwealth marine areas;
- Nuclear actions, including uranium mining; and
- National heritage.

The area surrounding the marina is a classified a Commonwealth Marine Area, and approval may be required under this Act should it be considered that the Marina Redevelopment could have a significant impact on the environment. Investigations are being undertaken to determine the potential impact on matters of NES, including the following items protected under the EPBC Act and located / potentially found within the vicinity of the marine:

- migratory bird species such as the Eastern Curlew and Bar-tailed Godwit
- marine fishes including the Australian Grayling (*Prototroctes maraena)* Australian Grayling
- Clyde River Estuary (important wetland).

5.3 NSW State legislation

5.3.1 Protection of the Environment Operations Act 1997

The *Protection of the Environment Operations Act 1997* (POEO Act) relates to pollution management and waste disposal in NSW. The POEO Act also established licensing of certain activities which are listed in Schedule 1 of the Act. 'Marinas and boat repair facilities' are listed within Schedule 1 and would therefore require an Environment Protection Licence from the Department of Environment and Conservation to operate the facility.

Environmental Protection Licence No. 11909 has been issued to the Batemans Bay Marina Co-operative Ltd for mooring and boat storage and vessel construction/maintenance.

It is likely that an Environmental Protection Licence would also be required for the dredging works during construction; Schedule 1 defines dredging works as being works in which materials of more than 30,000m^3 per year are obtained from the bed, banks or foreshores of any waters.

The Department of Environment and Conservation will be consulted during the preparation of the Environmental Assessment to ensure that the proposed development is designed in accordance with Department requirements. In particular, the Department of Environment and Conservation's advice and requirements will be sought in relation to the handling of the material currently located on the bed of the existing marina which contains a range of contaminates with varying concentrations.

5.3.2 Threatened Species Conservation Act 1995

The *Threatened Species Conservation Act 1995* (TSC Act) provides for the conservation of threatened species, populations and ecological communities of animals and plants. Ecological investigations to be undertaken as part of the Environmental Assessment, will determine any permit or approval requirements under this Act.

5.4 State environmental planning policies

5.4.1 State Environmental Planning Policy No. 11 – Traffic Generating Developments

The aim of *State Environmental Planning Policy No. 11 – Traffic Generating Developments* (SEPP 11) is to ensure that the RTA is made aware of and given the opportunity to make a representation in respect to developments referred to in Schedules 1 and 2 of the SEPP. Schedule 1(c) includes *'the erection of a building for the purposes of shops and commercial premises where the gross floor area of the building is or exceeds 4000 square metres...'* The Batemans Bay Marina Redevelopment proposes approximately 4,500m^2 of commercial premises and would therefore require referral to the RTA by the consent authority. The RTA has been consulted with regards to the proposed development from the outset of this project.

5.4.2 State Environmental Planning Policy No. 55 – Remediation of Land

The objectives of *State Environmental Planning Policy No 55 – Remediation of Land* (SEPP 55) include the promotion of remediation of contaminated land for the purpose of reducing the risk of human health or another aspect of the environment.

Clause 7 of SEPP 55 requires a consent authority to consider whether the land is contaminated, and whether it is suitable (or can be made suitable) for the proposed development.

Refer to Section 6.2.3 of this report for further discussion of contamination and impacts on water quality.

5.4.3 State Environmental Planning Policy No. 71 – Coastal Protection

State Environmental Planning Policy No 71 – Coastal Protection (SEPP 71) commenced in 2002 with the aim of ensuring there is a consistent and strategic approach to coastal planning and management. The SEPP applies to the coastal zone. Relevant matters for consideration are listed in clause 8 of the SEPP and will be addressed in during design development and preparation of the detailed Environmental Assessment.

5.5 Regional planning instruments

5.5.1 Lower South Coast Regional Environmental Plan No 1

The *Lower South Coast Regional Environmental Plan No 1* (LSCREP 1) applies to land within the Shires of Bega Valley and Eurobodalla (an area declared by order to be a region called 'The Lower South Coast Region'). Aims, objectives, policies and strategies of the REP include:

- *to conserve the scenic and environmental character of the Region,*
- *to maintain the scale and character of the built environment,* and
- *to enable flexibility in building design consistent with the general aims and objectives of this plan.*

Clause 6(1) of the REP states that a person shall not erect a building on land to which this plan applies if the building has a height of more than 14m. Clause 6(2) goes on to say that nothing in clause 6(1) authorises the erection of a building which does not comply with a development standard relating to height which is specified in another EPI.

5.5.2 Lower South Coast Regional Environmental Plan No 2

The *Lower South Coast Regional Environmental Plan (No 2)* (LSCREP 2) also applies to the Lower South Coast Region. Aims of the LSCREP 2 include:

- *to develop regional policies that protect the natural environment and promote the orderly and economic development and use of land and other resources in the region, consistent with conservation of natural and man-made features,*
- *to consolidate and amend various existing policies applying to the region, to make them more appropriate to regional needs, and to place them in the context of regional policy,* and
- *to establish a regional planning framework for identifying priorities for further investigation to be carried out by the Department of Planning and other agencies.*

Part 2 of the REP discusses environmental aspects including natural areas, coastal and waterway environments, environmental hazards (e.g. bush fires and flooding), heritage and rural land.

This plan describes policies and matters that Council should consider before granting consent. As the proposed development does not require consent from Council, these sections do not apply, however relevant issues will be addressed during design development and preparation of the Environmental Assessment. Additionally, Schedule 2 lists guidelines for development in waterway catchment which will also be considered where appropriate.

5.6 Local planning instruments

5.6.1 Eurobodalla Urban Local Environmental Plan 1999

Land use zoning

The site is subject to provisions of the *Eurobodalla Urban Local Environmental Plan 1999* (Urban LEP). The Urban LEP applies a number of zones on the subject site, namely:

- Existing Boat Harbour, including marina, slipway and maintenance area, (excluding the Co-op building and amenity building): **Zone 6c1 – Private Recreation**
- 'Port Land' site (including existing marina Co-operative and public amenities building); **Zone 5d – Car Park Zone**.

The zones applicable to the current proposal are described in the following sections.

Zone 6c1 – Private Recreation Zone

The objectives of the 6c1 Private Recreation Zone are to recognise and provide for major recreational uses carried out on land not owned by a public authority. Development that may be relevant to the site and that is allowed with development consent includes:

- car parks
- indoor recreation facilities
- marinas
- public authority premises
- recreation establishments
- registered clubs
- restaurants.

Zone 5d – Car Park Zone

The objectives of the 5d Car Park Zone relevant to the study area include:

- "to identify existing and proposed car parks of key importance to the future development of adjoining commercial land"; and
- "to ensure that land is available for necessary off-street car parking in the future".

Development allowed with development consent includes car parks, roads, telecommunication, utilities and any other land use. No development is prohibited within this zone.

Permissibility summary

The proposed works fall within the meaning of a 'marina' under the Urban LEP, which is defined as:

"an artificially enclosed area of water, or pontoon, jetty, pier or the like, used to provide moorings for boats used for pleasure, recreation or commercial purposes, and may include or comprise:

(a) facilities on the same or adjoining land for the repair, maintenance and fuelling of, or the provision of supplies, accessories and parts for, boats or boating enthusiasts, or

(b) ancillary slipways,

(c) boatsheds, or

(d) ancillary tourist accommodation and restaurants".

It is considered that the proposed Marina Redevelopment falls within the meaning of 'marina'. Under each of the existing land use zones, the proposed 'marina', including a range of ancillary activities (including clubs, restaurants, public authority premises and maritime related retail), is permissible with consent.

It is worth noting that the LEP contains a definition for 'extractive industry':

(a) the winning of extractive material, or
(b) an undertaking, not being a mine, which depends for its operation on the winning of extractive material from the land on which it is carried on, and includes any washing, crushing, grinding, milling or separating into different sizes of that extractive material on that land.

The LEP defines 'extractive material' as including sand, gravel, clay, soil, rock, stone or similar substances. As mentioned in Section 4.0, in order to redevelop the marina, it is proposed to dredge 200,000m^3 of sand. Of this, approximately 87,000m^3 will be retained at the site in order to reclaim land for marina facilities, and 113,000m^3 will be disposed of off site as part of local projects. Although the Marina Redevelopment involves the removal of sand for the purposes of planning definitions it is not considered to be an 'industry' as this removal of materials is incidental to the objective of redeveloping the marina basin.

Adjoining land

Adjoining land is zoned a combination of:

- Rotary Park crown reserve and foreshore reserve on the boat harbour side of the nine residential properties: **Zone 6a1 – Public Open Space**.
- The existing residential properties located on the southern side of Beach Road are zoned as '**2t – Residential Tourism Zone**'.

The objectives of the '6a1 Public Open Space' relevant to the study area include:

- "to recognise the importance of land in the zone as open space and allow a limited range of uses compatible with keeping the land as open space and in public ownership";
- "to permit a range of uses, especially recreational uses, where those uses comply with the plan of management for the land"; and
- "to allow development on the foreshores where that development is water-related and enhances the recreational use or natural environment of the foreshore".

The residential tourism zone allows a wider range of land uses than other residential zones. Apart from typical dwelling houses, development allowed with consent includes general stores, hospitals, seniors housing, indoor recreation facilities, manufactured home estates, medical centres, passenger transport terminals, professional offices, service stations and tourist accommodation.

Summary

Works for the purpose of the proposed Marina Redevelopment, as described in Section 4.0 of this report, are permissible with consent in the existing land use zones.

5.6.2 Eurobodalla DCP – Parking Code

Relevant parking controls include:

- offices – one space per 30m² GFA for ground or first leasable level and one space per 40m² GFA at upper leasable levels
- retail – one space per 30m² GFA
- restaurant / Café: one space per 8m² public area
- marinas, public wharf's and boat ramps – 0.6 spaces per wet berth[3], 0.2 spaces per dry storage berth, 0.2 spaces per swing mooring, 0.5 spaces per marina employee, 20 spaces per regional boat launching ramp.

Other relevant controls include:

- minimum dimension for 90 degree parking space: 2.5m by 5.5m
- manoeuvring areas should provide for cars exiting in a forward direction with no more than a three point turn
- minimum driveway width (two-way) is 5.8m
- disability parking should comprise 1% to 2% of the total parking numbers.

[3] Note that this provision is equal to the maximum provision under Australian Standards for Marinas (AS3962-2001), which specifies 0.3 to 0.6 spaces per wet berth.

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6.0 Preliminary environmental assessment

6.1 Introduction

This section describes the potential issues associated with the proposed Marina Redevelopment and provides a description of the methodology for assessing and addressing these matters in the Environmental Assessment.

6.2 Key issues

The following issues are of key importance to the assessment of the proposed Marina Redevelopment.

6.2.1 Coastal processes

Potential impacts

This assessment will determine the impact of the proposed marina on coastal processes and the implications for design of the marina as a result of existing coastal processes. The assessment will specifically address coastal wave conditions, hydrodynamics, flushing, sediment transport and flooding.

Coastal processes are an important consideration due to the proposal's potential to alter the hydrodynamic processes as a result of dredging existing sand flats and reclaiming the western edge of the existing Boat Harbour.

Environmental assessment methodology

Analysis of harbour hydrodynamics (including numerical modelling)

We will utilise the existing RMA hydrodynamic model of Batemans Bay and the Clyde River to examine the tidal and flood hydrodynamics of the proposed Marina Redevelopment. This will involve modification of the model to provide a detailed representation of the existing and proposed marina configurations. The following simulations would be undertaken:

- mean tide condition
- mean spring tide condition
- mean neap tide condition
- storm surge simulation (based on water level data available from historical storms).

The results of these simulations would be used to derive basic harbour hydrodynamic information including impacts on tidal velocities and ranges. Furthermore, by considering these results, a description of how the harbour would behave as a result of floods in the Clyde River will be established, along with the impact of projected sea level rise (using the most recent Intergovernmental Panel on Climate Change (IPCC) estimates).

Any identified impacts on hydrodynamics including impacts on the local wave climate outside the harbour entrance would be highlighted and discussed.

Coastal hazards

A significant amount of work has been undertaken looking at coastal hazard issues in the past 20 years (Lawson and Treloar, 1987, Lawson and Treloar, 1996, WBM, 2000). We would rely upon the findings of these previous reports, although our assessment will extend and review the findings as appropriate. For example, it is proposed to examine the wave record at Batemans Bay to include the additional five years that have elapsed since WBM's Estuary Processes Study. Implications of any variations to the wave climate statistical analyses would be detailed and the way that these interact with the operation of the marina in terms of wave runup, overtopping and inundation would be discussed. Analytical methods would comprise manual calculations in accordance with the US Army Corps Shore Protection Manual (1984) and the current Coastal Engineering Manual (available online). This assessment would not involve any numerical modelling.

Analysis of harbour flushing behaviour

Using the RMA numerical model of Batemans Bay and the Marina, the assessment will determine an e-folding flushing time of the Marina. The e-folding time corresponds to the time taken for average tidal conditions to reduce the concentration of a conservative constituent inside the harbour from a value of 1.0 to a value of 0.368 (1/e) under the forcing of clean ocean water (concentration of 0.0) and the physical processes of advection and dispersion. It is considered that the harbour is small enough and located close enough to the ocean that the time for flushing of pollutants is not likely to be of significant concern.

Sediment circulation

To assess the sediment circulation from Corrigans Beach the upgraded RMA hydrodynamic model of the Clyde River and Batemans Bay will be used to provide a comparative assessment of currents in the vicinity of the boat harbour for both the existing and proposed conditions. From this comparison, it will be clear whether or not the proposed changes are likely to impact upon any current conditions that effect these circulations.

Waves are also an important process in effecting the circulation of sand from the entrance bar and nearshore shoals onto Corrigans Beach and northwards along the beach towards the breakwater. However, wave modelling in this regard is not proposed as the proposed changes to the Boat Harbour entrance are shoreward (i.e. west) of the area where these processes act and are therefore not capable of significantly affecting the wave induced components of the circulation.

Notwithstanding this, it will still be necessary to discuss the phenomenon of sand bypassing the breakwater, and the potential for this to cause infilling of the Marina entrance if allowed to continue unabated.

Harbour resonance

A key aspect of harbour hydrodynamics is the ability of ocean swell wave groups to cause the harbour to resonate. This results in a long wave commonly known as a seiche that can generate horizontal velocities capable of damaging moored vessels. The characteristics of the seiche likely to form in the marina will be determined using hand calculation methods detailed in industry standard texts such as Dean & Dalrymple (1991), the Shore Protection Manual (1984) and the Coastal Engineering Manual (most recent on line version).

Significant impacts of harbour resonance on the operation of the marina are unlikely as such impacts are uncommon in New South Wales, apart from inside basins that are more open to the ocean (such as Coffs Harbour). To confirm this, it is proposed to examine the spectral outputs from available wave records (including a Zwarts pole installed north of Snapper Island, and the Offshore Wave Rider Buoy) with particular reference to long period waves.

It is understood that long period wave analyses (i.e. of water level oscillations with greater period than ocean swell waves) have been undertaken by Manly Hydraulics Laboratory as part of their data collection program. This information will be used to infer the types of long term oscillations that may be experienced at the entrance to the Marina. Whether or not this would excite the Marina to oscillate would be examined using methods detailed in the Coastal Engineering Manual. If these investigations indicate a potential for harbour resonance, more detailed non-linear wave modelling may be required inside the Marina.

Sea level rise

Sea Level Rise would be assessed on the basis of the most likely scenario specified in the most recent IPCC estimates. Accurate quantitative predictions of the response of coastal processes and systems to sea level rise are not achievable in many cases. Nevertheless, the likely response, based on the most recent information available from sources such as the IPCC will be addressed with reference to the way it will affect the Marina in its present state, and in the proposed state. The impact of sea level rise would be taken into account while analysing other coastal processes.

Flooding in Hanging Rock Creek

To establish the flooding impacts on Hanging Rock Creek, the modified RMA model (which will extend upstream to Beach Road) will be utilised, with flow inputs calculated using simplified methods (such as the Probabilistic Rational Method) further informed by the findings of recent flood studies by John Condon & Associates (1998) and Cardno Willing (2006). Using the model, we would be able to assess potential impacts on the combined effects of catchment flooding and oceanic inundation. This assessment will provide a reasonable means for comparative assessment of the impact on flooding that dredging the eastern end of the Marina would have. It is not proposed to undertake a detailed flood study of Hanging Rock Creek for this assessment.

6.2.2 Flora and fauna

Potential impacts

Bateman's Bay and the Clyde River is a high quality marine environment with important estuarine habitats, regionally significant oyster leases, nationally significant wetlands and good water quality. The significance of this area is reflected in the recent announcement by the state government of a Bateman's Bay Marine Park including 85,000 ha of coastal and estuarine waters from northern end of Murramarung Beach to Wallaga Lake.

The proposed marina is located on the developed southern shoreline of Bateman's Bay and is not expected to have a significant impact on marine and terrestrial habitats. However, given the sensitivity and conservation significance of the surrounding environment, managing impacts to the natural environment is of key importance.

Potential impacts that will be addressed as part of the Environmental Assessment are:

- impact on threatened and regionally species that potentially occur such as Black Cod and Syngnthiformes
- impact on Hanging Rock Creek (mangrove areas)
- impact on shorebird habitat, in particular the potential for impact to migratory bird feeding or roosting habitat
- potential for dredging and reclamation to result in smothering of benthic habitats (impacts to water quality from the dredge plume is discussed in Section 6.2.3) and impacts on of fish feeding areas
- increase in boat usage could potentially result in an increase in illegal discharge of ballast/sewage waste, oil spills, fuel spills, anchoring, introduction of the invasive algae, *Caulerpa taxifolia* and boat movements within the Estuary. This could in turn result in impacts to water

quality, benthic marine habitats and fauna movement (impacts to water quality from the waste discharge are discussed in Section 6.2.3). The development would reduce the risk of spills.

Environmental assessment methodology

Maunsell has conducted preliminary consultation with the Department of Environment and Conservation (DEC) in regard to potential biodiversity issues for the project who have recommended that:

- the assessment is undertaken in accordance with the requirements of the 'Guidelines for Threatened Species Assessment under Part 3A' *of the Environmental Planning and Assessment Act 1979*
- the significance of the area to threatened species potentially occurring, specifically migratory birds should be assessed
- consultation with NSW Fisheries, DEC operations and the Batemans Bay Marine Park Authority are undertaken.

An aquatic survey will be conducted to determine the presence of seagrass and algal habitats and potential for threatened fish habitat

A shorebird assessment will also be undertaken based on a site visit and review of data previously collated at the site, to determine the potential for shorebird habitat within the Batemans Bay Marina. This will determine whether subsequent surveys are required during spring/summer months.

6.2.3 Water quality

Potential impacts

The aim of the water quality assessment will be to:

- determine the impact of the construction and operation of the proposed marina on surface water quality and groundwater quality within the Bateman's Bay Marina and immediate surrounds
- determine mitigation and management measures to control impacts to ensure compliance with relevant water quality objectives and ANZECC (2000) guidelines.

Potential impacts to water quality from the proposed development will be assessed. Key issues that will be addressed include:

- results of the analysis of harbour flushing behaviour
- sediment plumes from dredging and reclamation activities
- soil erosion during construction
- runoff from car park and refuelling facilities (litter, gross pollutants sediments and chemicals) and sealed areas
- runoff from boat washdown
- illegal discharge of ballast/sewage and other waste materials
- fuel, lubricant, oil spills
- mobilisation of contaminants through dredging activities.

Based on preliminary field investigations, the sand material contained within the tidal sandflats is considered to be suitable for use in any on-site reclamation works and/or suitable for a range of uses on projects at other sites. The material currently located on the bed of the existing marina contains a range of contaminates with varying concentrations and may not be suitable for off-site reuse and/or

disposal. This matter will be the subject of further discussions with relevant government agencies and may be subject to the requirements of those agencies. All investigations to date and any further investigations relating to the bed material contained within the marina site will be included in the Environmental Assessment.

Environmental assessment methodology

The water quality standards applicable to the proposed development would be determined based on a review of local and national water quality standards, government reports on the waterways and water quality data assessment. Evaluation objectives and performance standards would be determined in order to provide performance targets and objectives (i.e. no net impact to surface water, groundwater and marine water quality).

Given that the marina site is largely separated from the Clyde River and Batemans Bay, and it has been modified and disturbed by a range of human activities, it is not proposed to undertake water quality modelling. Water quality impacts will be assessed utilising existing water quality data and hydrodynamic modelling conducted as part of the coastal processes assessment.

Impacts on stormwater quality will be qualitatively assessed based on typical load export rates for parkland and paved areas similar to the nature of the proposed development. Water sensitive urban design measures shall be recommended based on published typical pollutant removal rates.

Mitigation and management measures for the identified impacts will be outlined. This is likely to include the following:

- water sensitive urban design measures for the proposed development
- pump out and waste collection facilities
- sediment controls during construction
- sediment controls during dredging activities (such as use of silt curtains)
- oil/water separators, gross pollutant traps, bunding chemical areas and the like
- response strategies to spills
- dredge spoil management.

Permits under sections 201, 205 and 219 of the *Fisheries Management Act 1994* are not required for projects being assessed under Part 3A of the EP&A Act.

The key objectives and performance standards for a water quality monitoring program will be outlined for the construction and operation of the Marina. The water quality monitoring plan would be developed as part of a Construction Environmental Management Plan.

6.2.4 Traffic and transport

Potential impacts

Key issues relating to the traffic and transport assessment will include:

- road access
- pedestrian and cyclist movements
- parking provision and design.

The tasks involved in reviewing the concept design are split into these discipline areas for ease of understanding. However, these reviews will be undertaken concurrently and will regularly be subject to coordination through workshops and internal communications where necessary.

Environmental assessment methodology

Road access

The primary access to the site is via Beach Road at the roundabout with Bavarde Avenue. Access to the proposed developments will be assessed from the perspective of:

- maintaining safety standards
- maintaining traffic flow standards
- maintaining pedestrian flow along footpaths.

The design of the proposed site access will be assessed against Austroads standards and RTA guidelines (RDG). The performance of the intersection will be assessed in later stages of the study using aaSIDRA/2.1. This is a widely accepted tool for modelling the performance of intersections and is able to quickly assess alternative designs.

Internal to the site, the proposed access roads will be reviewed for cross-section and alignment. Access to parking areas will also be reviewed, together with the form of any internal intersections.

Pedestrians and cyclists

Pedestrian and cyclist movements both in and around the site will be assessed in terms of safety and mobility. Provision for pedestrians will be reviewed against the Guide to Traffic Engineering Practice Part 13: Pedestrians (Austroads, 1995) and the Planning Guidelines for Walking and Cycling (Department of Planning, 2004). Provision for cyclists will be reviewed against the Guide to Traffic Engineering Practice Part 14: Cyclists (Austroads, 1999) and the NSW Bicycle Planning Guidelines (RTA, 2003).

Parking

Parking provision was carefully assessed during the concept design process. Due to the nature and variety of land uses that are planned, it is recognised that not all of the marina's patrons will be using the facility at the same time and a degree of shared parking allocation has been taken in to account.

This is based on a number of characteristics of this development:

- complementary land uses are present i.e. car parks used by boat users during the day will be used by others attending a restaurant or club at night
- types / numbers of marina vessels i.e. commercial boats utilised during the week, yachts in evenings / weekends
- land use distribution i.e. commercial offices will be closed at weekends when marina use is at its highest.

Based on these characteristics, a reduction of the parking provision due to 'shared parking' is quantified as the provision for office parking. This is on the assumption that offices will not be used at weekends when the site is busiest. Restricting parking availability will also reduce the potential traffic impact on the local road network.

A breakdown of the parking provision is given below. Although the parking rate for wet berths is below the requirement set in the Eurobodalla Parking Code DCP, it is within the range specified by

Australian Standard (AS 3962-2001) 'Guidelines for Design of Marinas'. Australian Standard notes that for commercial facilities a lower number of parking spaces should be considered, and therefore a slight adjustment to the rate has been incorporated based on the nature of likely usage at the marina. The Concept Design provides parking for the proposed number of boat berths at a significantly better rate than is supplied at present.

The parking provision as defined presently is therefore deemed suitable to support peak usage times for the marina and associated facilities.

- Commercial Office – 3,000sqm, one space required per 30sqm = 100 car parking spaces*
- Retail / Café – 1,500sqm, one space required per 30sqm = 50 car parking spaces
- Wet Berths – 270 total, 0.5 spaces per berth = 135 car parking spaces
- Dry Berths – 60 total, 0.2 spaces per berth = 12 car parking spaces
- Marina Employees – six total, 0.5 spaces per employee = 3 car parking spaces

* 'Shared Parking' provision, not required at peak marina usage times i.e. weekends.

The design of parking areas within the Proposal will be reviewed against Eurobodalla Council Development Control Plans and AS: 2890.2 (Standards Australia).

6.2.5 Visual and landscaping issues

Potential impacts

Due to the site's location on the foreshore of the Clyde River, the proposed redevelopment of the marina would alter existing views between water and land. Visual impacts are therefore a key issue to consider as part of this assessment. In order to minimise visual impacts while providing a viable marina development, key urban design principles and design criteria have been formulated to guide design of the built form. These principles and criteria are based on existing landscape and built features of the site and surrounds.

Figure 20 shows the general development structure for the site, which is heavily influenced by established visual criteria. Buildings have been consolidated into development corridors, separated by strips of open space to protect significant viewpoints, which reflects the core visual and permeability objectives for development on the site. Building types reflected in the current plan indicate a smaller than traditionally accepted building footprint. The overall plan allows flexibility in the building type however a major principle is the retention and the definition of the view corridors through both built form and landscape design.

Key objectives of the Environmental Assessment with respect to visual amenity are to:

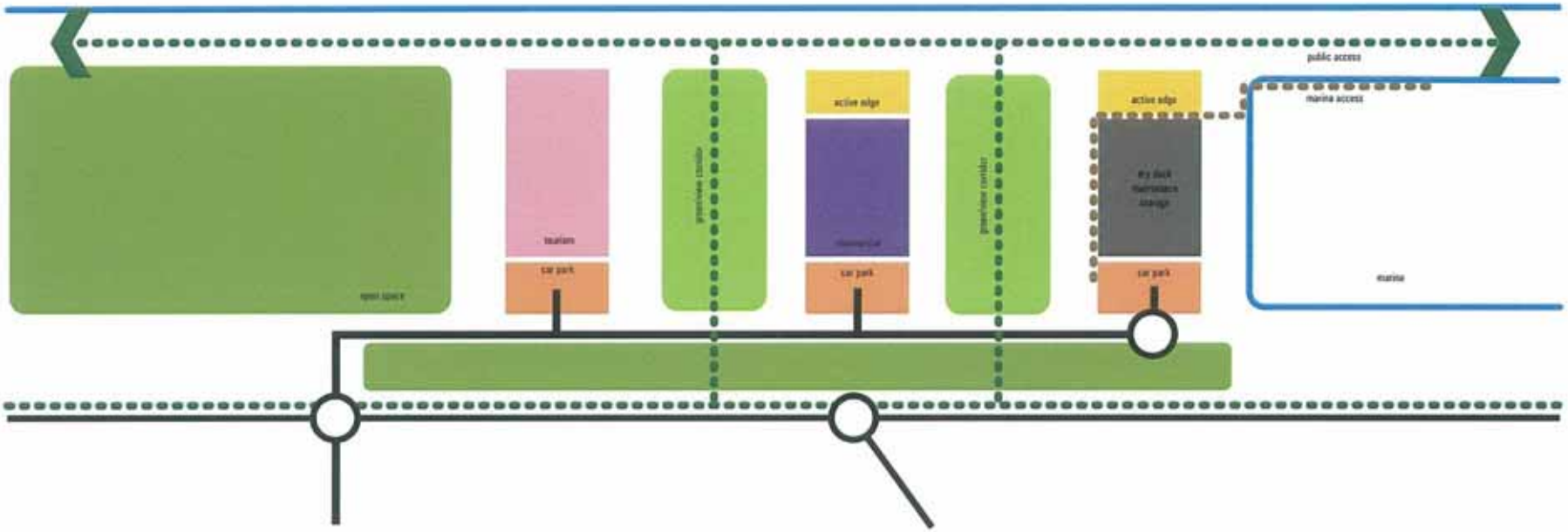
- assess the visual character of the landscape
- determine the impacts of the proposed marina on this landscape
- determine management strategies to ensure that the visual character of the landscape is maintained or improved.

Environmental assessment methodology

The visual character of the landscape setting will be assessed at a broad scale. Based on this assessment we will address the following, particularly:

- description of existing landscape
- scenic quality assessment of the landscape.

Figure 20: Development structure diagram



The viewsheds for the various components will be established by GIS analysis of terrain data, followed by on site verification. Key viewpoints to the development include locations on Beach Road, the Coach House Marina Resort, the Clyde River and bay (including the Princes Highway bridge), Surfside and Surfside Beach. The key viewpoints will represent the range of views that will be experienced to the marina development. Viewsheds of each key viewpoints will then be determined to identify the extent of the development that can be seen from each viewpoint.

A thorough understanding of the form and character of the proposed development will be used to define the visual character of the development in terms of overall scale, shape pattern, line and colour. The level of visual modification created by the development will be determined by a joint consideration of the visual character of the existing locality and site as well as the visual character of the development.

Three photographic visual simulations will be prepared from selected key viewpoints to assist in the determination of the level of visual modification.

Based on assessments of visual modification and visual sensitivity, the visual impacts of the marina development will be determined from each key viewpoint.

Visual and landscape management strategies will be identified for input into the planning, design, implementation and, as appropriate, ongoing management of the various components of the development. The visual and landscape management strategies will be in the form of guidelines and implementation strategies for input into an overall environmental management plan framework.

6.2.6 Noise and vibration

Potential impacts

Key impacts associated with the proposed Marina Redevelopment include:

- environmental noise emission to the surrounding area
- noise intrusion into the development (from road traffic)
- construction noise (including dredging) and vibration assessment criteria
- operational noise sources
- sleep disturbance
- traffic generation assessment.

Environmental assessment methodology

The noise and vibration assessment will be in accordance with the methodologies contained in the Department of Environment and Conservation's (formerly the Environmental Protection Agency) Environmental Assessment Documentation, including:

- Environmental Noise Management: NSW Industrial Noise Policy (EPA, 2000)
- Environmental Noise Management: Environmental Criteria for Road Traffic Noise (EPS, 1999)
- Environmental Noise Control Manual (EPA, 1994)
- Department of Environment and Conservation recommendations for assessing construction noise.

6.2.7 Socio-economic impacts

Potential impacts

The recently advertised *Draft South Coast Regional Strategy* (Department of Planning, 2006) identifies Batemans Bay as a "*Major Regional Centre*" and the Batemans Bay Marina as "*regionally significant employment lands and infrastructure*". The Strategy identifies key actions for achieving objectives for the Region, which includes:

- *"LEPs shall protect and add to employment lands in existing economic centres including major regional centres and major towns and identify and protect all regionally significant employment lands including... Batemans Bay Marina".*

The strategy promotes the concentration of development for the region in Batemans Bay (along with Moruya and Narooma) and the *"town centre type development encouraging mixed use and higher density living strengthening its role as the major residential, commercial and tourism centre for the middle part of the Region".* The Strategy states that tourism is a key growth and opportunity sector (over $1.2billion was spent by visitors in the region in 2003).

As Batemans Bay residents and visitors rely on access to the water for both pleasure and business, redevelopment of the marina, as a point of access to water activities, has the potential to generate socio-economic impacts on the wider community. Further, the proposed redevelopment has the potential for to generate significant direct and indirect economic and social benefits to the region, including increase in employment, local land values, visitor expenditure, access to waterfront open space and small business opportunities in the new marina. The socio-economic impacts are likely to be three fold, including:

- additional moorings will attract additional people and income to the area
- the associated retail/commercial development will facilitate new economic activities and create a hub for maritime retail, commercial and community facilities
- providing an enhanced public domain through improved access to the waterfront and connections between Rotary Park and the maritime precinct (including training wall access), which would provide attractive public space near the CBD and would provide an impetus for landscape improvements to Rotary Park.

The Eurobodalla Shire has experienced significant growth over the last decade and this expected to continue. Batemans Bay, as the largest commercial centre in the Shire, has absorbed much of the secondary and tertiary sectors in the economy. Most notably, a strong increase in retail and tourist related industries have resulted in strong jobs growth in these sectors. The retail growth has been demonstrated by the redevelopment of the former Batemans Bay Primary School site by Stocklands into a major regional retail centre which accommodates K-mart, Aldi, Coles, Dick Smith and a number of specialty stores. Refer to Section 3.3 of this report for further discussion regarding socio-economic objectives for the Marina Redevelopment and findings of the detailed economic analysis.

The proposed marina development would provide retail, commercial and community facility floor space. However, it is expected that the majority of this new retail/commercial space would be taken up and/or used by businesses/organisations that are associated with the maritime sector and would not compromise the existing development in the area.

Environmental assessment methodology

A substantial amount of work has been completed on the socio-economic issues facing Eurobodalla and Batemans Bay community over recent years. Initial stages of community engagement conducted as part of the Concept Design process have identified a range of issues that are important to the local community. Based on this available information, the Environmental Assessment will contain a social and economic analysis of the Batemans Bay environs. This will include consideration of the following:

- health and safety issues
- employment issues
- amenity issues
- access issues
- impact on other industries such as fishing and aquaculture (including regionally significant oyster leases)
- impacts on land values
- effect of proposal on other marinas
- effect of proposal on boat users and boat service industry and supply of moorings
- assessment of the affordability of marina services
- demands for marina services in a local and regional context.

6.3 Issues of moderate significance

6.3.1 Air quality

Air Quality Investigations would aim to determine the fixed and mobile sources of air pollution from construction and operation of the marina. The assessment is likely to include the following components:

- assessment of impacts due to dust (including contaminants) from construction
- assessment of impacts from increase in boat usage
- total cumulative impact of all activities including health risks due to airborne contaminants
- proposed management and mitigation measures to control any impacts and ensure compliance with relevant standards.

The following tasks would be undertaken:

- preparation of an emissions inventory
- preparation of a meteorological data file
- qualitative assessment of air quality impacts
- determine necessary mitigation measures.

Air quality impacts are considered to be a matter of moderate significance due to the nature of the proposed development and that dredging and reclamation will generate mostly wet material, with little chance of becoming air borne. Suitable management measures will be recommended in the Environmental Assessment in the event that dust is generated during construction or operation.

6.3.2 Indigenous heritage

Potential impacts

Aboriginal occupation of the coastal area has been dated to at least 20,000 years from a site at Burrill Lake (Eurobodalla Shire Council, 2006), and many midden sites have been found along the coast due to the rich food resources present. The Aboriginal people were previously known as the Yuin Nation, with the major group in the area now known as the Walbunja Clan.

It is considered that there is some potential for submerged sites of indigenous heritage significance to be uncovered during dredging activities.

There are no listed heritage items at the site, and given the previous disturbance, non-indigenous heritage impacts are not expected from the construction and operation of the marina. However, non-indigenous heritage will be assessed to determine risks of impacting items of heritage significance during the construction of the marina.

Environmental assessment methodology

Indigenous heritage will be assessed to determine risks of impacting items of indigenous heritage significance during the construction of the marina. A desktop search for sites of heritage significance within or in close proximity to the marina will be undertaken. This is to include potential submerged sites. If desktop searches reveal potential sites of heritage significance within the area of disturbance, field investigations and consultation with relevant indigenous groups will be scoped and costed as a variation to the Environmental Assessment scope of work.

In order to fully ascertain non-indigenous heritage values associated with the marina, a detailed desk-top assessment would be undertaken in the first instance, involving searches of local and state listings, and a review of local history relating to the site.

6.3.3 Non-indigenous heritage

Given the previous disturbance within the proposed site, non-indigenous heritage impacts are not expected from the construction and operation of the marina. However, non-indigenous heritage will be assessed to determine risks of impacting items of heritage significance during the construction of the marina.

The study will incorporate a site inspection and will include an examination of the following:

- review of relevant State and Commonwealth heritage registers and listings, including the AHC Register of the National Estate, Commonwealth and National Heritage Lists, NSW State Heritage Register/Inventory, should this be required
- review of relevant Local Environmental Plans
- review of any existing documents such as heritage studies and local history documents
- liaise with relevant local council heritage planners and/or advisors liaise required
- liaise with local heritage and/or historic societies
- assessment of significance of all known heritage items potentially impacted
- identification of known areas of archaeological or cultural heritage value or sensitivity
- development of appropriate management guidelines in light of statutory heritage requirements and 'best practice' heritage principles.

6.3.4 Land use impacts

The proposal is generally consistent with the current zoning of the site. Council is presently undertaking a structure planning exercise for the land surrounding the marina. It is understood that Council is investigating the potential for increases to the density of surrounding development, while retaining the general purpose of the area as a tourist precinct supporting the CBD. The potential for development of the surrounding land will be further enhanced by establishing the Marina Redevelopment on the existing marina site. The urban design and visual analysis completed as part of this development plan demonstrates the ability of the proposal to fit with future development of the surrounding area for land uses consistent with the existing zoning.

The proposal would generally have a positive impact on development potential of surrounding properties by increasing potential tourist visitation in the area. This would increase the potential to reinforce the Residential T zone, for which the objectives under the Urban LEP are:

"(a) to provide a variety of residential opportunities at relatively higher densities in localities where full services are provided and which are close to commercial centres and community facilities, and

(b) to encourage tourist facilities and accommodation in areas close to commercial centres, and

(c) to provide for limited commercial activities where they are compatible with adjoining buildings and uses".

Apart from a small unsealed access track at the eastern end of the site adjacent to the existing boat ramp and Hanging Rock Creek, the site is adjoined on the landward edge by private property. Therefore access on to the site is limited to either directly from Beach Road or an existing roundabout via Rotary Park.

Due to the high volumes of traffic on Beach Road and the proximity of the site to the existing roundabout, Council and the RTA have required that the main access to the site be via the existing roundabout at Rotary Park (further discussion regarding traffic impacts is provided in the traffic assessment). A single point of access from the western boundary of the site has implications for the design of the marina, including:

- the most efficient location for the Marina Redevelopment buildings, car parking, maintenance facilities and the like is at the western end of the site near to this access
- there is limited land area available at the western end of the site for car parking and ancillary land uses (such land uses are required to generate a commercially viable Marina Redevelopment)
- access for larger vehicles will necessitate works to the vehicle circulation through Rotary Park.

The proposed development therefore includes substantial reclamation of the existing marina basin to facilitate overall Marina Redevelopment. The benefits of reclaiming the existing basin are to meet the design implications of the access described above, and also:

- to retain dredged sand on site as much as possible
- retention of as much of Rotary Park as possible
- potential for facilitating landscape treatment to Rotary Park to link with the Marina Redevelopment and to provide enhanced community park facilities (such as picnic tables, cycleway, pedestrian way and viewpoints for appreciation of the Clyde River).

6.3.5 Hazard assessment

To ensure that impact to the environment from the release of hazardous substances does not occur from the construction and operation of the marina the following will be investigated:

- potential hazards from construction and operation of the marina, and from the increase in boat usage
- nearby sensitive areas (such as the Clyde River wetlands) and/or sensitive flora and fauna
- preliminary risk of activities that the construction or operation of the marina and associated development may result in impact to environmentally sensitive areas
- outline emergency response procedures in case of accidental spillage of hazardous substances during construction or operation of the marina.

7.0 Conclusion

The Department of Lands proposed to redevelop the existing Batemans Bay Marina as part of the Department's long term strategy for improving regional marina facilities in NSW. The construction of the proposed Marina Redevelopment constitutes a 'Major Project' in accordance with *State Environmental Planning Policy (Major Projects) 2005* and therefore requires approval from the Minister for Planning under Part 3A of the *Environmental Planning and Assessment Act 1979*.

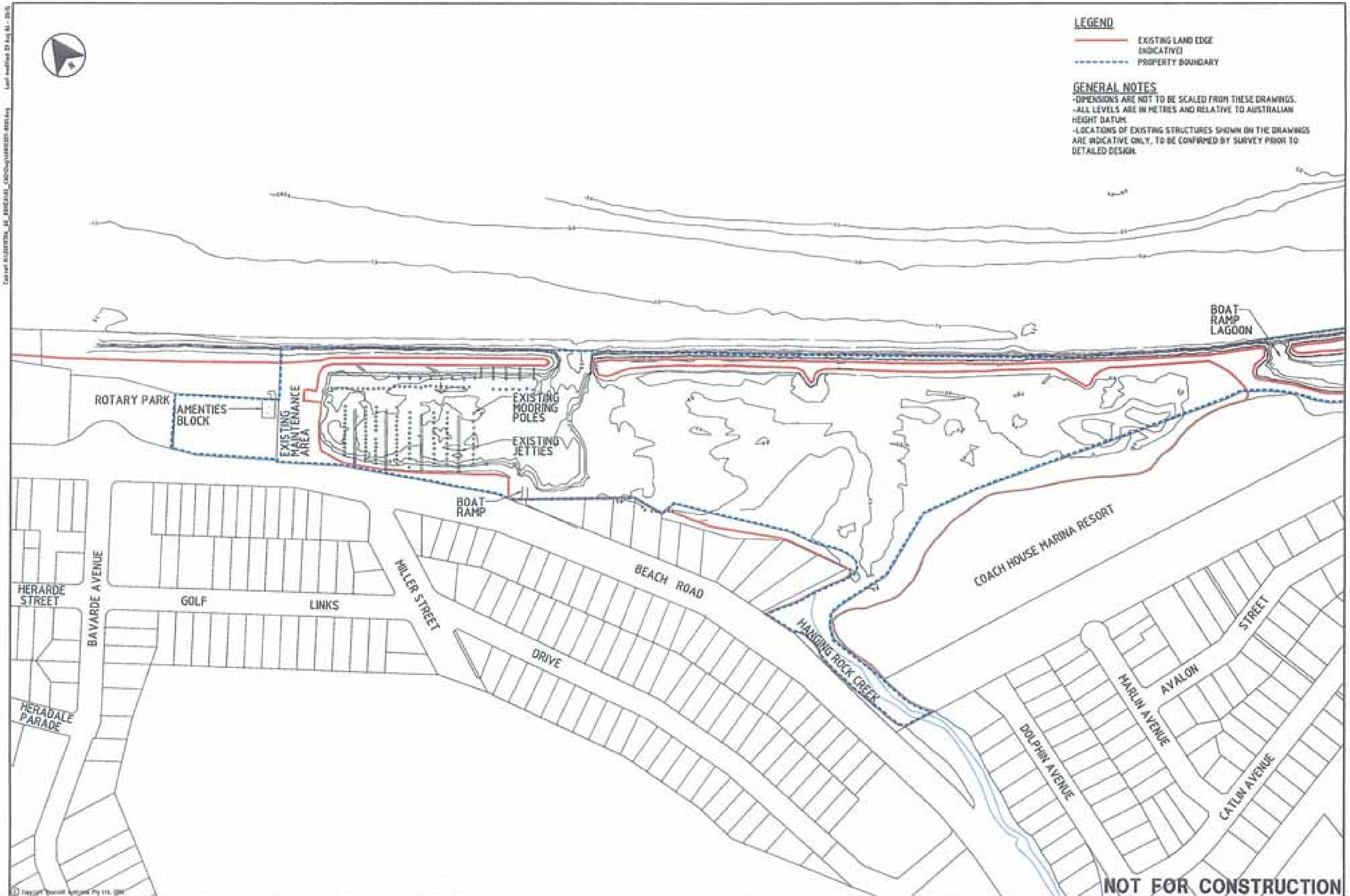
This document acts as a formal request to the Department of Planning for Director General's Requirements for this proposal.

The preliminary environmental assessment contained in this document provides descriptions of the key issues and the methods for addressing those issues as part of the detailed Environmental Assessment. The key issues for discussion include:

- coastal processes
- visual impact
- ecological impact
- noise and vibration
- traffic and transport
- strategic planning.

This document presents conceptual designs for the proposed Marina Redevelopment in order to inform the Environmental Assessment process. Upon receipt of the Director General's Requirements the department of Lands will undertake a detailed Environmental Assessment and submit that assessment as part of formal application for Project Approval.

Appendix A: Concept plans and drawings



NOT FOR CONSTRUCTION

Department of Lands

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BATEMANS BAY MARINA REDEVELOPMENT

EXISTING LAYOUT

SHEET 1 OF 9

FINAL CONCEPT

60012287-0001

B

PEN NUMBERS AND PEN LENGTHS		
JETTY	WEST	EAST
1	11 x 10m	11 x 10m
2	16 x 10m	16 x 10m
3	15 x 10m	15 x 12m
4	15 x 12m	14 x 12m
5	15 x 12m	16 x 12m
6	17 x 14m	17 x 14m
7	18 x 14m	18 x 14m
8	14 x 16m	13 x 16m
9	9 x 16m	8 x 18m
10	5 x 16m	4 x 18m
11	3 x 18m	
TOTALS	138	132
	270	

DESIGN VESSEL SPECTRUM		
LENGTH OVERALL	BEAM	DRAUGHT
18	5.4	2.75
16	5.2	2.6
14	4.8	2.4
12	4.4	2.0
10	4.0	1.8

-DESIGN VESSEL DIMENSIONS IN ACCORDANCE WITH AS3962

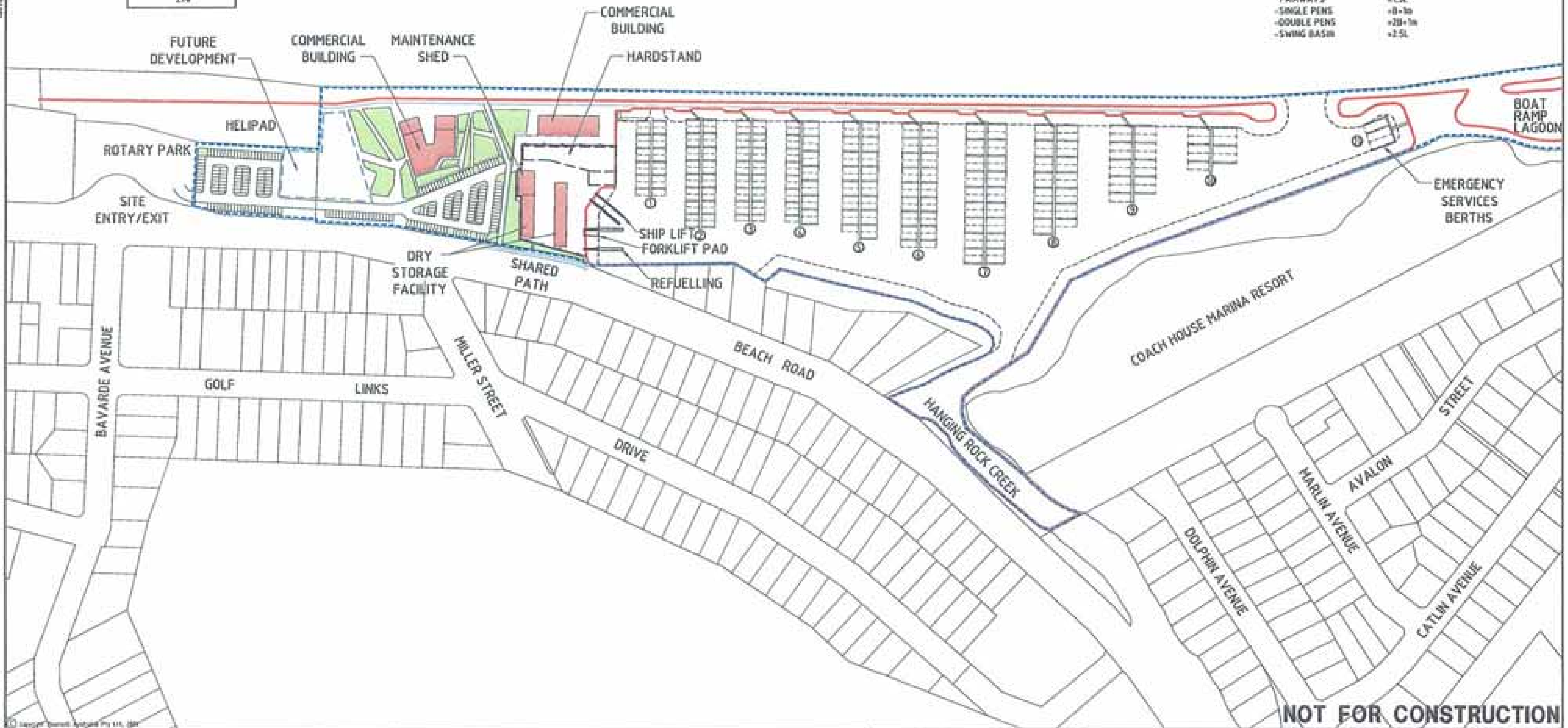
LEGEND

- PROPERTY BOUNDARY
- LAND EDGE
- BASE OF REVETMENT
- SECURITY FENCE
- FUTURE DEVELOPMENT
- BUILDING FOOTPRINT
- PUBLIC DOMAIN / LANDSCAPING
- HARDSTAND

DIMENSIONAL CRITERIA

-CHANNEL AND FAIRWAY WIDTHS DESIGN TO AS3962 FOR THE LONGEST BOAT USING EACH AREA.
-THE FOLLOWING DIMENSIONAL PARAMETERS HAVE BEEN ADOPTED:

-ENTRANCE CHANNEL = 27m
-INTERIOR CHANNELS & FAIRWAYS =1.5L
-SINGLE PENS =B+1m
-DOUBLE PENS =2B+1m
-SWING BASIN =2.5L



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Rev	By	Date	Description	Appd
C			FINAL CONCEPT	CA
B			FINAL CONCEPT	CA
A			FINAL CONCEPT	CA

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BATEMANS BAY MARINA REDEVELOPMENT

MARINA DEVELOPMENT PLAN

SHEET 2 OF 9

STATUS: FINAL CONCEPT | DRAWING: 60012287-0002 | REV: C

AREA	DESCRIPTION	DESIGN DEPTH
Ⓐ	ENTRANCE CHANNEL AND 10m PENS	-4.0m
Ⓑ	INTERIOR CHANNEL AND SERVICE AREA	-3.8m
Ⓒ	16m PENS	-3.8m
Ⓓ	14m PENS	-3.6m
Ⓔ	12m PENS	-3.2m
Ⓕ	10m PENS	-3.0m

LEGEND

- PROPERTY BOUNDARY
- LAND EDGE
- BASE OF REVETMENT
- RECLAMATION

TIDE LEVELS

-THE DESIGN TIDE LEVELS HAVE BEEN TAKEN FROM MANLY HYDRAULICS LABORATORY REPORT 27 JUNE 2006. THE ADOPTED TIDE LEVELS ARE AS FOLLOWS:

MHWSS	0.916AHD
MHWS	0.605AHD
MSL	0.046AHD
MLWS	-0.513AHD
ISLW(LAT)	-0.735AHD

DREDGE DEPTHS

-DREDGE DEPTHS SHOWN ARE IN METRES RELATIVE TO AHD.
-PEN DEPTHS AND FAIRWAYS ARE DESIGNED FOR TIDAL LEVELS TO ISLW.
-INTERIOR CHANNEL DEPTH DESIGNED FOR TIDAL LEVELS TO MLWS IN ACCORDANCE WITH NSW MARITIME GUIDELINES.
-ALL DEPTHS INCLUDE THE FOLLOWING ALLOWANCES:
300mm UNDER KEEL CLEARANCE
150mm SILTATION ALLOWANCE
-FOR CONSTRUCTION FURTHER ALLOWANCE SHOULD BE MADE FOR SURVEY AND DREDGE TOLERANCES.

NOT FOR CONSTRUCTION

B			FINAL CONCEPT	
A			FINAL CONCEPT	
No.	BY	DATE	DESCRIPTION	APPD

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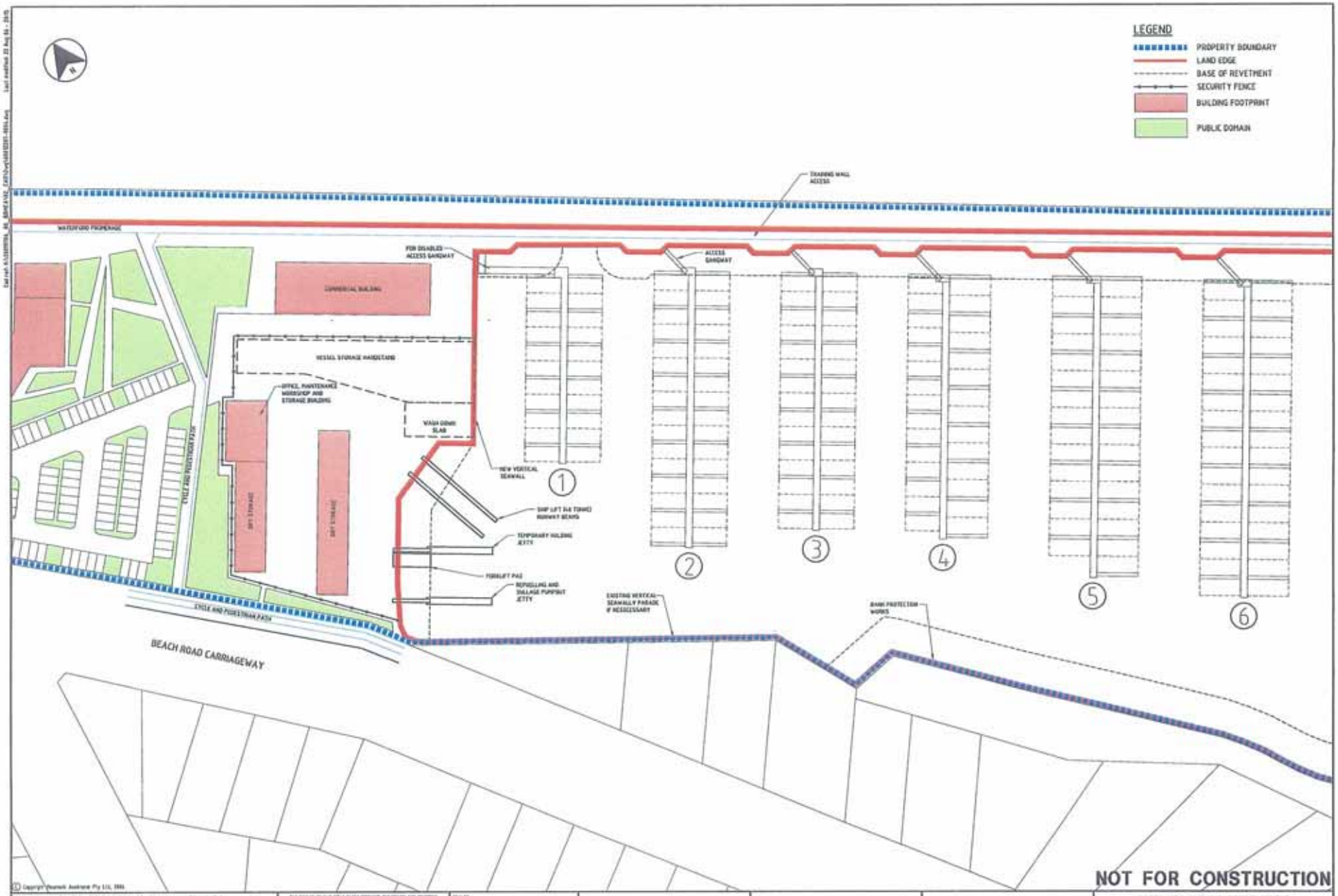
BATEMANS BAY MARINA REDEVELOPMENT

MARINA DEVELOPMENT PLAN
DREDGING AND RECLAMATION PLAN

SHEET 3 OF 9

STATUS: FINAL CONCEPT | DRAWING No: 60012287-0003 | REV: B



This drawing is confidential and shall only be used for the purposes of this project

No	BY	DATE	DESCRIPTION	APPD
B	ADMA	27/10/2016	FINAL CONCEPT	CR
A	INT	25/10/2016	FINAL CONCEPT	CR

DESIGNED	RM/MG	CHECKED	CR/PC
DRAWN	INT	CHECKED	CR
APPROVED	PP	DATE	27/10/16

1:500 FULL SIZE A1

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BATEMANS BAY MARINA REDEVELOPMENT

MARINA DEVELOPMENT PLAN WATERFRONT ARRANGEMENT

SHEET 4OF 9

STATUS	DRAWING NO.	REV
FINAL CONCEPT	60012287-0004	B

NOT FOR CONSTRUCTION

NOT FOR CONSTRUCTION

BATEMANS BAY MARINA REDEVELOPMENT

MARINA DEVELOPMENT PLAN
LANDSIDE ARRANGEMENT

SHEET 5 OF 9

No.	BY	DATE	DESCRIPTION	APPD
B		23/08/06	FINAL CONCEPT	CR
A		21/07/06	FINAL CONCEPT	CR

DESIGNED		CHECKED	
DRAWN		CHECKED	CR
APPROVED		DATE	23/08/06

Scale 1:500 FULL SIZE A1

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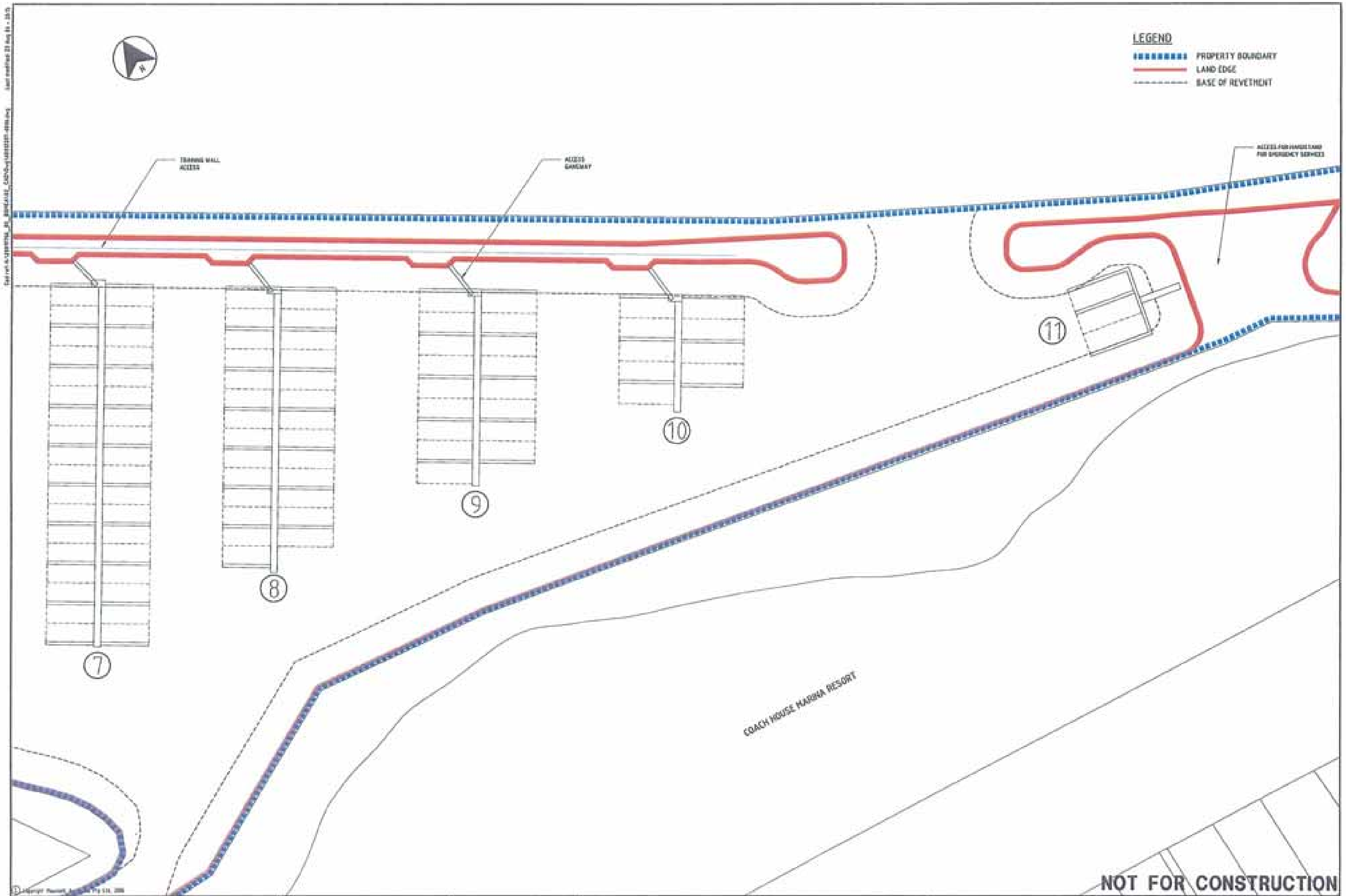
STATUS: FINAL CONCEPT
DRAWING No: 60012287-0005
REV: B



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Rev	By	Date	Description	Appd
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A	MT	25/07/06	FINAL CONCEPT	CA

DESIGNED		CHECKED	
DRAWN	MT	CHECKED	
APPROVED	PF	DATE	23/08/06

Department of Lands

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BATEMANS BAY MARINA REDEVELOPMENT

MARINA DEVELOPMENT PLAN
MARITIME ARRANGEMENT

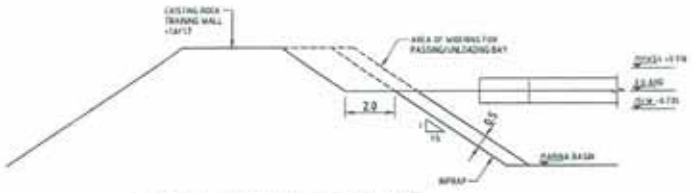
SHEET 6 OF 8

STATUS: FINAL CONCEPT

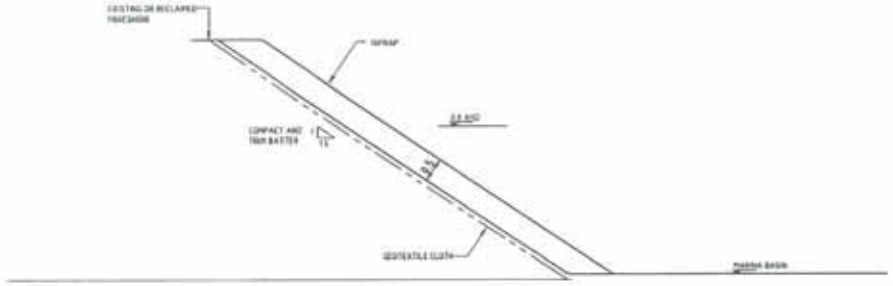
DRAWING: 60012287-0006

REV: B

NOTES
1. EMBANKMENT SLOPES PRELIMINARY ONLY, SUBJECT TO CONFIRMATION OF STABILITY DURING DETAILED DESIGN



TYPICAL SECTION THROUGH EXISTING TRAINING WALL AND PONTOON
SCALE 1:100



TYPICAL SECTION THROUGH PERIMETER SEAWALL
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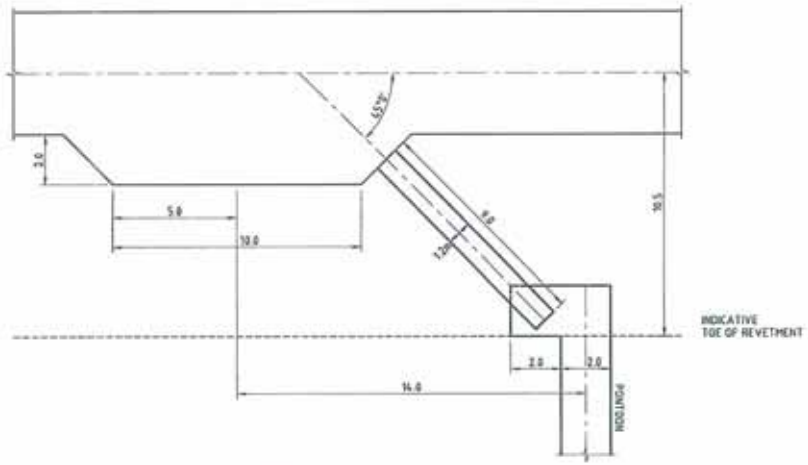

GANGWAY PLAN
SCALE 1:100

No	BY	DATE	DESCRIPTION	APPD
B	KOBA	23/09/08	FINAL CONCEPT	CR
A	RT	21/07/08	FINAL DRAFT	CR

THE SIGNING OF THIS TITLE BLOCK CONFIRMS THE DESIGN AND DRAFTING OF THIS PROJECT HAVE BEEN PREPARED AND CHECKED IN ACCORDANCE WITH THE MAUNSELL QUALITY ASSURANCE SYSTEM TO ISO 9001:2000

DESIGNED	RH/BL	CHECKED	CR-PE
DRAWN	RT	CHECKED	CR
APPROVED	PE	DATE	23/09/08

SCALES
1:100 FULL SIZE A1
1:50 FULL SIZE A1

Department of Lands

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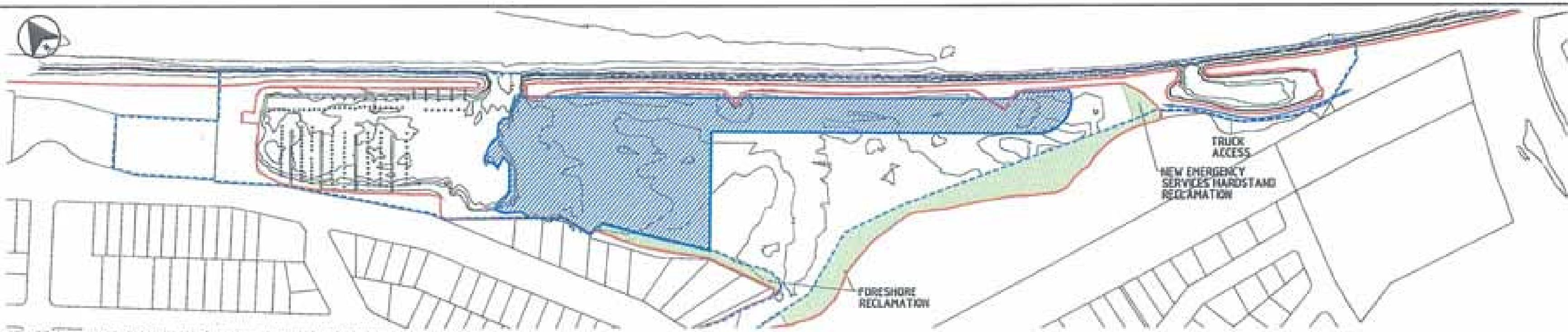
BATEMANS BAY MARINA REDEVELOPMENT

MARINA DEVELOPMENT PLAN TYPICAL DETAILS

SHEET 7 OF 9

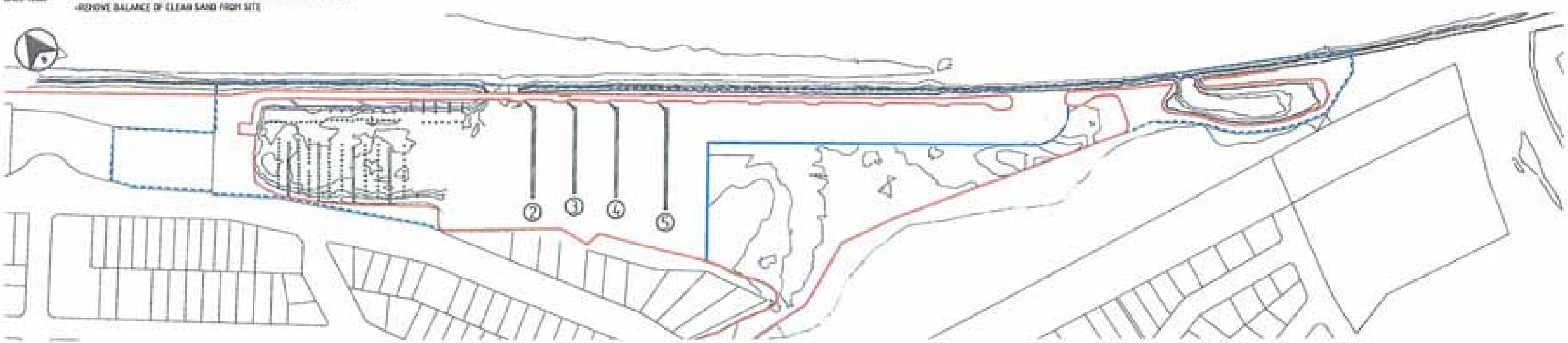
STATUS: FINAL CONCEPT
DRAWING NO: 60012287-0007
REV: B

NOT FOR CONSTRUCTION



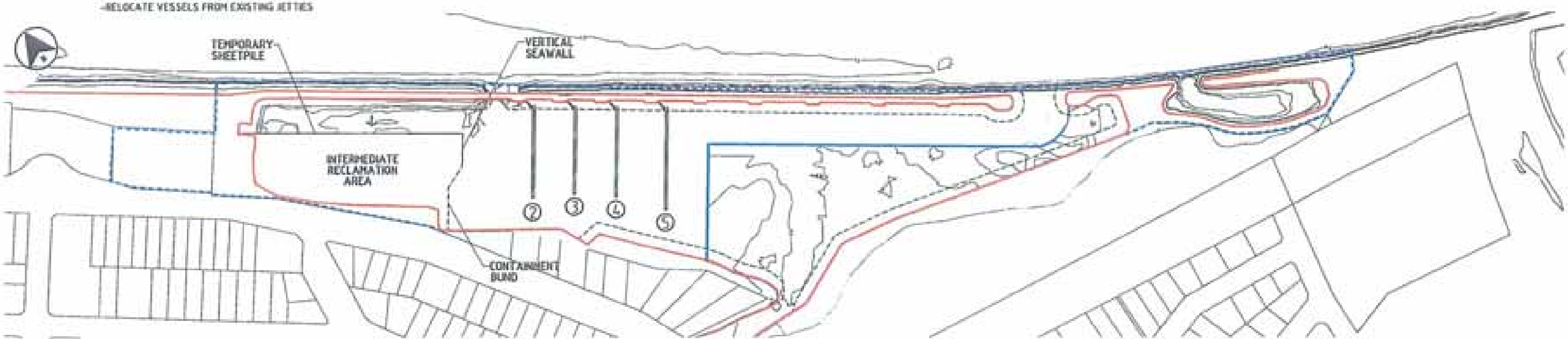
STAGE 1
SCALE 1:2000

- -DREDGE APPROX 110,000 m³ AND REMOVE FROM SITE TO CREATE INTERMEDIATE BASIN AND CHANNEL
- -RECLAIM FORESHORE AND EMERGENCY SERVICES HARDSTAND AREA
- -REMOVE BALANCE OF CLEAN SAND FROM SITE



STAGE 2
SCALE 1:2000

- -CONSTRUCT NEW MARINA ENTRANCE
- -BRIDGE EXISTING ENTRANCE
- -CONSTRUCT WIDENED BAYS TO TRAINING WALL
- -CONSTRUCT RIPRAP PROTECTION TO SW EDGE
- -CONSTRUCT JETTIES 2,3,4 AND 5
- -RELOCATE VESSELS FROM EXISTING JETTIES



STAGE 3
SCALE 1:2000

- -DEMOLISH EXISTING JETTIES
- -CONSTRUCT CONTAINMENT STRUCTURES AROUND INTERMEDIATE RECLAMATION AREA
- -CONSTRUCT AND ARMOUR NEW INTERIOR SEAWALLS

No	BY	DATE	DESCRIPTION	APPD
B		23/09/08	FINAL CONCEPT	CK
A	MT	21/07/08	FINAL CONCEPT	CK

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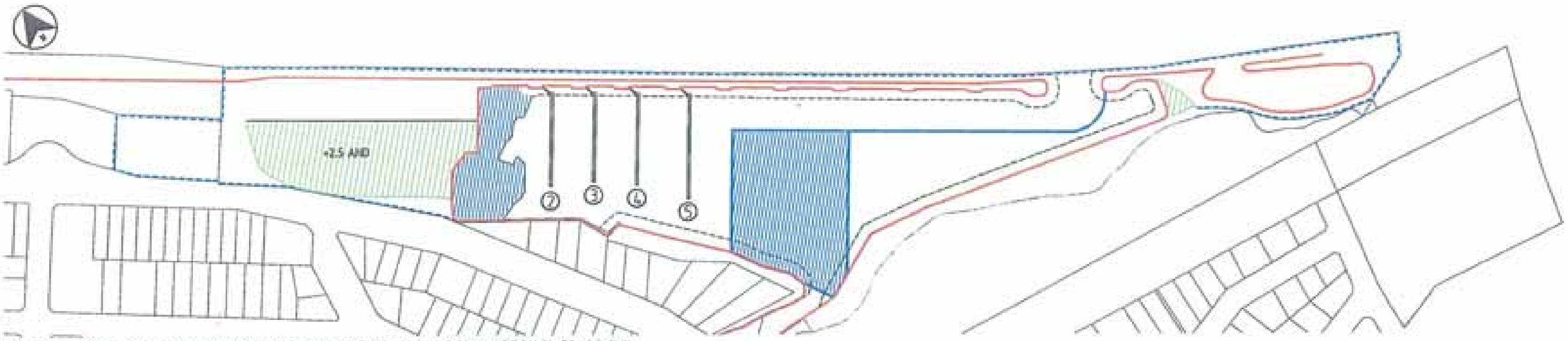
BATEMANS BAY MARINA REDEVELOPMENT

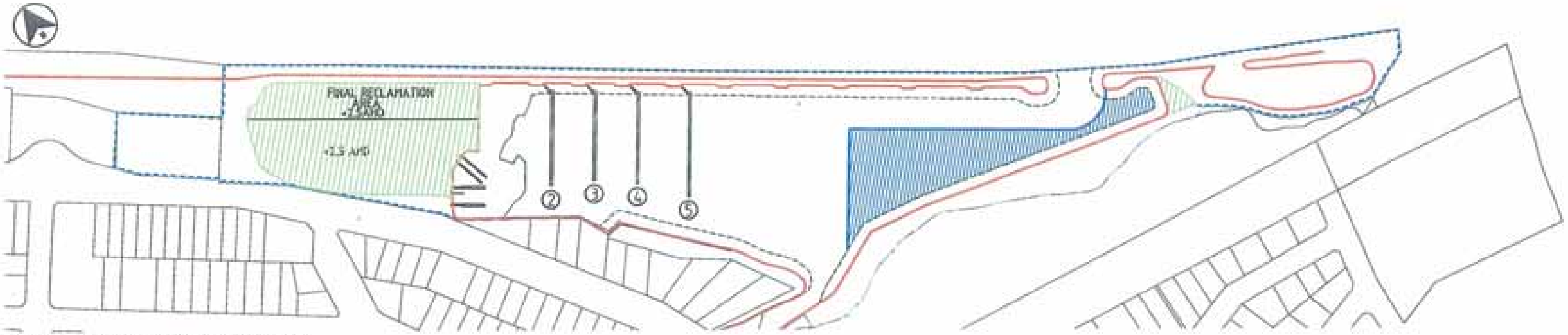
MARINA DEVELOPMENT PLAN
INDICATIVE CONSTRUCTION SEQUENCE

SHEET 8 OF 9

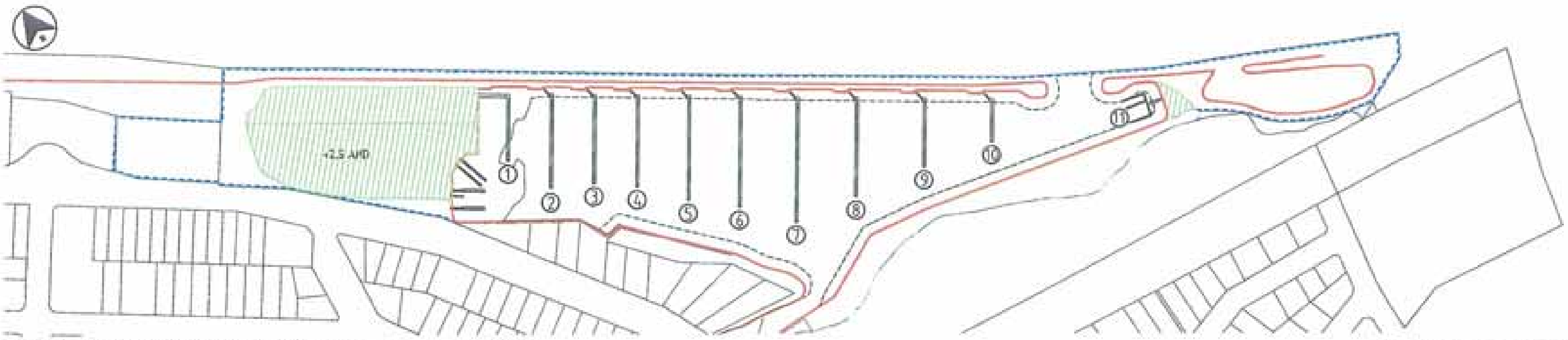
STATUS: FINAL CONCEPT
DRAWING: 60012287-0008
REV: B



STAGE 4 - DREDGE APPROX 60,000m³ FROM AREA INFRONT OF NEW VERTICAL WALL AND REMAINING TIDAL FLATS AS SHOWN
- PUMP SPOIL INTERMEDIATE RECLAMATION AREA



STAGE 5 - CONSTRUCT TEMPORARY MAINTENANCE AREA
- CONSTRUCT REMAINDER OF NEW VERTICAL SEAWALL AND NEW MAINTENANCE FACILITIES
- DREDGE APPROX 15,000m³ REMAINING TIDAL FLATS AS SHOWN
- PUMP SPOIL TO FINAL RECLAMATION AREA



STAGE 6 - CONSTRUCT REMAINING JETTIES 1,6,7,8,9,10,11
- WITHDRAW TEMPORARY SHEETPILE WALL, COMPLETE FILL AND COMPACTION AS NESSCESSARY
- CONSTRUCT REMAINING ONSHORE MAINTENANCE FACILITIES

Rev	By	Date	Description	Appd
B	KDBR	23/08/06	FINAL CONCEPT	CK
A	RC	23/07/06	FINAL CONCEPT	CK

DESIGNED	BH/DG	CHECKED	CB/PE
DRAWN	MT	CHECKED	CK
APPROVED	PF	DATE	23/08/06

SCALES: 1:2000 FULL SIZE A1

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BATEMANS BAY MARINA REDEVELOPMENT

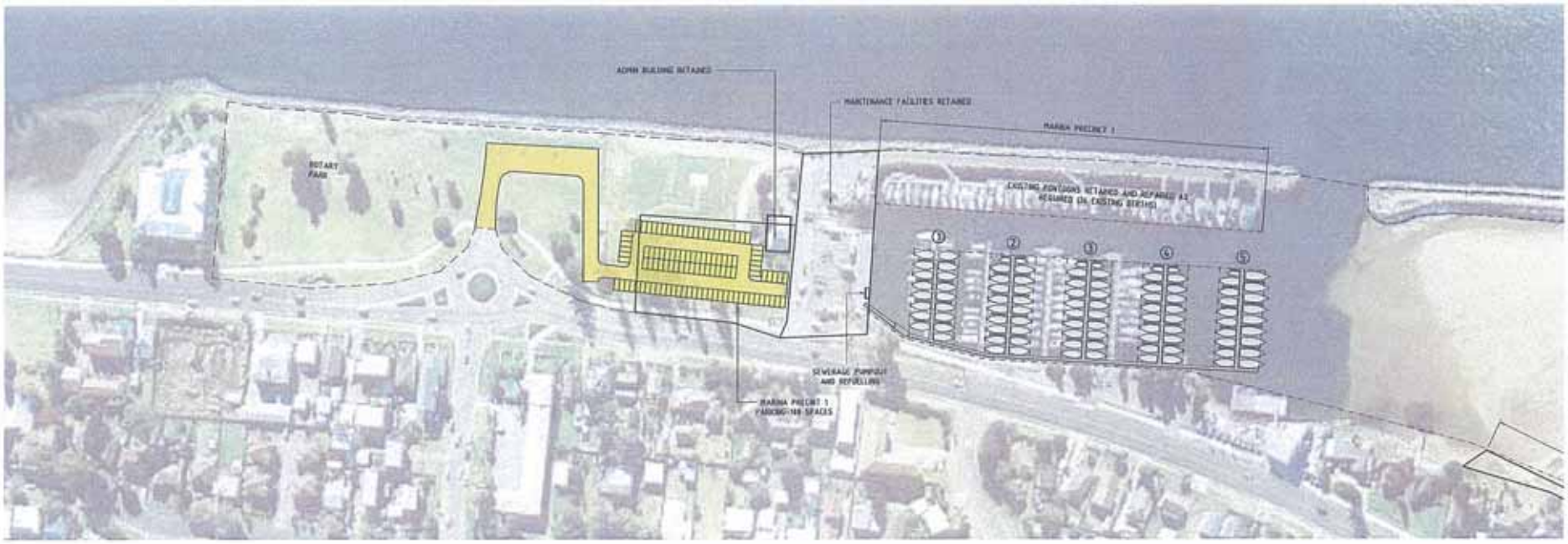
MARINA DEVELOPMENT PLAN
INDICATIVE CONSTRUCTION SEQUENCE

SHEET 9 OF 9

STATUS: FINAL CONCEPT

DRAWING No: 60012287-0009 REV: B

Appendix B: Design options plans



MARINA PRECINCT	PONTOON NO.	BOAT SIZE (M) 6	10	12	SUB TOTAL
1	①	-	17	-	96
	②	2	18	-	
	③	2	18	-	
	④	2	18	-	
	⑤	1	9	9	
SUB TOTAL:		7	88	9	

SUB TOTAL: 96
EXISTING BERTHS: 36
TOTAL: 132

LEGEND:

CAR PARK/ ROADS

BERTHS / PONTOONS

BOATS

REV	DATE	AMENDMENT / ISSUE DESCRIPTION	WHO	APPROV.
B	28.10.05	DRAWING No. REVISED FROM Fig 4.1		JBW
A	21.02.05	CONCEPT REVISION		AC

TITLE	INITIAL	DATE
DRAFT/OPERSON	AC	01.12.04
DRAFTING CHECK	JWC	01.12.04
DESIGNER	AC	01.12.04
DESIGN CHECK	MBC	01.12.04
DESIGN MANAGER	JWC	01.12.04

SCALES AT A1 SIZE DRAWING
1 : 2000

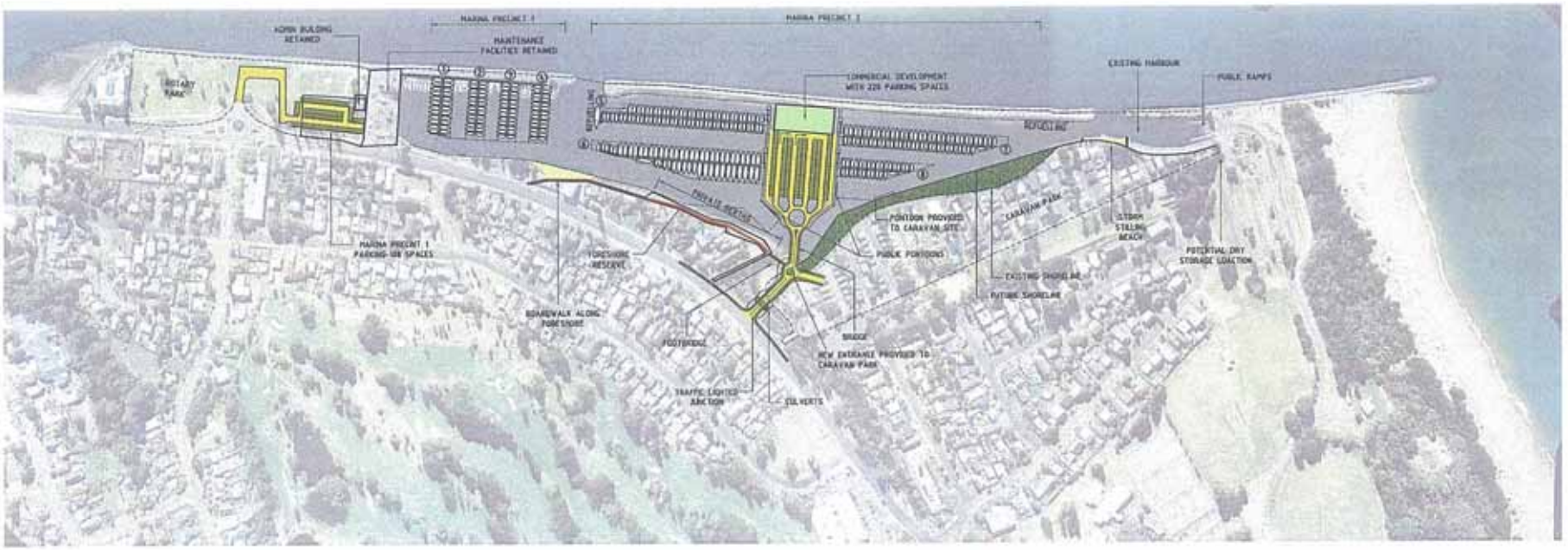
CLIENT: Department of Lands

CONSULTANT:

DESIGNED: MAUNSELL AECOM
Maunsell Australia Pty Ltd A.B.N. 20 093 846 925

PROJECT TITLE: Batemans Bay Marina Redevelopment Feasibility
OPTION 1

STATUS: FIGURE
DRAWING NO: Fig. 4.1
REV: B



MARINA PRECINCT	PONTOON NO.	BOAT SIZE (M) 10	12	15	18	SUB TOTAL
1	①	-	24	-	-	102
	②	26	-	-	-	
	③	26	-	-	-	
	④	26	-	-	-	
2	⑤	31	-	-	-	219
	⑥	3	2	33	12	
	⑦	31	34	-	-	
	⑧	28	1	-	-	
TOTAL:		215	59	33	12	

TOTAL: 319

LEGEND:

- RETAIL COMMERCIAL (4,000m2 GFA)
- BOARDWALK/PUBLIC WALKWAY
- CAR PARKING / ROADS
- BERTHS / PONTOONS
- BOATS
- PROPOSED RECLAMATION

REV	DATE	AMENDMENT / ISSUE DESCRIPTION	APPR'D
C	28.10.05	DRAWING No. REVISED FROM Fig 4.3	AM
B	21.07.05	CONCEPT REVISION	AM
A	07.10.04	PRELIM ISSUE	AM

TITLE	INITIAL	DATE
DRAFT SUPERVISOR	MZ	07.12.04
DRAWING CHECK	PMC	07.12.04
DESIGNED	MZ	07.12.04
DESIGN CHECK	PMC	07.12.04
DESIGN MANAGER	JMC	07.12.04

SCALES AT A1 SIZE DRAWING: 25 0 50 100m; 1 : 1000 FULL SIZE A1

CLIENT: Department of Lands

CONTRACTOR:

DESIGNER: MAUNSELL AECOM

Maunsell Australia Pty Ltd A.B.N. 20 093 846 925

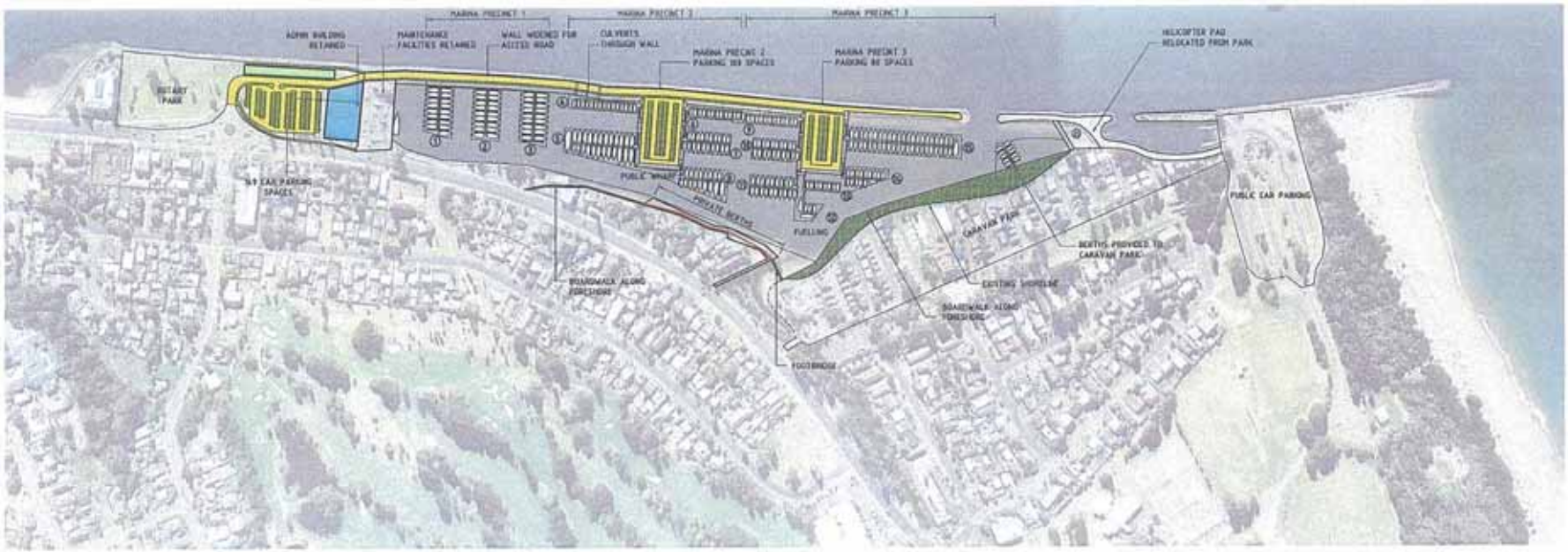
PROJECT TITLE: Batemans Bay Marina Redevelopment Feasibility

OPTION 2

STATUS: FIGURE

DRAWING NO: Fig. 4.2

REV: C



MARINA PRECINCT	PONTOON NO.	BOAT SIZE (M) 10	12	15	18	SUB TOTAL
1	①	-	-	17	-	53
	②	-	-	18	-	
	③	-	-	18	-	
2	⑥	15	-	-	-	88
	⑤	2	1	18	4	
	④	13	-	-	-	
	⑦	18	18	-	-	
	⑧	2	11	-	2	
3	⑨	12	-	-	-	123
	⑩	18	18	-	-	
	⑪	-	19	-	-	
	⑫	3	-	-	1	
	⑬	8	-	-	-	
	⑭	15	-	-	-	
	⑮	-	44	-	1	
TOTAL:		98	95	71	8	

TOTAL: 264

LEGEND:

- RETAIL COMMERCIAL (2880m2 GFA)
- MARINA / COMMERCIAL (2988m2 GFA)
- BOARDWALK / PUBLIC WALKWAY
- CAR PARKING / ROADS
- BERTHS / PONTOONS
- BOATS
- PROPOSED RECLAMATION

REV	DATE	AMENDMENT / ISSUE DESCRIPTION	WAR No.	APPROVED
C	28.10.05	DRAWING No. REVISED FROM Fig. 3.3		AM
B	31.03.05	CONCEPT REVISED		AM
A	30.03.04	PRELIM ISSUE		AM

TITLE	INITIAL	DATE
DRAFTSPERSON	AM	01.12.04
DRAFTING CHECK	PWE	01.12.04
DESIGNER	AM	01.12.04
DESIGN CHECK	PWE	01.12.04
DESIGN MANAGER		

SCALES AT A1 SIZE DRAWING: SCALE 1 : 5000 (PLOT SIZE A3)

CLIENT: Department of Lands

CONSULTANT: MAUNSELL AECOM

Maunsell Australia Pty Ltd A.B.N. 20 093 846 925

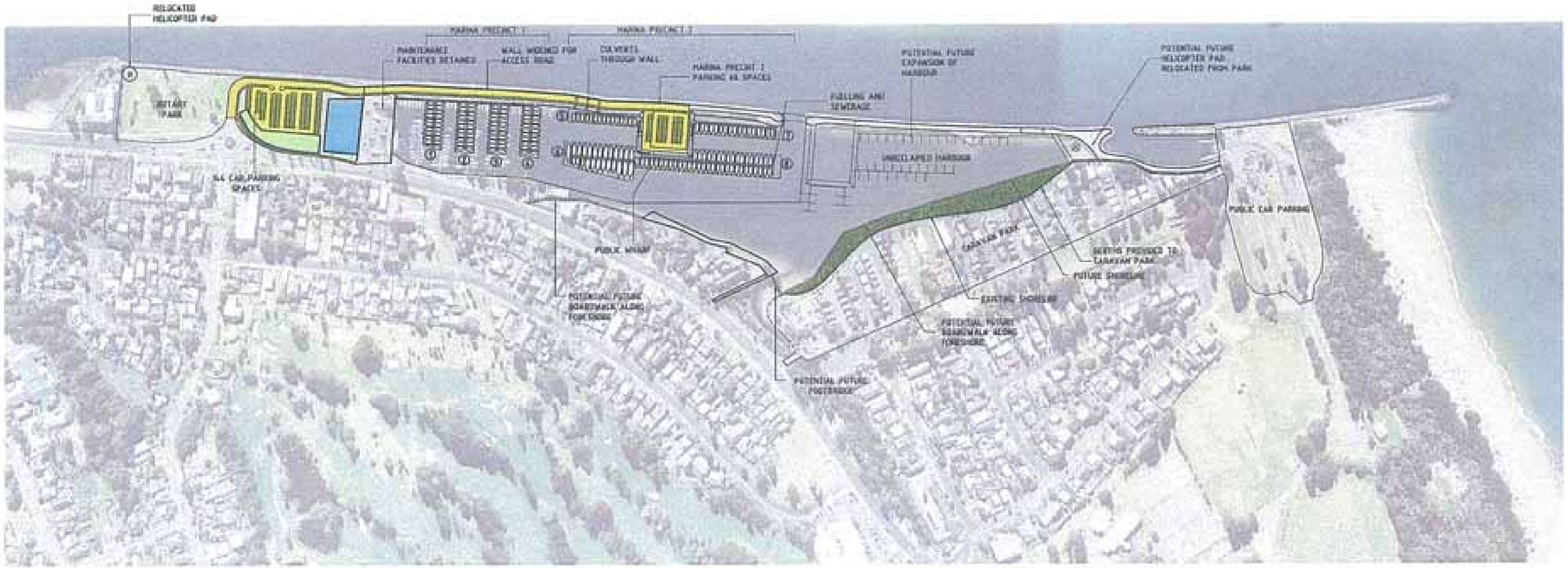
PROJECT TITLE: Batemans Bay Marina Redevelopment Feasibility

OPTION 3

STATUS: FIGURE

DRAWING No.: Fig. 4.3

REV: C



MARINA PRECINCT	PONTOON NO.	BOAT SIZE (M) 10	12	15	18	SUB TOTAL
1	①	21	-	-	-	87
	②	22	-	-	-	
	③	22	-	-	-	
	④	22	-	-	-	
2	⑤	15	-	-	-	103
	⑥	2	1	18	4	
	⑦	-	17	-	-	
	⑧	-	46	-	-	
	TOTAL:	104	64	18	4	

TOTAL: 190

LEGEND:

- RETAIL COMMERCIAL (2080m2 GFA)
- MARINA / COMMERCIAL (2080m2 GFA)
- CAR PARKING / ROADS
- BERTHS / PONTOONS
- BOATS
- PROPOSED RECLAMATION

C	28.10.05	DRAWING No. REVISED FROM Fig 4.4	
B	03.03.05	LAYOUT REVISED	
A	21.02.05	PRELIM ISSUE	

SCALE 1 : 5000 FULL SIZE A3

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Batemans Bay Marina Redevelopment Feasibility

OPTION 4

FIGURE

Fig. 4.4

C