

Mission Beach Clump Point Boating Infrastructure Project: Public Information Package

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Executive Summary

The Queensland Government proposes to construct new boating infrastructure at the Clump Point boat ramp as part of the Mission Beach Clump Point Boating Infrastructure Project ('the Project'). This proposal is being assessed by the Great Barrier Reef Marine Park Authority (GBRMPA) and Queensland National Parks Sport and Racing (NPSR) as part of a process under the Great Barrier Reef Marine Park Act 1975 (Cth) and the Marine Parks Act 2004 (Qld). In accordance with this process, the Department of Transport and Main Roads (TMR) (as proponents for the works) and GBRMPA/NPSR invite public submissions on the Project. This document, the Public Information Package, provides the particulars necessary to allow for members of the public to make informed submissions.

NOTE: The GBR Marine Park permit application (for a combination of (state) Great Barrier Reef Coast Marine Park and (federal) Great Barrier Reef Marine Park) relates only to works within the boundaries of those combined marine parks (i.e. below Highest Astronomical Tide (HAT)). However, for completeness, the entire Project is described in this Public Information Package.

It is widely acknowledged by the local community and boating users that the current facilities in Boat Bay pose a risk to public safety, and multiple near accidents have occurred at these facilities. Safety concerns arise because of the lack of wave attenuation during adverse wind and wave conditions and the associated exposure to significant wave heights when launching and retrieving vessels or picking up/setting down passengers. The Clump Point boat ramp and its floating walkway have been used for both commercial and recreational boat access since they were each constructed, as they offer better wave protection during rougher weather than the Perry Harvey jetty. Clump Point has become the preferred access point for both recreational and commercial vessels. There is, however, only a limited area of protected water adjacent to the ramp in prevailing weather conditions. During periods of peak demand, over-utilisation of the boat ramp has led to vessel congestion in the navigational channel, and traffic congestion on land where vehicles compete for limited parking and manoeuvring space. Boats are moored in Boat Bay, protected somewhat by the boat ramp breakwater and Clump Point headland, but the protection is limited in some weather conditions.

The objective of the Project is to provide conditions that allow the safe transfer of passengers and goods in non-extreme wave conditions, and a limited number of overnight commercial moorings. The Project is not intended to provide protection during cyclonic or severe storm wave conditions.

The current proposal represents the second significant set of works designed in the Mission Beach area leading up to this Project. The first works package, summarised in the 2015 Department of State Development (DSD) tender, involved upgrades to the Clump Point boat ramp, carparks and Clump Point Road, but with a majority of Project investment in the construction of an over-topping breakwater at the Perry Harvey jetty.

However, stakeholder consultation indicated that this breakwater was not supported by the local community. The Project was therefore redesigned to focus on provision of safer boating infrastructure at Clump Point only, with the Perry Harvey jetty serving as a good-weather facility to support the Clump Point upgraded works.

The current (new) proposal (the Project) was developed based on a Development Plan (DSD, 2017) prepared by DSD in consultation with a Project Reference Group, made up of Mission Beach community groups. The Development Plan presented a concept design that reflected a balance of community group interests and desires, and was informed by extensive survey, environmental investigations and numerical modelling studies undertaken in 2016-2017.

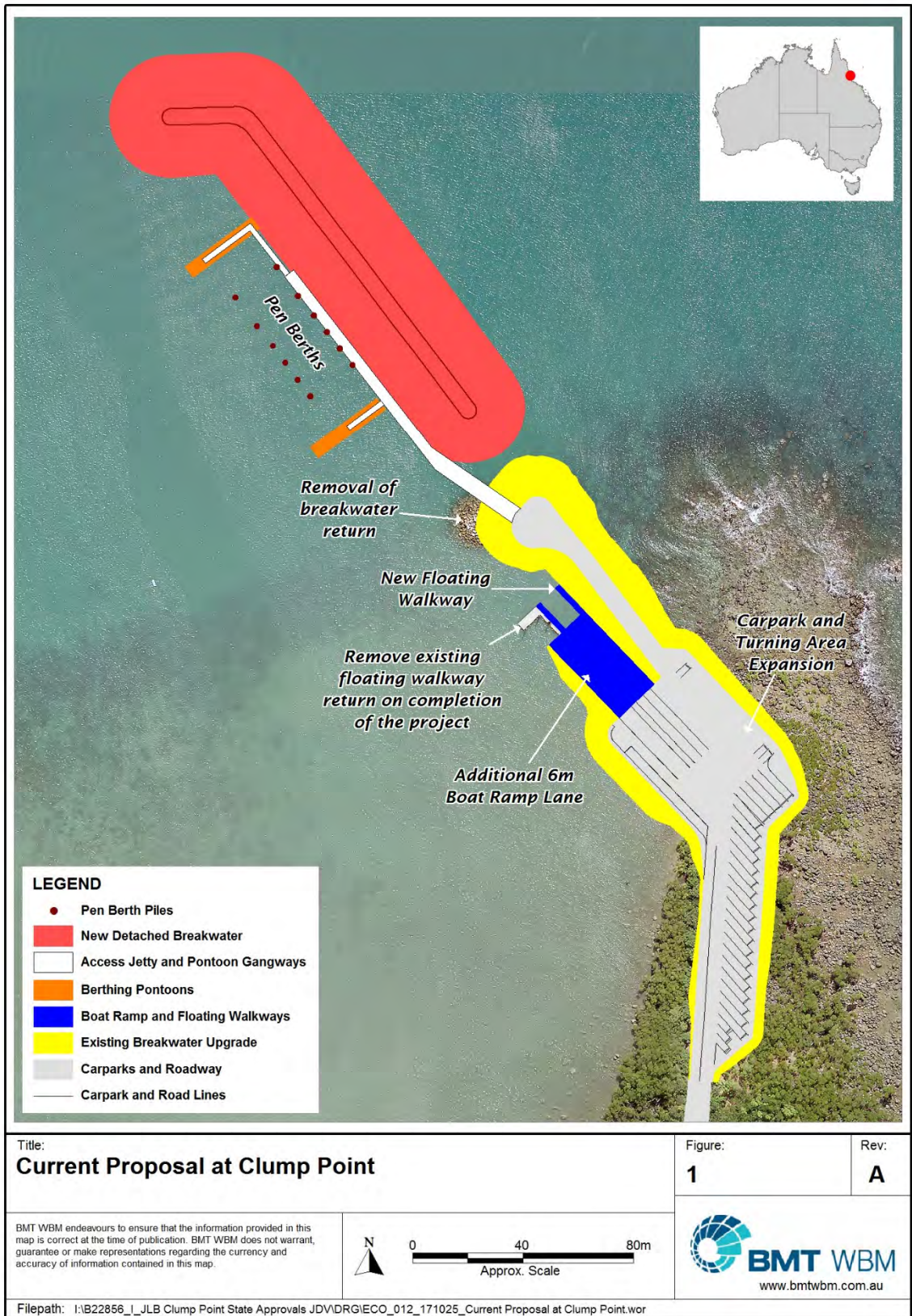


Figure 1 Current Proposal at Clump Point

Executive Summary

The current proposal, shown in figure 1-1, involves the development of a new detached breakwater at Clump Point, supporting two berthing pontoons, five or six pen berths (for commercial lease), and five to six swing moorings (for a mixture of recreational and commercial use), as well as an additional lane and floating walkway on the Clump Point boat ramp, and removal of the existing breakwater return. These works will provide safer conditions for launching and retrieval of boats, improved opportunities for access to the water, safer commercial passenger transfer, and the opportunity to support a limited number of locally-important marine-based businesses, while avoiding loss of habitat and important local and cultural heritage features to the greatest extent practicable. The works will allow a greater separation between commercial and recreational users and provide more sheltered water for vessels waiting to access the boat ramp or pick up passengers, reducing potential conflicts. The in-water works will be accompanied by improvements to the upper and lower carparks and to Clump Point Road, designed to improve the functionality and safety of these facilities. These carpark improvements will optimise the available parking possible for recreational users, and allow for passengers to be dropped safely at the site by commercial operators. The improvements to Clump Point Road will preserve the overhanging rainforest canopy.

The removal of the return from the existing breakwater will not only provide a more direct access path to the boat ramps, but allows the two bommies¹ identified for removal in the previous proposal to be retained (see figure 4-8). The bommies will be marked as navigation hazards and the removed breakwater return rock will be used in the new works.

The proposed works will cause limited permanent loss of the following habitat values: Soft sediments and rubble 9,533m² (primarily the new breakwater footprint), Mangroves 1,013.5m² (the increased boat ramp turning area and breakwater access footprint) and Reef and Rocky shoreline 771.6m² (upgrade of the existing breakwater). This loss has been reduced through rationalisation of marine infrastructure and through design to the greatest extent possible...The proposal design has avoided any loss of existing or historically surveyed seagrass areas. The works are not expected to have a significant impact on local hydrodynamics, other than immediately behind the breakwater, and will not cause significant siltation. The proposed facility has met a primary design objective of minimising impact on visual amenity by keeping the facility as low and small as possible to stay in keeping with the existing marine infrastructure.

Construction and operational phase impacts for the Project will be managed subject to approval requirements and strict regimes for avoidance and mitigation of impacts. These include a Construction Environmental Management Plan (CEMP), including a Traffic Management Plan (TMP), and defined operational arrangements for management of the facility after works completion.

Once completed, all the marine elements of the facility will be owned by TMR and managed by Cassowary Coast Regional Council (CCRC), and CCRC will own and manage the land-based elements (carparks and access road).

TMR is seeking approval to construct a new detached breakwater in the Marine Parks, supporting a jetty, pontoons, pen berths, buoy moorings, and the upgrade of the existing Clump Point boat ramp to provide a third lane and additional floating walkway. These works will be accompanied by upgrades to both carparks and to Clump Point Road. Most of the later (land-based) upgrades will be undertaken by CCRC in accordance with existing State approvals associated with the 2015 DSD tender.

¹ Isolated rocky outcrops.

Executive Summary

The composition and design of the proposed works has been informed by the views and advice provided by the Reference Group. All comments and views were carefully listened to. There was considerable consensus on many issues but there were also differing views on several aspects. The works proposed have been influenced by all the views expressed, and seek to provide a balanced approach that recognises the safer marine infrastructure and parking arrangements sought by boating interests, provides opportunity for carefully controlled economic development to benefit the Mission Beach and regional community, and respects the environmental and cultural heritage of Clump Point.

Frequently Asked Questions

(1) *Why are the works being undertaken at Clump Point and not the Perry Harvey jetty?*

Works at the Perry Harvey jetty did not meet the Project objectives, including provision of safer boating access, without the construction of a breakwater structure in front of the jetty. The proposed development of a breakwater structure in front of the jetty was broadly rejected by the Mission Beach community.

The Perry Harvey jetty will remain a good weather access facility and provides services that will complement the upgraded Clump Point facility.

(2) *Is the Project the first stage in a marina development?*

Marine infrastructure upgrades and installations proposed at Clump Point for the Project represent the **total** extent of works proposed by the Queensland Government for the area in accordance with GBRMPA advice. The Project does not represent the first stage in a marina development and no expansion in the facilities is planned or supported other than what is set out in the Development Plan and reflected in this Public Information Package.

(3) *Why does the Project provide for berthing of commercial vessels (i.e. pen berths and moorings)?*

One objective of the Project is to reduce conflicts between recreational and commercial users of boating infrastructure. Commercial operators provide the only opportunity for members of the public without access to a personal vessel to access the Great Barrier Reef (GBR) from Mission Beach. A small number of protected overnight moorings for commercial operations are expected to have strong and desirable economic benefits to the local economy of Mission Beach, including through tourism and supporting of commercial fishing enterprises.

The Project therefore incorporates a small number of dedicated pen berths and moorings for local commercial operators, with separate commercial and recreational pontoon landings, thereby minimising conflict with recreational boat users.

Pen berths allow for a vessel to be secured between piles and the jetty in the protected area behind the breakwater. Pen berths allow more vessels to be moored in a given space compared to mooring the same number of vessels using swing moorings, allowing the breakwater to be kept as short as possible. Access to either the bow or stern of vessels in the pen berths will be from the adjacent access jetty. Pen berths also provide the most resilient structures to cyclone wave conditions as the detached breakwater will be overtopped during such conditions.

(4) *Why does the Project propose a barge-accessible boat ramp lane?*

A third boat ramp lane has been proposed as part of the current Project and was included in the designs for the 2015 Department of State Development (DSD) tender. It is not the intention for this ramp to be routinely used for barges. However, the ramp is being designed as a heavy-duty ramp to enable infrequent barge access. In particular, the ramp will allow for emergency supplies to be barged to or from Mission Beach during recovery from cyclone events when road access cannot be relied on. In addition, the wider 6m lane will make it easier to launch and recover larger trailerable vessels. From TMR experience as an asset owner, if there is any chance a ramp will be used for barge access it is sensible to design it for these loads and avoid high repair costs that could result from damage that can occur from a single use by a barge.

Frequently Asked Questions

Any barge access will be subject to strict conditions issued as part of a commercial access permit by the facility manager (CCRC). Commercial barge operations will also require a joint State/Commonwealth Marine Park permit.

(5) *Will the new infrastructure provide cyclone shelter and/or an all-weather launching facility?*

No – while the works will improve the safety of boat launching and retrieval and provide limited overnight commercial mooring during rough weather conditions, they are not designed to provide shelter during a cyclone or launching facilities during extreme weather. Designated cyclone shelter areas specified by the Regional Harbour Master will be utilised in such events (for example, Alligator Creek, Hinchinbrook island or Mourilyan Harbour)

(6) *How long will the Project take to complete?*

Project timing will depend on the weather, and the results of the selected construction process, availability of quarry rock, approvals timing and conditions, including seasonality constraints on the works. For these reasons, confirmation of the intended delivery schedule will be confirmed after approvals are gained and a contractor has been engaged and quarry sources is confirmed. As an indication, the construction elements could take 6-9 months but these elements may need to be spread over a longer period as a result of approvals timing and seasonal constraints.

(7) *What impacts will construction have on use of the boat ramp?*

During the construction phase, it will be necessary to close the Clump Point facility, including the boat ramp and parking areas completely from recreational use. Access to a single boat ramp lane will be provided whenever possible for essential commercial use but this is subject to the outcomes of the construction tender process, after which a detailed schedule of works and methodology for managing access will be provided.

It is TMR's intent to minimise the impact on ramp access to recreational and commercial users as much as possible in planning the project, but because of the spatial constraints of the site periods of closure are unavoidable. The duration of the works will be subject to the contractor's methodology and the timing of approvals given seasonal constraints on working windows, but the works are expected to take in the order of 9 months to complete. Notification of closure periods and advice on alternative ramp access arrangements will be provided to the community as soon as the timing of works are known.

(8) *Will the Project cause the loss of cultural heritage features?*

No – the Project has been specifically designed to avoid direct or indirect disturbance of cultural heritage features of Clump Point, including the fish trap adjacent to the ramp. All works will be undertaken in consultation with the Djiru people and be subject to a Cultural Heritage Management Plan (CHMP).

(9) *Why is truck-based rock supply preferred over barge-based?*

The method of delivery of rock for the new breakwater will be determined as part of the construction tender process. Tenderers will be invited to submit offers that fall within the project budget and will not be constrained to a particular rock delivery method. While community feedback is that barge delivery is preferred, initial cost analysis indicates that delivery of breakwater rock by barge may cost considerably more than delivery by truck, and may not be achievable within the Project budget. The environmental risks of truck-based supply of rock are considered to be manageable, subject to strict traffic management controls. The minimisation of impacts

socially and environmentally associated with transport of rock to the site is a key focus of the project planning for TMR.

(10) How will impacts to cassowaries be managed during construction?

A Traffic Management Plan (TMP) will be prepared for the construction phase of the Project, including a Cassowary Avoidance Strategy. This strategy will consist of the following elements:

- Choose access routes to, where possible, avoid cassowary habitat and known cassowary sighting locations.
- Review cassowary sighting information daily, and conduct prestart meetings with drivers to communicate the location of sightings on the route and where possible vary routes to avoid these.
- Ensure truck drivers are trained to drive aware of the local environment, particularly cassowaries.
- Driver behaviour will be monitored and if required additional training will be provided.
- If cassowaries are sighted, drivers will report immediately to all other drivers and the site manager. The site manager will then log this sighting and assess actions to minimise the risk of interactions.

(11) How will the new breakwater impact on visual amenity?

The new breakwater is of a detached design on the same alignment as the existing breakwater at Clump Point. The Reference Group consultation process identified the small scale of marine development needed now and into the future to meet the requirements of the Mission Beach community. The design was developed to provide a facility with the smallest environmental, cultural and visual impact while meeting functional objectives. The breakwater and infrastructure behind have been designed to minimise the height, width and length of the breakwater required to meet its operational objectives.

Artists impressions in Section 6-2 shows a visualisation of the developed scenario comparative to the existing facility, showing the visual amenity impacts of the Project from the perspective of the existing Clump Point carpark and the Perry Harvey jetty which are the two public access points where the facility is most visible . There is already a breakwater and marine facility at Clump Point and this upgrade from a visual perspective is a significant but not unsightly extension of the existing structure from both viewing locations. The design process, which has included considerable refinement, has kept the new breakwater crest as low as possible and for this reason the structure does not interrupt views from the lower carpark and the proposed access jetty.

(12) Who will manage the construction works and new facility?

TMR is the proponent for all marine-based works and the upgrade of the lower (northern) carpark. Throughout construction, TMR will supervise the contractor in close consultation with GBRMPA, NPSR and the Department of Environment and Heritage Protection, as well as other relevant agencies. The works for the upper (southern) carpark and Clump Point Road, including installation of water supply, will be undertaken by CCRC in consultation with relevant agencies.

Once completed, the marine facilities will be owned by TMR and managed by CCRC while land-based aspects will be owned and managed by CCRC. In addition, CCRC will be responsible for leasing arrangements for the limited number of berths and moorings associated with the facility.

(13) How will leasing of berths and moorings be managed?

The leasing process will be managed by CCRC, with an emphasis on providing leases to commercial operators who contribute to the Mission Beach economy. The leasing process will be carried out using robust evaluation approaches. CCRC has arranged for TMR input to lease drafting, leasing arrangements, and assessment of applications.

(14) What consultation has been conducted in preparation of the Project design?

As part of the earlier design, the (then) Department of State Development, Infrastructure and Planning (DSDIP) coordinated various stakeholder engagement activities between 2012 and 2016. This included workshops and individual stakeholder meetings to discuss priorities for the Project. In early 2016, it was identified that the preferred project package was not broadly supported by the community in relation to the proposed works at the Perry Harvey jetty and parts of the marine works at Clump Point.

In May 2016, a community Reference Group was organised by DSD to oversee the preparation of the Development Plan and associated investigations for a new proposal. The Reference Group member organisations represented two boating groups, the Mission Beach Community Association, two environmental groups and relevant local and state government entities. The Reference Group member organisations were selected to be representative of the full range of views in the Mission Beach community. The Reference Group met formally seven times (over about 7 months) as well as having numerous informal meetings. The formal meetings were held across afternoons and evenings, and several full day sessions. The significant contribution by all the Reference Group members across many months, in numerous long meetings, and in detailed informal discussions was a critical and valuable contribution to the Project.

The outcomes from the formal Reference Group meetings were agreed and documented by the Reference Group. The Reference Group prepared and signed two Advice Statements noting preferred elements, concerns with the project and approaches to the Project. Not all groups in the Reference Group support the project proposal.

The Reference Group included representatives from the following community groups and government agencies:

- Community for Cassowary and Coastal Conservation (C4)
- Cassowary Coast Safe Boating Association (CCSBA)
- Mission Beach Boating Association (MBBA)
- Mission Beach Cassowaries Inc (MBC)
- Mission Beach Community Association (MBCA)
- CCRC
- DSD
- TMR.

Outside the Reference Group, close collaboration was maintained throughout the Project between the DSD, TMR and CCRC. Consultation was also conducted with the GBRMPA/NPSR.

The Djiru people were invited to be part of the Reference Group, but preferred to provide ongoing independent advice and feedback to the Department of State Development. This ongoing consultation will continue throughout the Project.

(15) What investigations have been conducted in preparation of the Project design?

To support and inform the preparation of the Development Plan and Project design, the following investigations have been undertaken:

- detailed hydrographic survey
- marine ecology survey and assessment
- wave, current and marine sediment size survey
- terrestrial vegetation survey
- geotechnical investigations
- hydrodynamic and sediment transport modelling studies.

Submission Process

This Public Information Package outlines the nature of the development proposed at Clump Point as part of the Mission Beach Clump Point Boating Infrastructure Project. This package describes the full extent of the proposed marine and land-based works.

However, the package has been prepared in accordance with an application for a permit to undertake works within the Great Barrier Reef Marine Park and the Great Barrier Reef Coast Marine Park only. For this reason, all submissions should be limited to matters within the jurisdiction of the Great Barrier Reef Marine Park Authority and Department of National Parks, Sport and Racing, i.e. all proposed works seaward of the Highest Astronomical Tide(HAT). These works consist of the following Project elements:

- new detached breakwater
- upgrades to the existing breakwater, including removal of the breakwater return
- upgrades to the boat launching facility, including development of a third boat ramp
- an additional floating walkway on the eastern boat ramp lane
- new jetty structure
- 2 new berthing pontoons, including one *facilitating disability access*
- 5-6 pen berths
- 5-6 swing moorings

All comments and submissions to:

Great Barrier Reef Marine Park Authority

Environmental Assessment and Protection Unit

PO Box 1379

Townsville QLD 4810

Email: assessments@gbmpa.gov.au

Website: www.gbmpa.gov.au/about-us/consultation

We now seek any public comment under regulation 88D of the *Great Barrier Reef Marine Parks Regulations 1983* (Cth) and s15 of the *Marine Parks Regulations 2017* (Qld). Public submissions will be considered by the Great Barrier Reef Marine Park Authority (GBRMPA) and the Queensland Parks and Wildlife Service (QPWS) in making a decision on this permit application.

Glossary

Glossary

Advice Statement	Statement prepared and signed by the representatives of each Reference Group member association based on consultations undertaken in preparation of the Development Plan, representing points of agreement and disagreement and other issues
AEP	Annual Exceedance Probability
AHD	Australian Height Datum
ASS	Acid Sulfate Soils
ASSMP	Acid Sulfate Soils Management Plan
Bommie	An isolated rocky outcrop; short for 'bombora'
BPPH	Benthic Primary Producer Habitat (e.g. seagrass, mangroves, saltmarsh, benthic algae, corals)
C4	Community for Cassowary and Coastal Conservation
CCRC	Cassowary Coast Regional Council
CCSBA	Cassowary Coast Safe Boating Association
CEMP	Construction Environmental Management Plan
CHMP	Cultural Heritage Management Plan
Clump Point boat ramp	Existing two-lane boat ramp, floating walkway and breakwater located at Clump Point, accessed from Clump Point Road
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DATSIP	(Qld) Department of Aboriginal and Torres Strait Islander Partnerships
Development Plan	Document prepared to summarise the findings of the Reference Group, findings of environmental investigations at Clump Point, and proposed Project works and design elements
DDA	<i>Disability Discrimination Act 1992</i> (Qld)
DoE	(former Cth) Department of the Environment
DPI	(former Qld) Department of Planning and Infrastructure
DSD	(Qld) Department of State Development
DSDIP	(former Qld) Department of State Development, Infrastructure and Planning
EHP	(Qld) Department of Environment and Heritage Protection
EOI	Expression of Interest
ESCP	Erosion and Sediment Control Plan
EFM	Environmentally Friendly Mooring
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth)
EV	Environmental Value
GAC	Girrigun Aboriginal Corporation
GBR	Great Barrier Reef
GBRMPA	Great Barrier Reef Marine Park Authority

Glossary

HAT	Highest Astronomical Tide
ILUA	Indigenous Land Use Agreement
IUCN	International Union for the Conservation of Nature
LAT	Lowest Astronomical Tide
MBBA	Mission Beach Boating Association
MBC	Mission Beach Cassowaries Inc
MBCA	Mission Beach Community Association
MHWN	Mean High Water Neaps
MHWS	Mean High Water Springs
MLWN	Mean Low Water Neaps
MLWS	Mean Low Water Springs
MNES	Matters of National Environmental Significance
MSES	Matters of State Environmental Significance
MSL	Mean Sea Level
MSQ	Maritime Safety Queensland
NC Act	<i>Nature Conservation Act 1992</i> (Qld)
NHP	National Heritage Property
NPSR	(Qld) Department of National Parks, Sport and Racing
NTU	Nephelometric Turbidity Unit
Perry Harvey jetty	Existing jetty structure located at Narragon Beach, accessible from Alexander Drive
the Project	Mission Beach Clump Point Boating Infrastructure Project
PSD	Particle Size Distribution
Public Information Package	Information package prepared in accordance with GBRMPA permit application process; intended to provide sufficient project details to inform the public and allow for submissions in relation to the Project
QPWS	Queensland Parks and Wildlife Service
RE	Regional Ecosystem
Red List	A list of species maintained by the IUCN that categorises species based on threatened status. Categories on the list are Not Evaluated, Data Deficient, Least Concern, Near Threatened, Vulnerable, Endangered, Critically Endangered, Extinct in the Wild, and Extinct
Reference Group	Group comprised of Mission Beach community stakeholder associations, organised by DSD to oversee and contribute to the preparation of a Development Plan for the Project. Consisted of: <ul style="list-style-type: none"> • C4 • CCSBA • MBBA • MBC • MBCA • CCRC

Glossary

- DSD
- TMR

RL	Reduced Level, the reference level from which other survey heights are compared.
RVM Map	Regulated Vegetation Management Map, which identifies the regulatory status of remnant vegetation
SPP	State Planning Policy
TEC	Threatened Ecological Community, a MNES value listed under the EPBC Act
TMP	Traffic Management Plan
TMR	(Qld) Department of Transport and Main Roads
TSS	Total Suspended Solids
VM Act	<i>Vegetation Management Act 1999</i> (Qld)
VMS Map	Vegetation Management Supporting Map, which identifies the environmental status and RE classification of remnant vegetation
WHA	World Heritage Area
WQO	Water Quality Objective

Contents

Executive Summary	i
Frequently Asked Questions	v
Submission Process	x
Glossary	xi
1 Introduction	1
1.1 Purpose	1
1.2 GBRMPA and NPSR marine park permit process	1
2 Project Background	3
2.1 Context	3
2.1.1 Boat Bay Conditions and Safety Hazards	4
2.1.2 Mission Beach Clump Point Boating Infrastructure Project Objectives	4
2.1.3 Traditional Owners	5
2.2 Previous Design	5
2.3 Current Design	6
2.3.1 Stakeholder Engagement	6
2.3.1.1 Advice Statements	7
2.3.2 Investigations	8
2.3.3 Development Plan	9
2.3.4 Design refinement	9
3 Project Description and Design Considerations	10
3.1.1 Reference Group Advice Statement	10
3.1.2 Environmental and Legislative Context	14
3.1.3 Breakwater Gap	15
3.1.4 Design Vessels	15
3.2 Design Elements	17
3.2.1 Description	17
3.2.2 Construction	24
3.2.3 Operational Management	25
4 Marine Environment	28
4.1 Physical Setting	28
4.2 Marine Water Quality	32
4.3 Marine Ecology	34
4.3.1 Seagrass Meadows	34

Contents

4.3.2	Soft Sediments and Rubble	38
4.3.3	Reefs and Rocky Shores	38
4.3.4	Mangroves	43
4.3.5	Threatened Marine Species	45
5	Terrestrial Environment	48
5.1	Background	48
5.2	Soil and Erosion	48
5.3	Vegetation	49
5.4	Terrestrial fauna	53
6	Socio-Cultural Values	55
6.1	Heritage	55
6.2	Visual Amenity	57
6.3	Traffic and Parking	61
7	Management of Environmental Risk	63
7.1	Construction	63
7.2	Operations	65
8	Conclusion	66
9	References	68
Appendix A	Initial Reference Group Advice Statement	A-1
Appendix B	Final Reference Group Advice Statement	B-1

List of Figures

Figure 1	Current Proposal at Clump Point	ii
Figure 2-1	Clump Point Boat Ramp, Floating Walkway and Rock Breakwater	3
Figure 3-1	Project Design	18
Figure 3-2	Project Design – Marine Elements	19
Figure 3-3	Project Design Cross-Section – Boat Ramp and Existing Breakwater Upgrade	20
Figure 3-4	Project Design Cross Section – New Breakwater	21
Figure 4-1	Conceptual Model of Sand Movements at Mission Beach	29
Figure 4-2	Siltation Trends	30
Figure 4-3	Wave Conditions	31
Figure 4-4	ASS Probability of Occurrence, Based on CSIRO National ASS Atlas	32
Figure 4-5	Benthic Habitats of the Project Area	36
Figure 4-6	Project footprint Impacts to Benthic and Intertidal Habitat	37
Figure 4-7	Photographs of Subtidal Reef Features (Hard Corals) on Clump Point Reef	41

Contents

Figure 4-8	Significant Bommies within Project Area	42
Figure 4-9	Mangrove Habitats of the Project Area	44
Figure 5-1	Terrestrial Vegetation Communities of the Project Area	51
Figure 5-2	Project Footprint Impacts on Vegetation	52
Figure 6-1	Change in Visual Amenity between Existing (top) and Developed (bottom) Scenarios – View from Lower (Northern) Carpark at Low Tide	58
Figure 6-2	Change in Visual Amenity between Existing (top) and Developed (bottom) Scenarios – View from Perry Harvey Jetty at Low Tide	59
Figure 6-3	Change in Visual Amenity between Existing (top) and Developed (bottom) Scenarios – View from Perry Harvey Jetty at Low Tide (Inset)	60

List of Tables

Table 2-1	Summary of Environmental and Engineering Investigations Conducted for the Project	8
Table 3-1	Relevant Project Considerations from Reference Group Advice Statement	11
Table 3-2	Reference Group Advice Statement – Recommended Berthing and Mooring Space	14
Table 3-3	Vessels referred to for project design	16
Table 3-4	Description of Project Design Elements	23
Table 3-5	Likely Operational Framework for Project	27
Table 4-1	Clump Point Tidal Planes (MSQ, 2012)	28
Table 4-2	Water Quality Objectives for Boat Bay and Open Coastal Waters	33
Table 4-3	Commonwealth and State Listed Threatened Marine Species that Could Occur in Project Area	46
Table 5-1	Threatened Fauna Species that Could Occur in Project Area	54
Table 6-1	Assessment of Cultural and Natural Heritage Values at Clump Point	56
Table 7-1	Management Objectives for CEMP Elements	63

1 Introduction

1.1 Purpose

This Public Information Package provides information about the proposed infrastructure upgrades and works at the Clump Point boat ramp, Mission Beach. These works are proposed under the Department of Transport and Main Roads (TMR) Mission Beach Clump Point Boating Infrastructure Project ('the Project').

This proposal is being assessed by the Great Barrier Reef Marine Park Authority (GBRMPA) and the Department of National Parks Sport and Racing (NPSR) as part of a process under the Great Barrier Reef Marine Park Act 1975 (Cth) and the Marine Parks Act 2004 (Qld). The GBR Marine Park permit application (for a combination of state and federal marine parks) relates only to works within the boundaries of those combined marine parks (i.e. below HAT).

The Project involves works in the Great Barrier Reef (GBR) Marine Park and the Great Barrier Reef Coast Marine Park. A Public Information Package is therefore required as part of the process for an application for a permit under the *Great Barrier Reef Marine Park Act 1975* (Cth) (GBRMP Act).

This package aims to provide background information to enable public stakeholders to make informed submissions to the GBRMPA and the NPSR on the permit application. Comments received will also inform approvals under the Marine Parks Act 2004 (Qld). This package contains the following information:

- Submission process
- Background to the Project, including history of stakeholder engagement and design
- Environmental and social context of the Project area
- Description of the proposed works, including potential impacts and proposed mitigation measures.

1.2 GBRMPA and NPSR marine park permit process

Under the *Great Barrier Reef Marine Park Regulations 1983*, *Qld Marine Park Regulations 2017* and GBRMPA policies for permitting, an opportunity for public comment is required for applications for any activities that may restrict the reasonable use of the Marine Parks by the public. Where a Public Environment Report (PER) or Environmental Impact Statement (EIS) are not required for an application, this public comment is invited through a Public Information Package.

A permit application was submitted to GBRMPA in June 2017 for marine infrastructure works associated with the Project. These works include construction of a new breakwater and jetty, upgrade of the existing Clump Point boat ramp and breakwater (including removal of the breakwater return), and installation of two new pontoons, 5-6 pen berths and 5-6 environmentally friendly moorings (EFMs). A PER/EIS was not required for these works, prompting the development of this Public Information Package.

The jurisdiction of GBRMPA relates only to activities within the GBR Marine Park, that is, works in the water at or below the Mean Low Water Mark. The jurisdiction of the Department of NPSR extends

Introduction

to the Highest Astronomical Tide. The Project also involves land-based activities that will not be subject to a Marine Park Permit. However, to ensure public stakeholders are fully informed, all aspects of the Project have been discussed in this package. Therefore, it is important to emphasise that ***when making submissions on the proposed works, GBRMPA and NPSR will consider only those related to the marine environment*** as well as issues ***which go to the heart of the Project's viability*** but are not directly linked to the marine environment.

The Australian and Queensland governments jointly manage the Great Barrier Reef World Heritage Area under the principles of the Great Barrier Reef Intergovernmental Agreement (2015). A joint permissions system is in place to streamline the process for applicants and to ensure a complementary approach between State and Commonwealth Marine Parks.

2 Project Background

2.1 Context

The proposed works at Clump Point form part of the Mission Beach Clump Point Boating Infrastructure Project. Project development and Reference Group activities were facilitated by DSD but the Project is now being delivered by TMR in collaboration with the Cassowary Coast Regional Council (CCRC).

The Project was developed by the Queensland Government as a response to community requests to enhance marine infrastructure in Boat Bay, Mission Beach, to improve boating safety and amenity. The objective of the Project is to provide facilities and conditions that allow safe boat launching and retrieval, the safe transfer of passengers and goods, and shelter for a limited number of boats in non-extreme wave conditions.

Existing facilities for boating in Boat Bay consist of the Perry Harvey jetty at Narragon Beach, owned and maintained by CCRC, and the Clump Point boat ramp, owned by TMR and maintained by CCRC. CCRC owns the current floating walkway. Current support infrastructure at the Clump Point boat ramp includes a rock breakwater, floating walkway, and car and boat trailer parking facilities (Figure 2-1).



Figure 2-1 Clump Point Boat Ramp, Floating Walkway and Rock Breakwater

Project Background

The Clump Point boat ramp is used for both commercial and recreational boat access as it offers better wave protection during rougher weather than the Perry Harvey jetty. There is, however, only a limited area of protected water adjacent to the ramp. During periods of peak demand, over-utilisation of the boat ramp has led to vessel congestion in the navigational channel, and traffic congestion on land where vehicles compete for limited parking and manoeuvring space. Boats are moored in Boat Bay, protected somewhat by the boat ramp breakwater and Clump Point, but the protection is limited during northerly and north-easterly weather.

2.1.1 Boat Bay Conditions and Safety Hazards

It is widely acknowledged by the local community and boating users that the current facilities in Boat Bay pose a risk to public safety, and multiple near accidents have occurred at these facilities. Safety concerns arise because of the lack of wave attenuation during adverse wind and wave conditions and the associated exposure to significant wave heights when launching and retrieving vessels or transferring passengers, and when leaving boats on buoy moorings.

Boat Bay is provided with a moderate level of natural protection from the prevailing south-easterly winds and waves by Clump Point, a northerly facing basalt headland located at the south-eastern extent of the bay. The Clump Point public boat ramp is also provided with a level of wave attenuation from north-easterly winds and waves by an existing rock breakwater. However, the Perry Harvey Jetty is significantly exposed and has no protection from the northerly winds and waves that typically occur in the late afternoon.

The largest waves approach the jetty consistently from the north-east, regardless of the incoming wind direction. This pattern is reflective of the sheltering effect of the Clump Point headland, and wave refraction, which limits the height of waves from the south. As the jetty has no protection from waves approaching from the north-east direction, this pre-dominant pattern results in the jetty being an unsafe berthing location. The observation has been made by boating users that the waves at the jetty present a safety hazard, and this hazard is perceived to have led to a decline in local tourists - given increasing expectations for provision of public safety.

At present Boat Bay does not contain any facilities that provide a protected mooring location for vessels. This has resulted in the occurrence of inappropriate and illegal mooring in Boat Bay, which presents safety hazards associated with the potential dislodgement of vessels, and environmental impacts associated with damage from anchors and chains.

2.1.2 Mission Beach Clump Point Boating Infrastructure Project Objectives

Existing facilities in Boat Bay provide valuable community infrastructure that supports recreational activity, enjoyment of the Marine Parks, and contribute to tourism in the region. However, it is acknowledged that the use of existing facilities in Boat Bay presents a risk to public safety during adverse wave conditions and periods of high demand.

Acknowledging these risks, the objective of the Project is to improve conditions for safer boating in Boat Bay; and to improve the operational potential of existing facilities. The Project is not intended to provide protection during cyclonic conditions, and no structure forming part of the Project has been designed to support an operational role during a major storm or cyclone.

Project Background

Another operational objective for the project is to reduce conflict between recreational users and larger commercial-sized vessels at the boat ramp. With regard to this conflict, DSD and TMR support the provision of limited commercial activities as part of the Project, noting the following aims/reasons:

- Provide safer reliable public access to the Marine Parks. Unless a member of the public owns or has access to a boat, the only other option to dive, sightsee or stay in the Marine Parks is through a commercial operator.
- Public access to the Marine Parks will build public awareness and support for this globally significant natural environment.
- Many visitors coming to Mission Beach will want a unique experience visiting the Marine Parks directly from tropical rainforest with its own unique values.
- Limited commercial providers can provide this public access, and would be carefully managed to ensure other Project objectives are achieved.
- These commercial operations will have strong and desirable economic benefits to the local economy, both through direct income and through increasing visitors to Mission Beach throughout the year.
- Support for a limited number of local commercial fishing enterprises will support the local economy through employment and the supply of local fish.
- Safety for commercial operations is a concern for the whole community, including families and rescue services.

2.1.3 Traditional Owners

Clump Point is a significant cultural heritage location for the Djiru people (the local Aboriginal group), and the location of several recognised cultural heritage features (see Section 6.1). A native title claim by the Djiru people was recognised by the Federal Court of Australia in 2011 over the Project area. The Project area is also under the Djiru Cassowary Coast Regional Council Area Indigenous Land Use Agreement (ILUA) agreed with the CCRC in 2010.

DSD consulted with the Djiru people throughout the preparation of the Development Plan and received valuable advice and feedback about emerging information from ongoing studies and design options. The Djiru people were invited to join the Reference Group but preferred to be consulted separately to provide advice.

The Project will be constructed and operated under a Cultural Heritage Management Plan (CHMP), to protect Indigenous cultural heritage.

2.2 Previous Design

Between 2014 and 2016, DSD facilitated the development of a works package for the Project consisting of two key elements:

- Construction of an overtopping breakwater in front of the Perry Harvey jetty.
- Upgrade of the Clump Point boat ramp facilities, including provision of a third boat ramp lane and expansion of the car-parking facilities.

Project Background

Most of this proposal was approved by government agencies and progressed to tender phase in 2015-2016. However, as part of consultation conducted on the proposal it was identified that elements of the works were not broadly supported by the community and the tender process was stopped while a new approach was developed.

Many stakeholders raised concerns about the limited wave protection to the Perry Harvey jetty that would be provided by the suggested overtopping breakwater and others were significantly concerned about the visual amenity impacts of the overtopping breakwater in the middle of Boat Bay. Many boat operators were concerned about using the jetty during rough weather due to potential damage (especially those with fiberglass, thinner aluminium or wooden-hulled boats) and the safety of transferring passengers. Concerns were also raised about the available water depths at the jetty, especially during rougher conditions and about no safe place to leave boats unattended overnight. Without the development of a breakwater or other protective structure at the Perry Harvey jetty it is not possible to meet a prime objective of the Project, that is, allowing for safer boating in Boat Bay in non-extreme wind and wave conditions.

In response, many community stakeholders suggested that a better outcome could be achieved if the Project focused on the delivery of infrastructure at Clump Point only, including the key aspects of the improvement to boat launching facilities in the previous proposal. The Perry Harvey jetty could remain a complementary facility, providing good weather access. It was suggested an extended breakwater at Clump Point could provide safer berthing and mooring conditions, and be a more efficient use of the available project funds.

Based on a community information session conducted 18 May 2016, involving a wide range of groups and individuals representing commercial and recreational boating, community and environmental stakeholders, DSD confirmed that the Project would refocus on delivering the safer boating facilities at Clump Point.

2.3 Current Design

The current proposed infrastructure upgrades and works at Clump Point are the result of extensive stakeholder engagement, environmental and engineering investigations, and the preparation of a Development Plan.

2.3.1 Stakeholder Engagement

After the 18 May 2016 meeting, DSD invited key boating, community and conservation groups from Mission Beach to join a Reference Group to provide community input on issues, concerns and values during the preparation of a Development Plan for the Project. The Reference Group member organisations were selected to provide views likely to be representative of the full range of views within the Mission Beach community. The intention by DSD was to bring key groups from Mission Beach together to discuss their views on the Project, to debate any areas of disagreement, to identify areas of agreement, and to document the key outcomes of the discussions.

The Reference Group met formally seven times as well as having numerous informal meetings. The formal meetings were held across afternoons and evenings, and several full day sessions. The significant contribution by all the Reference Group members across many months, in numerous long meetings, and in detailed informal discussions was a valuable contribution to the Project.

Project Background

The outcomes from the formal Reference Group meetings were agreed and documented by the Reference Group. The Reference Group prepared and signed two Advice Statements for the Project, noting preferred elements and approaches to the Project and responding to the proposed Development Plan.

The member organisations in the Reference Group are:

- Community for Cassowary and Coastal Conservation (C4)
- Mission Beach Cassowaries Inc (MBC)
- Mission Beach Community Association (MBCA)
- Mission Beach Boating Association (MBBA)
- Cassowary Coast Safe Boating Association (CCSBA)
- CCRC
- TMR
- DSD

In addition to the Reference Group stakeholders, Great Barrier Reef Marine Park Authority (GBRMPA) officers were kept informed and consulted throughout the process to ensure they were aware of the process and potential works, and that their requirements were considered. TMR also referred the Project to the Department of the Environment and Energy, under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) to assess the potential for impacts to matters of national environmental significance (MNES). The outcome of this assessment was that the proposed works are not a controlled action under the *EPBC Act* and for this reason require no further assessment or approval under the *EPBC Act* to proceed.

2.3.1.1 Advice Statements

The Reference Group prepared two Advice Statements for the Project. The first Advice Statement provided views on key aspects of the Project including views on what facilities should be included, and was signed by each member group. That first Advice Statement informed further studies and subsequent design work, which was documented in a Development Plan for the Project, supported by the relevant technical studies. The Reference Group members reviewed the Development Plan and then participated in preparing a second Advice Statement setting out their views on the Project to allow amendment to and refinement of the Development Plan. That second Advice Statement for the Project was prepared by initially assembling the views of each Reference Group member organisation. After discussing with each group their initial written views, a draft statement was assembled. The Reference Group then collectively reviewed and revised the draft to produce an agreed final Advice Statement which was signed by the representative of each member organisation. The final part of the process took a full day and evening to allow for the extensive discussions and changes that progressively led to a draft everyone could support. The initial Advice Statement produced through this process is attached in Appendix A and the final Advice Statement in Appendix B.

Project Background

The key messages from the Advice Statements as relevant to the Project design are discussed in Section 3.1.1.

2.3.2 Investigations

The key studies undertaken during the preparation of the proposed works are briefly described below in Table 2-1, together with citations to the associated reports. These studies informed the characterisation of the biophysical environment in the Project area and development of the Project design. These studies were commissioned by DSD and TMR but with input from the Reference Group. Further technical studies from the earlier version of the Project were also reviewed and used where relevant. The findings were detailed in technical reports and summarised in the Development Plan.

Table 2-1 Summary of Environmental and Engineering Investigations Conducted for the Project

Study	Activities/results	Supporting report
Hydrographic survey	<ul style="list-style-type: none"> Detailed bathymetry for Boat Bay Identification of bommies and rock outcrops within Boat Bay more than 0.3m above the surrounding seabed Backscatter imagery to identify transitions between hard and soft substrate features across Boat Bay 	-
Marine ecology survey and assessment	<ul style="list-style-type: none"> Mapping of key benthic habitats within and adjacent to the Project area Characterisation of soft marine sediments within the Project area Identification of coral and seagrass habitat within and adjacent to the Project area Identification of marine megafauna species that may potentially utilise visit habitats within and adjacent to the Project area 	BMT WBM (2016d)
Wave, current and marine sediment (particle size) survey	<ul style="list-style-type: none"> Collection of data on metocean (wave and current) conditions to inform Project design and marine numerical modelling Collection of several samples and analysis of sediment particle sizes within the Project area to support sediment transport modelling 	BMT WBM (2016b and 2016c)
Terrestrial vegetation survey	<ul style="list-style-type: none"> Vegetation and habitat mapping and assessment of habitat condition in areas that may be impacted by the Project Identification and quantification of significant vegetation features including threatened ecological communities, regional ecosystems and flora species Description of terrestrial fauna habitat types and significant habitat features 	BMT WBM (2016e)
Geotechnical investigations	<ul style="list-style-type: none"> Identification of any potential geotechnical risks to the Project Characterisation of subsurface conditions to inform design Identification of geotechnical data required to further design 	-
Hydrodynamic and sediment	<ul style="list-style-type: none"> Assessment of effect of different lengths (70m, 120m and 200m) for the proposed breakwater on the leeward wave 	BMT WBM (2017)

Project Background

Study	Activities/results	Supporting report
transport modelling	<p>conditions and changes to sediment transport and deposition</p> <ul style="list-style-type: none"> Assessment of effect of different gap widths (20m, 30m and 45m) between the proposed breakwater and the existing breakwater at the ramp (with the existing return on the breakwater removed) – see Section 3.1.3 regarding the breakwater gap. 	

2.3.3 Development Plan

The proposed infrastructure upgrades and works at Clump Point are based on the outcomes of a Development Plan process facilitated by DSD. This preparation of a Development Plan commenced following the 18 May 2016 community information session.

The Development Plan (DSD, 2017) presents an integrated summary of existing conditions at Clump Point and the requirements for infrastructure works and upgrades, based on the results of stakeholder consultation and technical investigations. It was developed in close consultation with the Reference Group and includes information on the marine and terrestrial environment, amenity, cultural heritage, and traffic and parking, as well as the legislative and administrative context for the proposed works. The plan summarises the works intended to be undertaken, subject to any refinement associated with detailed design and approval requirements.

2.3.4 Design refinement

Further detailed design was undertaken to refine the details of the overtopping breakwater set out in the Development Plan. This included further review of possible extreme weather conditions, and physical modelling of the proposed breakwater design. Several refinements were made to improve the wave protection provided by the breakwater including minor changes to the alignment of the breakwater, the cross-section profile of the breakwater, the height of the breakwater, the length and shape of the breakwater return, and the profile of the lower (northern) carpark. Impact modelling studies were repeated to address the impacts of those further refinements to the design.

This document describes that refined design and the impacts arising from that design are discussed below.

3 Project Description and Design Considerations

The design of the Project was based primarily on considerations associated with the following:

- Results of the Reference Group discussions, as represented in the Advice Statements
- Environmental and legislative contexts of the area and proposed works
- 'Design vessels' adopted for the area
- Legislative need to maintain a 'gap' between the new breakwater and the mainland (i.e. detached breakwater) so as not to affect the GBR Marine Park boundary.

These considerations underpinned the preliminary design of the Project, with further adjustment associated with the detailed design (discussed in Section 3.2).

3.1.1 Reference Group Advice Statement

The Reference Group identified the Project needs (i.e. what the Project should achieve) and values (i.e. what the Project needs to protect), which provided inputs into the Development Plan and Project design. These matters are summarised in Table 3-1 together with a description of how each matter is addressed through the Project design approach. Further discussion related to project design elements is provided in Section 3.2 and environmental and cultural values in Sections 4, 5 and 6.

NOTE: While consensus was reached for most matters the Advice Statement identifies that there was disagreement on several matters, as documented in Table 3-1.

Project Description and Design Considerations

Table 3-1 Relevant Project Considerations from Reference Group Advice Statement

Matter	Consideration
Cultural heritage values, especially Indigenous cultural heritage, must be protected.	The design avoids areas/items of cultural heritage significance (e.g. Fish Trap).
The rainforest atmosphere of Clump Point must be retained.	Vegetation clearing will be limited to what has already been approved for expansion of the carparks, as per the 2015 DSD tender documentation, together with trimming of low-hanging branches in pull-off areas (see below). NOTE: While the overall project in the original DSD tender package was not supported by the community, the proposed carpark works and associated clearing were considered acceptable. Rehabilitation, replanting, weed-removal and offsetting will be undertaken where relevant as part of construction-phase activities.
Informal pull-over bays for vehicles with boat trailers are required but should only use existing non-vegetated areas. These areas should be hardened and have appropriate signage.	Access upgrade works to be undertaken by CCRC separate to the TMR works.
Clump Point Road should be sealed for the entire length (not including shoulders and pull-over bays).	Access upgrade works to be undertaken by CCRC separate to the TMR works.
Carpark expansions and parking arrangements should be as per the 2015 DSD tender package but should include raising of areas adjacent to the boat ramps (to prevent overtopping by waves), redirecting of runoff to vegetated areas, and provision for vehicle turning.	Included in the design.
Parking for commercial operation customers should be away from Clump Point, with the provision of a mini-bus set down area only.	Mini-bus drop off facilities included in upgrade works to be undertaken by CCRC separate to the TMR works.
Pedestrian access from the upper (southern) carpark to the boat ramp should be considered in the design.	The design aims to improve pedestrian access as much as possible within the spatial constraints of the site.
If mains water supply is to be provided, it should be in a trench along the road to avoid impacts to surrounding vegetation. NOTE: Some members of the Reference Group considered reticulated water supply to be essential while others did not.	Reticulated water supply is included in the design and the initial works are being undertaken by CCRC.
A composting toilet should be provided as per 2015 DSD tender package. Provision of sewerage should be considered based on availability of funds but is not essential. NOTE: Some members of the Reference Group consider sewerage to be essential.	Costings indicate a sewerage connection to Clump Point is not achievable within the allocated Project funding. A composting toilet is included in the design.
Electric power supply is highly desirable for lighting to ensure safe navigation and for public safety. The use of solar and generator backup could be considered.	Solar navigational lighting will be provided in accordance with the advice of the Regional Harbour Master (RHM).

Project Description and Design Considerations

Matter	Consideration
<p>If mains water supply is being provided, electric power supply should be considered using the same trench.</p>	<p>Solar public access lighting will be provided at the carpark, jetty, pontoon and breakwaters and in accordance with Australian Standards and advice of the RHM.</p> <p>Mains power is not part of the project scope because of cost and because commercial operators did not see it as essential seeing water and refuelling as much higher priorities for the limited project funds.</p> <p>Installation of a conduit for potential future connection during mains water supply installation will be considered.</p>
<p>Safe fuel supply can occur at Perry Harvey jetty during calm weather. There is disagreement as to preferred approach for fuel supply at Clump Point boat ramp:</p> <ul style="list-style-type: none"> • Fixed fuel line • Refuelling by fuel tanker operators, subject to strict protocols • No refuelling. 	<p>The design will allow for the opportunity to refuel from the new protected jetty structure via truck.</p>
<p>An additional boat ramp should be provided, as per the 2015 DSD tender package but with floating walkways providing access to each ramp. This should be suitable for use by commercial barges but on the assumption that this type of use would be rare/minimal.</p> <p>NOTE: Some members of the Reference Group are opposed to any use of the boat ramp by barges.</p>	<p>A 6m wide, heavy-duty boat ramp lane will be provided (third boat ramp lane), designed to allow for infrequent small/medium barge access and larger commercial vessel launching. This is being provided opportunistically for two primary reasons; 1. This reflects the advantage of having infrequent barge access, including to provide emergency relief to Mission Beach and island communities after tropical cyclone events and 2. This negates significant damage and repair costs associated with one-off barge use of a standard recreational ramp (see Section 3.1.4).</p> <p>Two floating walkways will service access to all three boat ramp lanes.</p>
<p>The breakwater return should be removed to provide for a direct access path, and a boat clearway retained free of permanent moorings and anchored boats.</p>	<p>Included in the design. The removal of the return from the existing breakwater will not only provide a more direct access path to the boat ramp lanes, but also allows the two bommies identified for removal in the previous proposal to be retained. The bommies will be marked as navigation hazards and the removed rock used in the new works.</p>
<p>Moorings, pens and berths should be provided, to a maximum of 11, subject to discussions with GBRMPA. These should provide a balance between recreational and commercial users on the understanding that the number of berths for commercial operators would be limited and available only to operators whose activities benefit the local economy. This commercial access would be determined based on bidding at regular intervals.</p> <p>NOTE: The makeup of the moorings, pens and berths differed across members of the Reference Group – see Table 3-2.</p>	<p>Design includes 11-12 moorings, pens and berths based on the following (indicative) breakdown:</p> <ul style="list-style-type: none"> • 4 moorings permanently leased to commercial operators • 2 moorings available for casual occupation by larger visiting recreational vessels • 5-6 pen berths for commercial lease.
<p>An under-keel clearance of 0.3-0.7m in normal sea-states (low wave heights) should be provided.</p>	<p>Significant natural water depths are available in the proposed commercial pens and pontoon berths for anticipated usage</p>

Project Description and Design Considerations

Matter	Consideration
<p>The breakwater construction methodology (i.e. barge-based supply or rock vs. truck-based supply) will be determined subject to detailed design, considering costs and impacts. However, the preference is for barge-based supply which would minimise community impact of truck movements and the risk of strike of cassowaries crossing the access route.</p>	<p>The preferred method of delivery for rock-supply for the new breakwater has not been confirmed and will be determined as part of the construction tender process. Tenders will be invited to submit offers that fall within the project budget and will not be constrained to a particular rock delivery method. However, initial cost estimates indicate barge based construction will be over 150% of trucking options and for this reason it is highly probable that construction will be undertaken using truck-based supply of rock material. This will be subject to a detailed Traffic Management Plan (see Section 3.2.2).</p> <p>NOTE: This will be subject to the construction methodology identified by the successful tenderer.</p>

Table 3-2 Reference Group Advice Statement – Recommended Berthing and Mooring Space

Mooring/berthing type	MBBA	MBCA	CCSBA	C4	MBC	TMR
Recreation user short stay moorings	2 or 3	3	2	2 or 3	6	3
Commercial user multi-year lease moorings	2 or 3	4	3	2 or 3	5	3
Recreational user loading pontoon boat spaces	2	2	1	2?	2	2
Commercial user loading pontoon boat spaces	4	2	4	2?	2	2
Pontoon berths – commercial lease	0	4	0	0	0	0
Pen berths – commercial lease	6	0	5	5?	0	5
Total	16-18	15	15	13-15	15	15
Total (excl. loading spaces)	10-12	11	10	9-11	11	11

3.1.2 Environmental and Legislative Context

The key environmental and cultural values of the Project area, including regulatory constraints, which underpin design are:

- GBR Marine Park – to protect the values of GBR, including tidal flushing close to the shoreline, and to avoid reclamation of the marine park, the breakwater needs to be separated from the land.
- Bommies – these represent both habitat features and navigational hazards. The design aims to avoid and minimise impacts on these features while still providing safe navigational access.
- Seagrass – the design aims to completely avoid impact on seagrass areas (based on recent and historical surveys). In addition the designs objective is to minimise as much as possible the footprint of the works and hence reduce the impact on potential habitat.
- Fish trap – this is an important Indigenous cultural heritage feature to the south of the existing boat ramp and should not be impacted by proposed works.
- Littoral rainforest – littoral rainforest communities at Clump Point meet the diagnostic criteria for the EPBC Act threatened ecological community (TEC): littoral rainforest and coastal vine thicket of eastern Australia. This is an Endangered TEC and any clearing, other than as approved under the previous design, should not occur.
- Southern Cassowary (*Casuarius casuarius johnsonii*) – multiple adults are known to occur at Clump Point and regularly cross Clump Point Road. They are listed as Endangered under the EPBC Act and Vulnerable under the *Nature Conservation Act 1992* (NC Act), and have local cultural heritage significance, both to Indigenous and non-indigenous communities.
- Arenga Palm (*Arenga australasica*) – several Arenga palm groves and individual trees occur throughout the rainforest communities of Clump Point Road. This species is listed as Vulnerable under the NC Act.

NOTE: Other environmental and cultural values occur within the Project area but are considered to have lower weight than the above for the purposes of Project design.

Project Description and Design Considerations

3.1.3 Breakwater Gap

It is necessary to maintain a gap between the proposed new breakwater and the mainland/existing breakwater to avoid works becoming 'reclamation' in the GBR Marine Park. A gap also protects important processes for coastline within the GBR, including tidal flushing and also allows for connectivity.

Numerical modelling was undertaken of the proposed breakwater with gap widths (breakwater crest to crest) of 20m, 30m and 45m to determine differences in resulting siltation rates and wave climate (BMT WBM, 2017). The outcome of the gap modelling showed that the 20m and 30m gap options provided virtually the same wave protection and siltation trends. Both these options provided suitable wave climate protection and very small siltation rates (in the order of maximum 3mm/yr) suggesting both these options would meet the Project objectives and the site is unlikely to require dredging over the design life. By contrast, the 45m gap allowed more wave energy through, creating sub-optimal wave protection, significant morphological changes and increased siltation rates (although siltation rates remained relatively low).

Based on this modelling, discussions took place with GBRMPA and it was confirmed a design gap of approximately 25m was suitable for meeting mainland separation objectives and leaves a small area of natural seabed between the two breakwater structures.

3.1.4 Design Vessels

Table 3-3 identifies the 'design vessels' adopted for the Project design, based on consultation with the Reference Group (Note: The vessel dimensions outlined in table 3-3 were provided by reference group representatives, TMR has not independently verified these dimensions, however has updated figures that were found to be in error). This is a combination of existing commercial and safety vessels and representative categories of recreational vessels. The individual vessels below may not necessarily use the new facilities, but are indicative of the general dimensions of vessels that may need to be accommodated.

While frequent use of the boat ramp by barges is not appropriate and will be precluded by commercial barge permit conditions, provision for infrequent barge access was supported by most of the Reference Group. Barge access would allow for emergency supplies to be barged through Clump Point to Mission Beach and nearby island communities (e.g. Dunk Island) immediately after cyclone and extreme weather events, and could also occasionally support other activities advantageous to the local community.

From a technical perspective, the design vessel for the loadings and the functional use of the offshore facilities is an Astal 24 (which is of similar specifications to the *Quickcat* in Table 3-3 but with a maximum draught of 1.9m). This is consistent with the design vessel of the previous DSD proposal. TMR reviewed the previous decision and following further advice from MSQ concluded that this vessel is considered to be the maximum sized commercial vessel likely to operate from Clump Point and hence is appropriate.

TMR intends to undertake an expression of interest (EOI) process to identify commercial operators and their vessel specifications to advise the design dimensions of the pen berths and swing moorings.

Project Description and Design Considerations

Table 3-3 Vessels referred to for project design

Vessel name	Type	Length (m)	Beam (m)	Draught (m)	Passengers	Use/Design
Commercial						
<i>Reef Goddess</i>	Monohull	20	5.8	1.75	48-70+5	Dive & snorkel
<i>Island Spirit</i>	Tri-hull	10.05	3.07	1.5	24	Water taxi
<i>Bigmama</i>	Monohull	18	5.8	2.7	12	Sailing ketch
<i>Island Voyager</i>	Catamaran	12	3.3	1.2	16	Dunk Island ferry
<i>Spiegel</i>	Catamaran	11.4	6.7	1.1	8-12	Sailing
<i>Betty Lou</i>	Monohull	9.1	3	1.5	-	Fishing
<i>Quickcat</i>	Catamaran	24	9.5	1.35*	152+	Tourist ferry
<i>Reef Magic II</i>	Catamaran	28.05	11.2	1.8*	150+	Tourist ferry
Safety and Barge						
<i>Mary Little</i> (Tully Coast Guard)	Monohull	8.2	2.5	1	8	Coast guard
<i>Jarrah T</i>	Barge	24.48	8.85	2.1	12+2	Island supply
Recreational						
Game fishing monohull #1	Monohull	12-15	4.5-5	1.9	Various	Recreational
Game fishing monohull #2	Monohull	9-12	2.8-4	1.7	Various	Recreational
Powered catamaran	Catamaran	10-11	5	1.2	Various	Recreational
Sailing catamaran	Catamaran	10-15	6-8	1.2	Various	Recreational
Sailing monohull	Monohull	8-12	2.8-3.8	2.1	Various	Recreational
Centre console monohull	Monohull	8.7-10	2.7-3.1	1.6	Various	Recreational
Walk around cabin monohull	Monohull	8.7-10	2.7-3.1	1.6	Various	Recreational

3.2 Design Elements

3.2.1 Description

As shown in Figure 3-1 to Figure 3-4 below, the key features of the proposed design are a non-accessible detached breakwater, separate commercial and recreational access pontoons accessed from a jetty, a third boat ramp lane, 5-6 pen berths and several buoy moorings. In addition, upgrades will be made to the southern and northern carparks and Clump Point Road, as per the 2015 DSD tender package.

Details of the individual Project elements are provided in Table 3-4 below. Approval is being sought for all elements, noting that some elements may not be able to be constructed in the first instance due to funding limitations.

Project elements have been split into marine and land-based elements. Lighting for marine infrastructure, including navigational lighting, will be provided using solar power, subject to the requirements of the RHM and Australian Standards.

Detailed Design and Physical Modelling

The preliminary design presented in the Development Plan was subject to further investigation and refinement in the detailed design and physical modelling phases. These processes led to the following changes:

- shift in alignment of detached breakwater to be more parallel to and in alignment with the existing breakwater. To better meet the objective of providing protection from northerly conditions.
- slightly larger footprint (i.e. cross-section width – from ~37m to 42m) of the detached breakwater and slightly higher crest (from 4m AHD to 4.5m AHD).
- larger footprint on the eastern side of the carpark and existing breakwater. This represents a maximum expansion of ~13m of the carpark and ~11m of the breakwater at the westernmost point of the existing carpark (adjacent to the boat ramp), and ~8m of the carpark and ~2m of the breakwater at the northeast corner of the existing carpark.
- single fall of carpark from east to west from 2.9m AHD to 2.5m AHD, providing greater protection from wave run-up without need to raise carpark significantly in the centre.

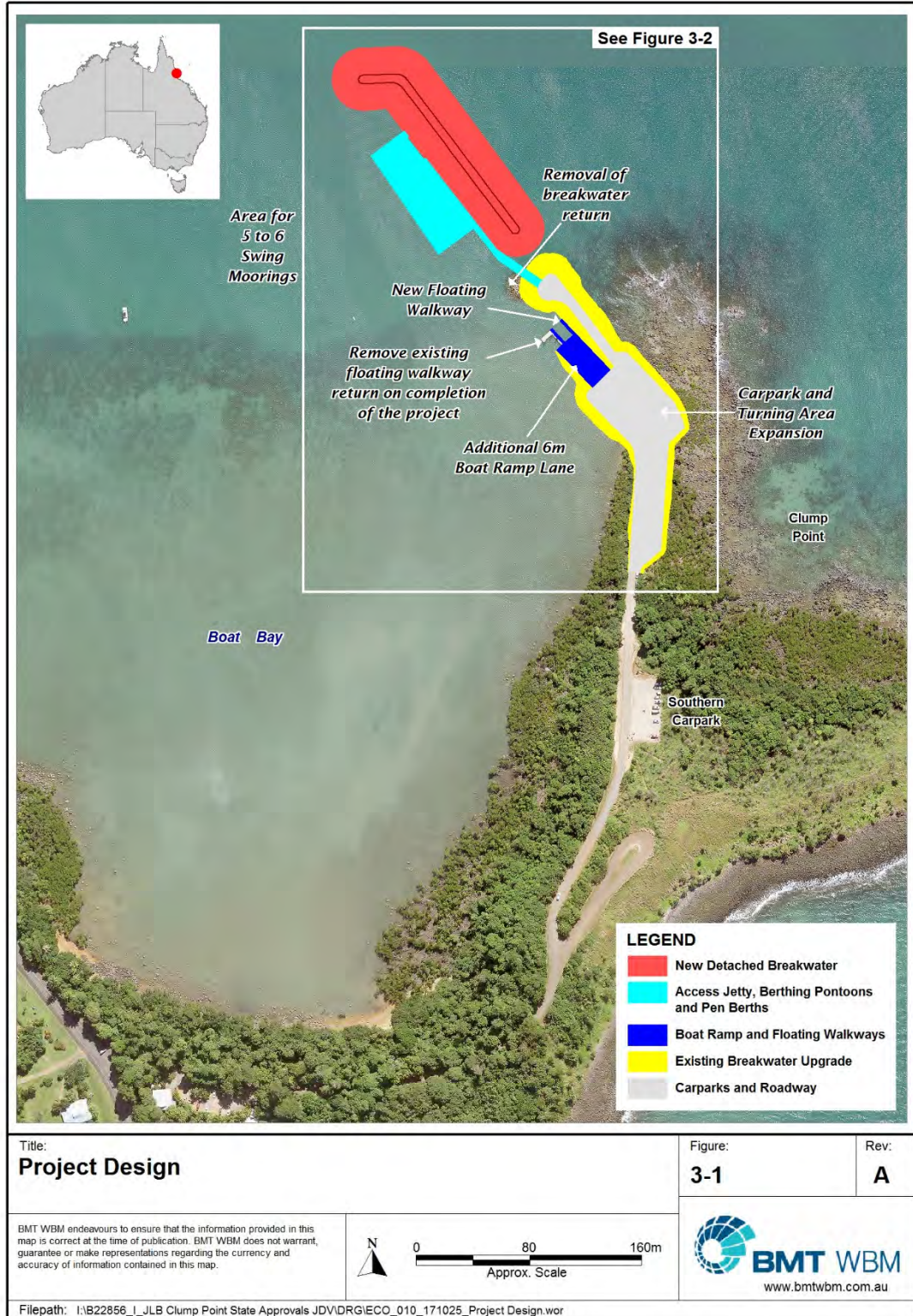
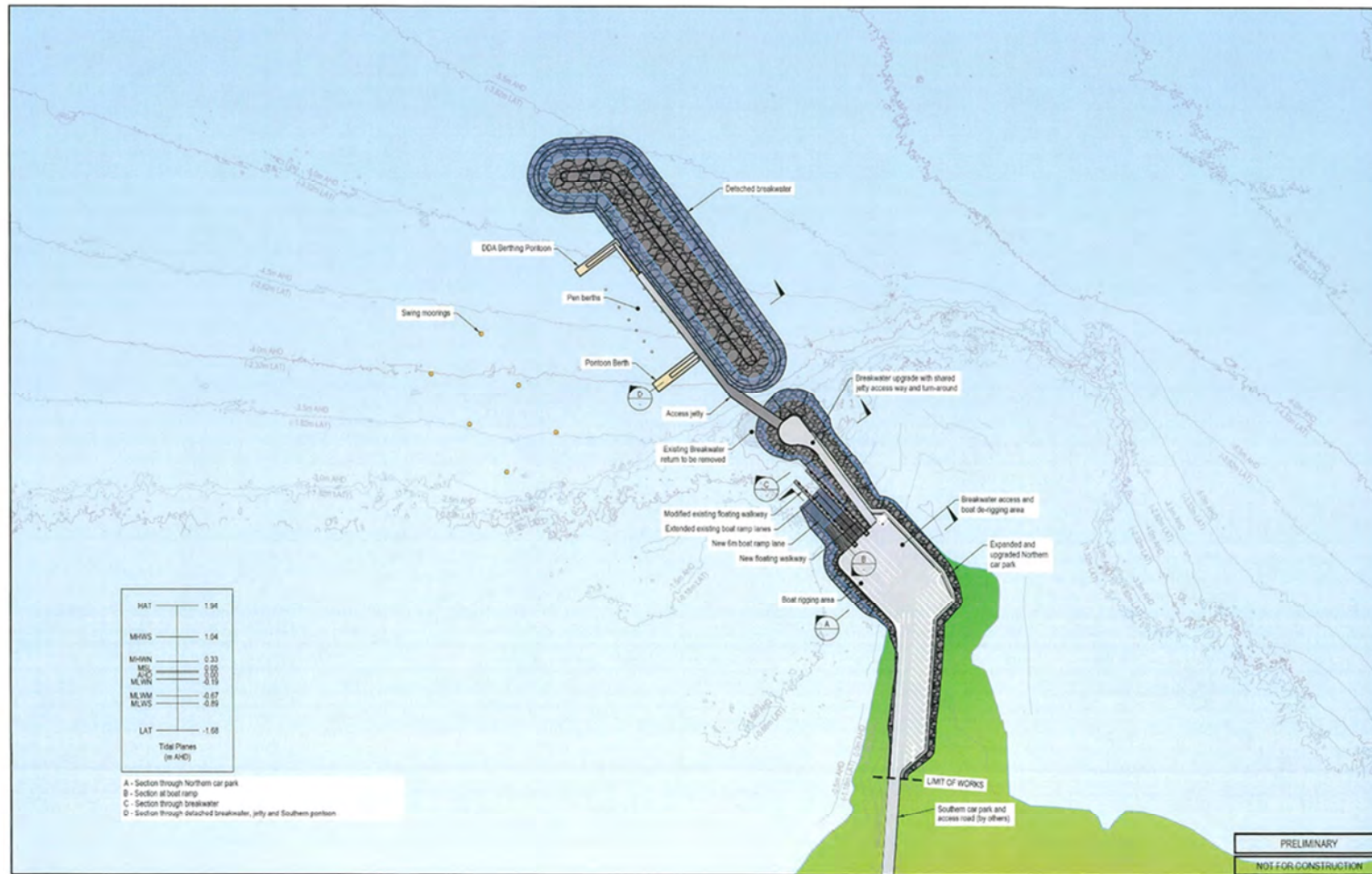


Figure 3-1 Project Design

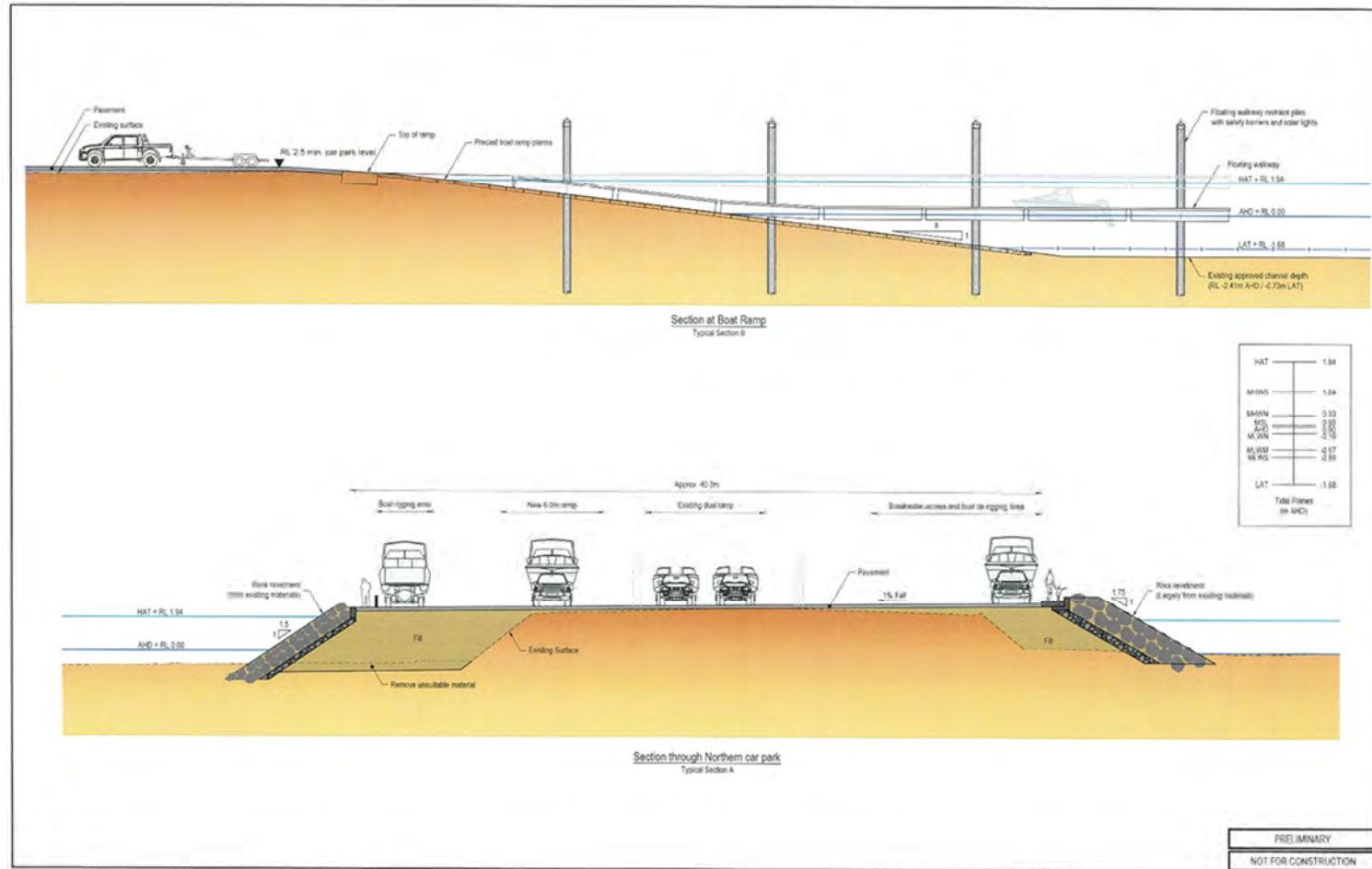


BEJ754-DW-CY-SKT-0019 Rev B
 1 November 2017



CLUMP POINT BOATING INFRASTRUCTURE PROJECT
 SCHEMATIC LAYOUT

Figure 3-2 Project Design – Marine Elements



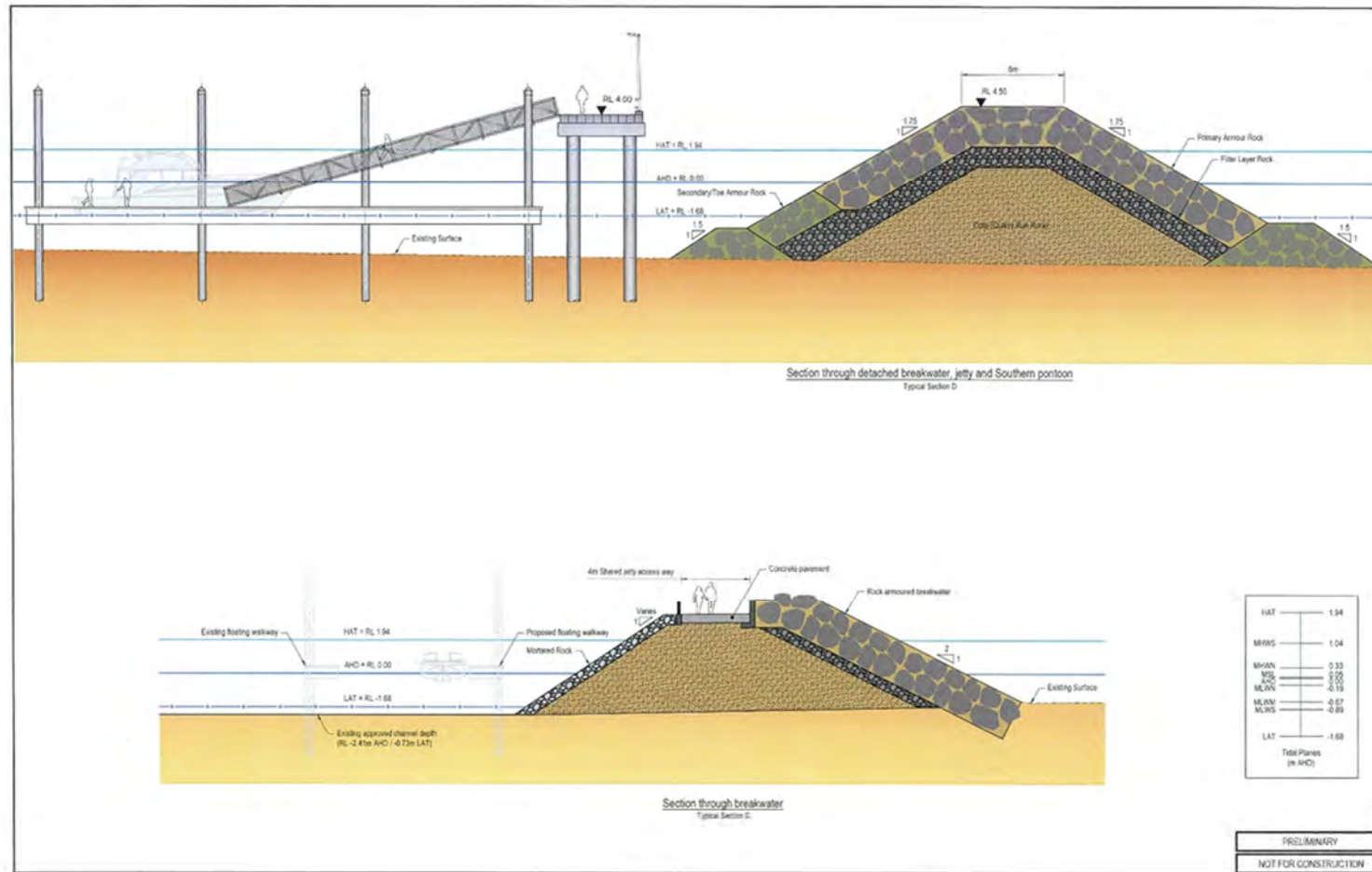
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 1 November 2017



CLUMP POINT BOATING INFRASTRUCTURE PROJECT
 TYPICAL SECTIONS - SHEET 1 OF 2

Figure 3-3 Project Design Cross-Section – Boat Ramp and Existing Breakwater Upgrade

Project Description and Design Considerations



BE1154-DW-CV-SKT-0015 Rev-B
1 November 2017



CLUMP POINT BOATING INFRASTRUCTURE PROJECT,
TYPICAL SECTIONS - SHEET 2 OF 2

Figure 3-4 Project Design Cross Section – Breakwaters and Marine Elements

Table 3-4 Description of Project Design Elements

Element	Description	Proponent	Relevance to GBR Marine Park
New detached breakwater	<p>A detached breakwater makes up the primary marine element of the development proposal to provide suitable protection to the proposed berthing and mooring facilities. The structure will not provide safe passenger access or vessel mooring protection during extreme storms or cyclone events. The constructed breakwater will not be accessible from the land by people or vehicles. The relevant dimensions and specifications of the breakwater are as follows:</p> <ul style="list-style-type: none"> • Length: 145m • Crest height: 2.56m above Highest Astronomical Tide (HAT) (4.50m RL) • Footprint (cross-section width): 42m. <p>NOTE: Due to low (modelled) siltation rates behind the proposed breakwater and insufficient tidal flows at Clump Point, tidal ducts have not been included in the breakwater design.</p>	TMR	Within Marine Park
Upgraded (existing) breakwater	<p>The existing breakwater will be raised to approximately 2m above HAT and widened east to provide a single-lane road and turning area to provide the required pedestrian and authorised vehicle access to the outer marine infrastructure. The upgraded design will include the removal of the existing breakwater return to improve navigational access to the boat ramp facilities.</p>	TMR	Includes works within or impacting on Marine Park
Upgraded boat launching facility	<p>The upgraded boat launching facility will include a three-lane boat ramp with two floating walkways to provide access to vessels on all three boat ramps. The upgrade will also include an inner breakwater treatment to bind the armour and protect the new floating walkway against the breakwater. The additional boat ramp lane is proposed to be 6m wide and designed as a heavy-duty ramp lane. This will allow infrequent small/medium barge access and larger commercial vessel launching.</p>	TMR	Within Marine Park
Jetty structure	<p>The jetty structure will provide pedestrian and goods access to berthing pontoons and pen berths and may, subject to funding, also provide vehicle access. The Jetty section to the location of the first pontoon will be designed to facilitate fuel truck access. The jetty structure is generally parallel to the detached breakwater, and does not provide access to the breakwater. The jetty structure will be designed to resist design cyclonic wave forces. The relevant dimensions and specifications of the jetty are as follows:</p> <ul style="list-style-type: none"> • Length: 110m • Width: 3-5m. 	TMR	Within Marine Park
Pontoons	<p>Two pontoons are proposed to be accessed from the jetty (subject to available funding), one of which</p>	TMR	Within Marine Park

Project Description and Design Considerations

Element	Description	Proponent	Relevance to GBR Marine Park
	<p>will be primarily for commercial uses and equipped with a DDA-compliant access gangway, the other will be a dual use facility. Both pontoons will be designed to be sunk behind the breakwater prior to a cyclone or large storm wave event for protection or custom designed to resist cyclone loadings behind the breakwater. The commercial use pontoon will be located towards the end of the breakwater to provide the maximum natural depths for berthing. The relevant dimensions and specifications of the pontoons are as follows:</p> <ul style="list-style-type: none"> • Length: 30m • Width: 5m. • Both pontoons are intended for temporary (not permanent) berthing of vessels and will be signed as such. 		
Pen berths	Between the two pontoons will be 5-6 pen berths, available for commercial lease. An EOI invitation to potential commercial operators will occur to confirm the most suitable pen berth configuration to meet expected use.	TMR	Within Marine Park
Moorings	<p>A small number of environmentally friendly moorings (EFMs) will be installed in the lee of the new breakwater. It is intended that there will be up to 6 in total, 4 of which are proposed to be permanently leased to commercial operators and 2 available to casual occupation intended mainly for larger visiting recreational vessels. The total number will be subject to the area of protected water provided by the new breakwater following detailed design and GBRMPA approval. To service these moorings the detailed design is to include an option for dinghy storage.</p> <p>NOTE: TMR is aware of two existing approved moorings in this part of Boat Bay which will not be impacted by the additional moorings proposed.</p>	TMR	Within Marine Park
Upgraded lower (northern) carpark	The lower carpark will be raised to provide a single fall east to west from 2.9m AHD to 2.5m AHD to avoid high spring tide inundation with an allowance for sea level rise. The carpark will also be expanded eastward to provide sufficient room for turning, based on turning circle analysis.	TMR	Partly within Marine Park
Upgraded upper (southern) carpark, access road improvements and composting toilet	<p>Improvements to the upper carpark and Clump Point Road will be undertaken in accordance with the 2015 DSD tender package, including the installation of a composting toilet. In addition, the following will be undertaken:</p> <p>Redesign of drainage for the carpark to direct surface drainage to adjacent vegetated areas, where possible</p> <p>Inclusion of large canopy trees in nature strip landscaping for the carpark, where possible</p> <p>Inclusion of a mini-bus drop off area</p>	CCRC	Outside Marine Park – not relevant to permit

Project Description and Design Considerations

Element	Description	Proponent	Relevance to GBR Marine Park
	Formalisation of pull-over bays by hardening of existing non-vegetated areas, provision of signage, and pruning of low-hanging branches.		
Other land-based elements	The provision of reticulated water supply to the proposed southern end of the lower carpark is being provided by CCRC under a separate project schedule during 2017. The TMR Project design includes connection to this main which will service the proposed marine infrastructure. Recreational wash down, requirement for pontoon sinking and commercial operator water resupply.	CCRC or TMR	Outside Marine Park – not relevant to permit

*Highlighted elements are those that are outside of the scope of the Marine Park Permit application; these have been included for the purposes of providing a complete picture of the Project.

3.2.2 Construction

The Project construction methodology will be determined by the contractor engaged for the works, subject to the requirements of detailed design and approval conditions. The methodology is expected to consist of the following activities:

- Construction will be scheduled to consist of the following phases:
 - expansion of the existing boat ramp, including upgrade of adjoining breakwater (western side) and reclamation of land for roadway and clearing of vegetated areas.
 - upgrade of the remainder of the existing breakwater and removal of the existing breakwater return.
 - progressive construction of the new breakwater from the end of the existing breakwater, while retaining a gap at all times. This will probably be commenced in one of two ways:
 - construction of a temporary causeway to commence construction of the breakwater end, which will be replaced by a temporary bridge; the causeway would be removed once the bridge is developed and the bridge removed at the end of works.
 - construction of a causeway with sufficient box culverts to maintain minimum flow at mean low water springs (MLWS) based on 20 m crest gap modelled flows; the causeway would be removed at the end of works.
 - marine civil works associated with structures in the lee of the new breakwater, including piling.
 - completion of upgrades to the carpark and roadway.
 - rehabilitation of cleared areas where necessary.
- Material for construction will be sourced from one or more of three quarries located in the region. It is likely this material will be transported to the Project area by trucks utilising local access roads.
- All works are most likely to be undertaken from land-based equipment with the exception for marine civil works, including piling, which would be undertaken from construction barges.

Project Description and Design Considerations

- During the construction phase, a stockpile and laydown area is likely to be maintained in the existing car parks.

The construction phase for the Project is planned primarily to be undertaken during winter months to avoid the risks associated with summer storms and tropical cyclones, however works timing will be confirmed with the successful contractor. . The total construction phase is expected to take 6 to 9 months, including mobilisation of equipment and materials and rehabilitation of the Project area. However the timing can be significantly influenced by approvals conditions and the timing of approvals which will influence the possible construction schedule.

The timing of works associated with Clump Point Road and the southern carpark being undertaken by CCRC are not yet determined and are separate construction phases for the Project.

Breakwater Construction

The breakwater construction presents the highest risk to the Project, given the need to source relatively large volumes of good quality rock and significant volumes of larger armour rock. These materials may need to come from multiple quarries at different travelling distances from Clump Point which will impact significantly on the final cost. An independent estimate comparing barge and truck-based breakwater construction methods indicates that barge-based construction will be about 163% of equivalent truck-based construction methods. On this basis, it is likely barge-based breakwater construction will not be achievable within the project budget.

For this reason, the Project has been progressed on the assumption that temporary land access will be required for the breakwater construction works. Despite this advice, TMR has no reason to exclude barge-based construction during the tender process and will consider any proposal on its merits.

Temporary access during construction will maintain the GBR Marine Park boundary and allow tidal flows through the gap. This will be achieved using one or more temporary concrete culverts or a temporary bridge, based on the experience and equipment available to the successful contractor.

3.2.3 Operational Management

Operational management arrangements have not yet been finalised for the Project. However, Table 3-5 details the likely operational arrangements identified for the Project. The primary elements of importance are:

- Given the constraints of the Clump Point site, particularly associated with the finite availability of parking, it is important to minimise non-essential vehicle access to the site. Given this, the commercial use of the facility will be conditional on customers being transferred from outside Clump Point.
- The facility will not provide a vessel haven during cyclone or severe storm events. It is to be designed to provide protection during non-cyclone non-storm wave conditions. The facility is designed to be shut down during cyclones and large northerly storms to minimise damage, with

vessels to take shelter at designated cyclone refuge areas for example, Alligator Creek, Hinchinbrook Island.

Table 3-5 Likely Operational Framework for Project

No.	Item	Likely operational arrangement
1	Ownership of marine infrastructure	TMR will own all marine infrastructure
2	Management of marine infrastructure	CCRC will manage all marine infrastructure
3	Ownership and management of land-based infrastructure	CCRC will own and manage all land-based infrastructure
4	Lease arrangements for pen berths and moorings	<p>Lease bidding process to be defined based on contribution to Mission Beach economy.</p> <p>Longer term leases are appropriate for the 5-6 pen berths and ~4 commercial moorings, with 2 casual moorings for visiting vessels.</p>
5	Vessel fuelling	The Project design will allow for fuel truck access to the location of the first pontoon on the new jetty. This will supplement refuelling options at Perry Harvey jetty during calm weather conditions and at Clump Point. Vessel owners will be required to arrange for refuelling by an appropriately licenced fuel supplier with a permit to do so at these locations.
6	Use of the pontoon berthing facilities	<p>Commercial operators will require a permit to use the pontoon berths. Permit conditions will require that their customers are bused in from a location outside Clump Point to ensure only essential vehicle usage occurs of the limited available parking at the site.</p> <p>The intent is that at least 1 berth is available for public use at all times, e.g. have 1 berth face that has a 1 hour berthing limit for recreational use.</p>
7	Cyclone management procedures	<p>The facility will not provide a vessel haven during cyclone or severe storm wave events. For this reason, vessels will need to evacuate prior to the approach of a cyclone or northerly severe storm.</p> <p>The maximum design operating conditions will be outlined as part of the detailed design and be provided to users to inform their decisions.</p> <p>As asset owner TMR will require the berthing pontoons to be capable of resisting the design cyclone event behind the breakwater. TMR's procurement strategy for the pontoons is a Design and Construct contract based on performance criteria associated with the breakwater overtopping wave climate during the design cyclone event. The most likely outcome of this is the need for sinking pontoons. However alternatives will not be discounted. In either case the operational management of these facilities is critical. In the likely event they are sinking the design of the pontoons will seek to automate the sinking process as much as possible and have a protocol in place with the responsible party for sinking and refloating.</p>

4 Marine Environment

4.1 Physical Setting

Clump Point is one of the only basalt points within the Wet Tropics area. The prevailing winds at Clump Point are south-easterly trade winds, strongest from May to October, with generally lighter variable winds for the remainder of the year and occasional high wind events associated with low pressure systems and tropical cyclones. North-easterly afternoon seabreezes are common. Clump Point provides a moderate level of protection to Boat Bay from the prevailing south-easterly winds and waves. However, there is little natural protection from waves generated by north-easterly or northerly winds.

A state government storm tide monitoring station has been operating at Clump Point since 1976. Tidal planes for Clump Point (MSQ, 2012) are summarised in Table 4-1.

Table 4-1 Clump Point Tidal Planes (MSQ, 2012)

Tidal Planes	Water Levels (m AHD)
Highest Astronomical Tide (HAT)	1.94
Mean High Water Springs (MHWS)	1.04
Mean High Water Neaps (MHWN)	0.33
Mean Sea Level (MSL)	0.05
Australian Height Datum (AHD)	0.00
Mean Low Water Neaps (MLWN)	-0.19
Mean Low Water Springs (MLWS)	-0.89
Lowest Astronomical Tide (LAT)	-1.68

While there is a general trend of sand movement south to north along the coast at Mission Beach, sand is not known to pass around Clump Point (BMT WBM, 2016a). Thus, there is no active source of sand supply to the Project area – see Figure 4-1.

Numerical modelling undertaken by BMT WBM as part of the CCRC Coastal Hazard Assessment (BMT WBM, 2015a) indicates a current climate 1% Annual Exceedance Probability (AEP) design water level of 2.7m AHD at Clump Point (not including the influence of waves). Overtopping of the lower (northern) carpark already occurs during storm events as most of this area is just above HAT.

Boat Bay consists of a gently sloping tidal flat (<1m LAT). An area of slightly deeper water (-0.5m LAT) occurs at the existing Clump Point boat ramp. A band of complex terrain (boulder field) extends along most of the northern perimeter of the bay to a depth of approximately 0.2m LAT. The shoreline east of the Clump Point boat ramp is fringed by a topographically complex intertidal rocky shore and subtidal reef system, which extends down to approximately -4.2m LAT, but in places only extends to approximately -2 to -3m LAT. Beyond the reef/boulder field the seabed gently slopes and is largely featureless, except for occasional reef patches, small scale features (bommies) and a wreck located near the boulder field at the entrance to Boat Bay.

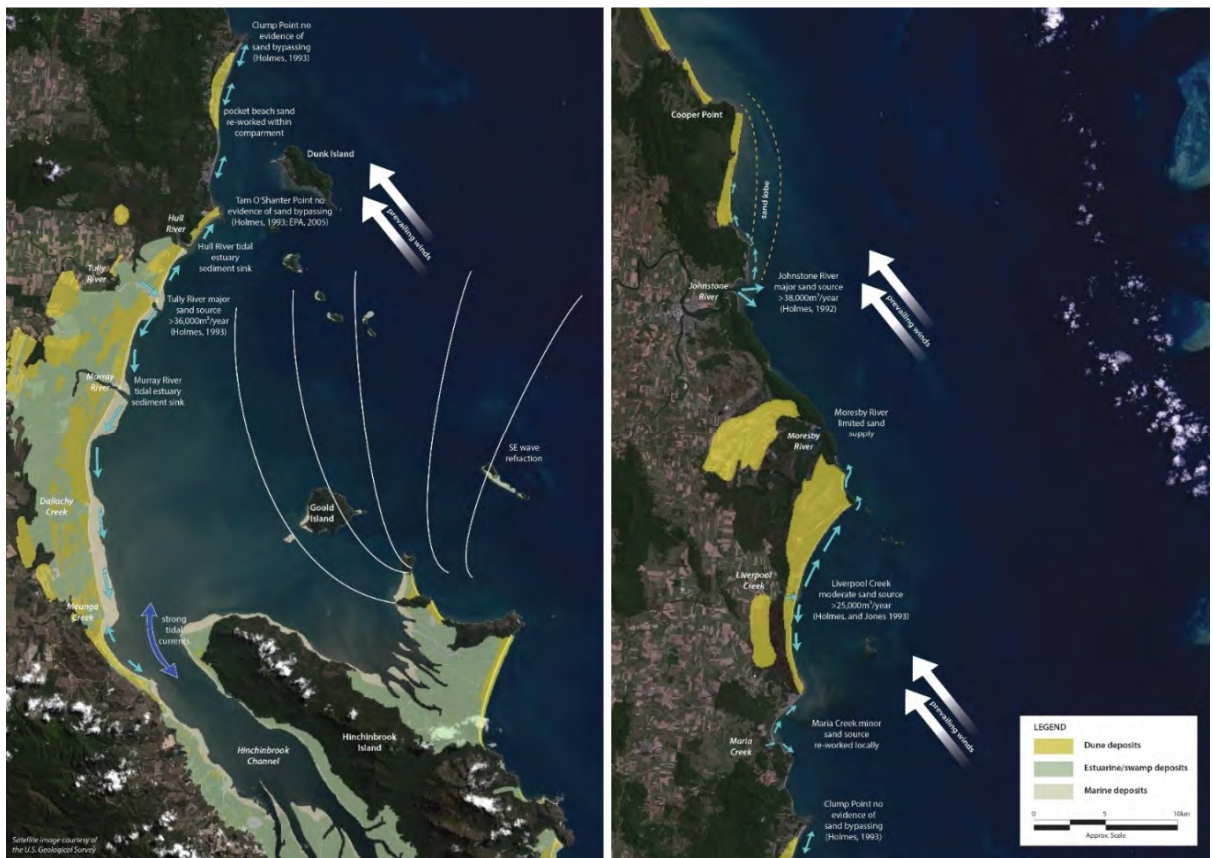


Figure 4-1 Conceptual Model of Sand Movements at Mission Beach

As discussed in Section 2.3.2, numerical modelling was conducted of different breakwater lengths (75m, 120m and 200m) and gap widths (20m,30m and 45m) during concept development (BMT WBM, 2017). Further modelling was carried out on the refined design and the outcomes are shown below. The modelling showed that the predicted siltation levels behind the breakwater structure were low for all options investigated being a maximum of 3mm/year in areas behind the breakwater. In addition, modelling showed that removal of the existing breakwater return will reduce the current siltation trends at the boat ramp (see Figure 4-2), and the gap between the existing and new breakwater will be self-flushing. Because of these factors, no maintenance dredging will be required over the design life of the new facility, except for potential significant geomorphological changes occurring from a severe tropical cyclone (which has the potential to occur at the existing facilities).

Numerical modelling also showed that the wave protection provided by any proposed breakwater is proportional to breakwater length. On this basis the length of the proposed breakwater has been chosen as approximately 145m based on additional wave penetration modelling as the minimum length possible to meet the objectives of protecting the extent of marine infrastructure proposed in the Development Plan. Figure 4-3 shows the protection provided by the proposed breakwater in a northeast wind climate (1 year ARI).

Marine Environment

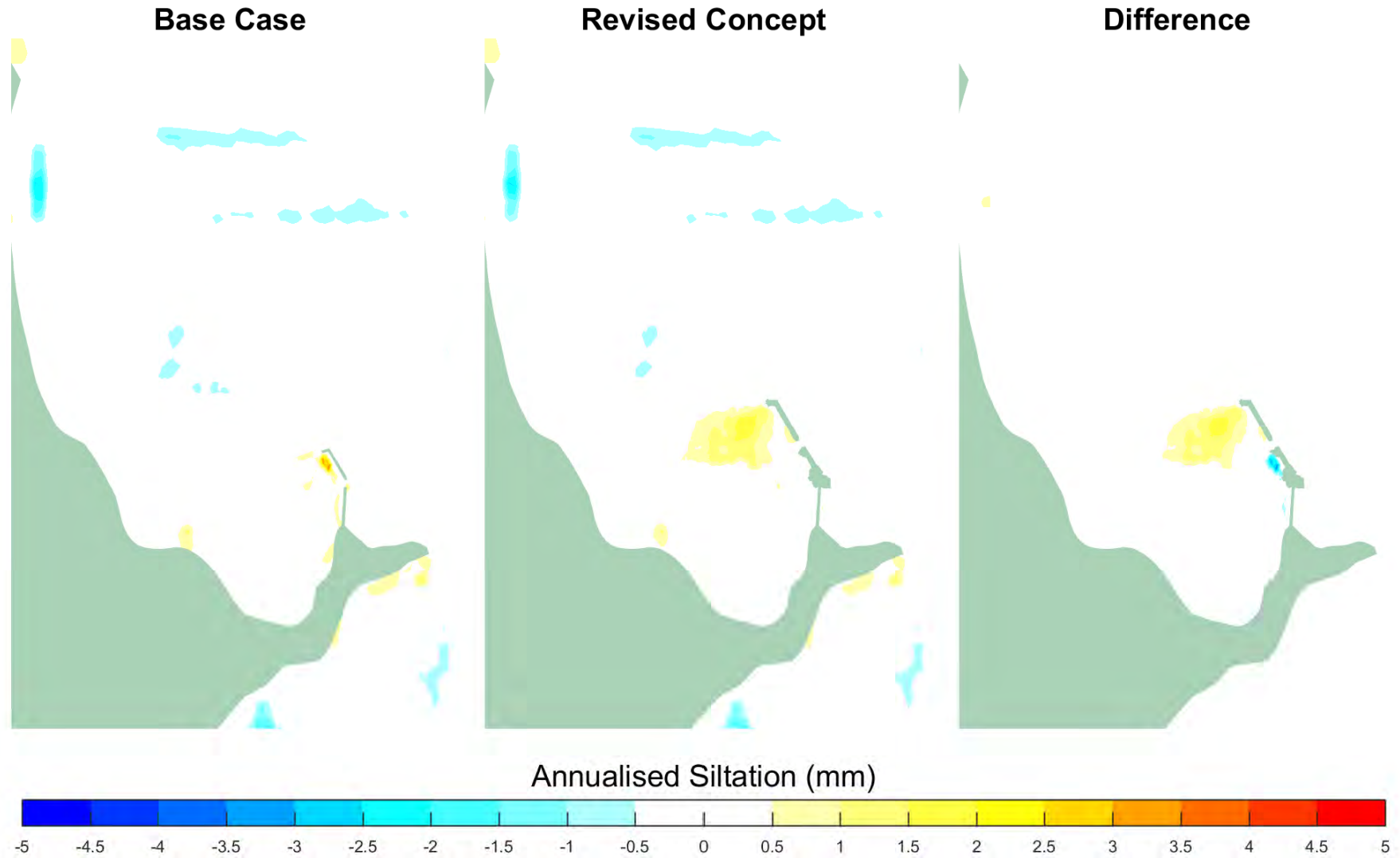


Figure 4-2 Siltation Trends

Base Case (left); Developed Case - 145m breakwater with 25m gap (centre), and Difference Between Base and Developed Cases (right)

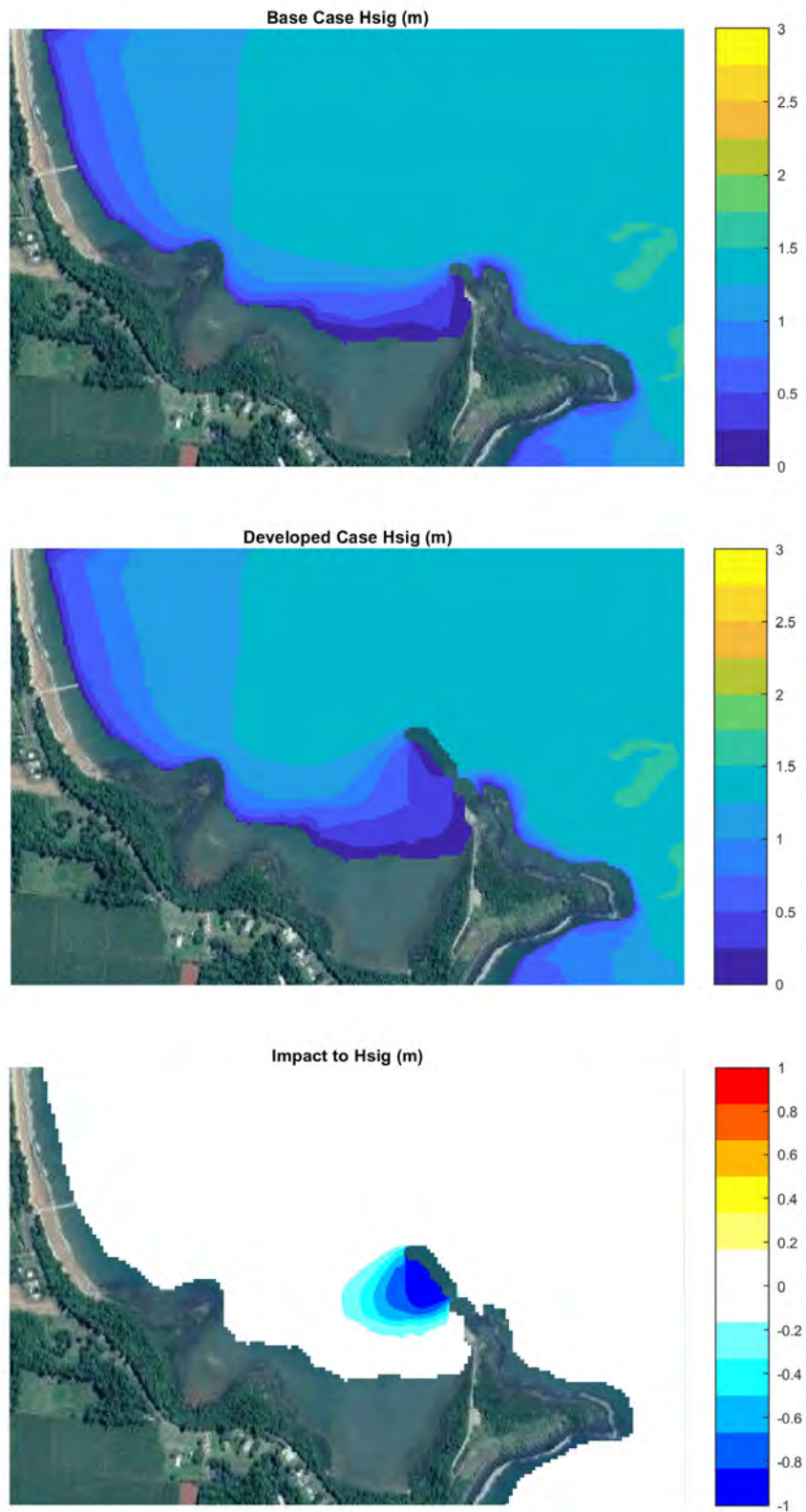


Figure 4-3 Wave Conditions
Base Case (left); Developed Case - 145m breakwater with 25m gap) (centre), and Difference Between Base and Developed Cases (right)

4.2 Marine Water Quality

Mapping by CSIRO National Acid Sulfate Soils (ASS) Atlas identifies part of the Project area as having a 'high' probability of occurrence of ASS. This occurs along the northwest facing edge of Clump Point, with the remainder considered to have an 'extremely low' probability of occurrence. This is shown in Figure 4-4.

There are no rivers or creeks within the Project area and, thus, runoff from Clump Point is expected to occur as sheet flows directly into the ocean. Environmental values (EVs) and water quality objectives (WQOs) have been scheduled for the Project area under the *Environmental Protection (Water) Policy 2009* water quality guidelines – see Table 4-2.

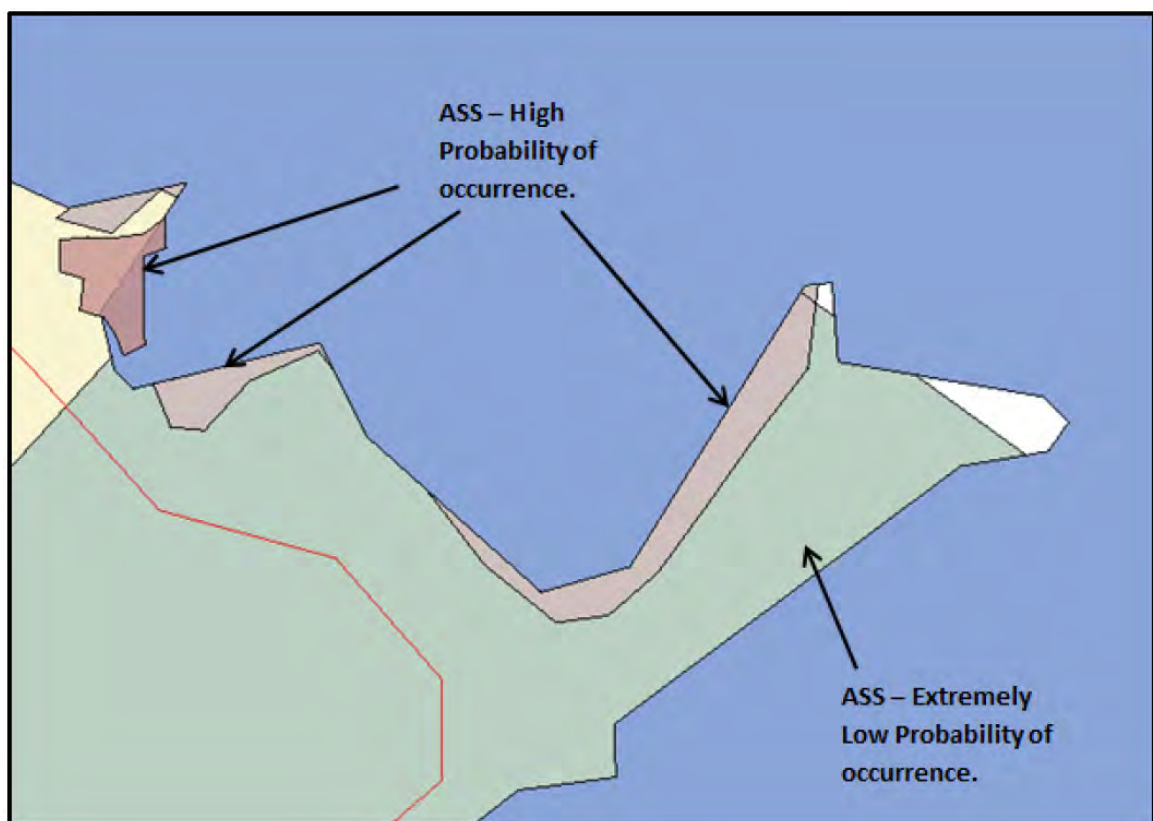


Figure 4-4 ASS Probability of Occurrence, Based on CSIRO National ASS Atlas

Marine Environment

Table 4-2 Water Quality Objectives for Boat Bay and Open Coastal Waters

Parameter	Boat Bay WQOs	Open coastal waters WQOs
Dissolved oxygen (% saturation)	85-105	95-100-105
pH	6.5-7.3-8.4	8.1-8.3-8.4
Ammonia nitrogen (µg/L)	<15	1-3-7
Oxidised nitrogen (µg/L)	nd	0-0-1
Particulate nitrogen (µg/L)	nd	≤20
Organic nitrogen (µg/L)	135	nd
Total nitrogen (µg/L)	160	76-105-140
Filterable reactive phosphorus (µg/L)	5	0-2-3
Particulate phosphorus (µg/L)	nd	≤2.8
Total phosphorus (µg/L)	20	8-14-22
Chlorophyll-a (µg/L)	2.0	<0.45
Turbidity (NTU)	10	0.6-0.9-1.8
Secchi depth (m)	1.0	≥10
TSS (mg/L)	nd	≤2

Note: Where three WQOs are provided, this represents the 20th, 50th and 80th percentiles

Two water quality surveys indicated higher turbidity and TSS during dry seasons comparative to wet seasons. Turbidity and TSS increase with depth, likely because of resuspension of bed sediments at depth. Turbidity was less than the WQO of 10 NTU but turbidity can show great variability over time. Wind driven resuspension of sediments is a key driver of turbidity in nearshore environments of the broader region, and turbidity would likely significantly exceed the WQO for periods measured in days to weeks during windy periods. Major flood events from the Tully River and small local coastal drainages would periodically affect turbidity (as well as salinity and nutrient concentration) in Boat Bay.

Based on numerical modelling discussed in Section 4.1, the Project will not cause significant changes to tidal flushing and water quality, and therefore there will be low impacts to habitat values associated with such small changes.

Construction activities may temporarily increase suspended sediment concentrations in marine waters. Key sediment sources will include resuspension of sediments during rock placement, soil or rock fill, and general earthworks at the construction site. Construction activities also have the potential to effect water quality as a result of accidental spills and exposure of acid sulfate soils during construction. These potential impacts will be managed through the preparation and implementation of a Construction Environmental Management Plan

There is also potential for water quality to be impacted during the operational life of the boat ramp and facilities. This includes impacts from spills and pollutant discharge from vessels and vehicles.

These potential risks will be managed by:

Marine Environment

- design infrastructure to withstand relevant storm events without the discharge of pollutants to the environment
- permit conditions requiring a refuelling guideline which will need approval by GBRMPA
- ensure vessels depart and seek safety to designated areas during extreme weather events (for example, Alligator Creek, Hinchinbrook Island)
- development and implementation of spill/pollutant discharge contingency plans for both construction and operational phases.
- dispersive stormwater management approach to avoid erosion associated with concentrated flows

A Water Quality Monitoring Program will be implemented to inform both construction and operational environmental management. This will develop a water quality baseline for the Project area, through sampling and the use of existing data.

4.3 Marine Ecology

Benthic habitat consists of 'unvegetated' soft sediment, rubble, reefs and rocky shores, and benthic primary producer habitat (BPPH). BPPH play an important role in maintaining coastal ecosystems and associated ecological values, including the provision of food and habitat resources for species of fisheries and conservation significance. BPPH is also sensitive to disturbance and, in the case of seagrass and algae, water quality degradation (especially light limitation due to high turbidity). The key BPPH in the Project area consists of seagrass, mangrove, saltmarsh, benthic algae and corals. The distribution of all benthic habitats, including BPPH, is provided in Figure 4-5, and summarised below.

4.3.1 Seagrass Meadows

Surveys conducted in July 2016 (BMT WBM, 2016d) recorded one seagrass species, *Halodule uninervis*, in two mono-specific meadows:

- Meadow 1 – located on the seaward edge of the basalt boulder field on the northern edge of Boat Bay at approximately -1 to -1.7m LAT. This meadow had a total area of 0.34ha and had sparse (<1%) cover.
- Meadow 2 – located immediately landward of the basalt boulder field on the northern edge of Boat Bay at approximately -0.2m LAT. This meadow had a total area of 0.12ha and had sparse (<1%) cover.

In addition to these meadows, surveys by Aurecon in the 2013 dry season and 2014 wet season recorded small (<2m²) sparse patches of *Halodule* sp. and *Halophila* sp. on transects (Aurecon, 2014). These patches are expected to be ephemeral.

Up to eight separate seagrass meadows were identified in 1997 wet season surveys, covering up to 2.8ha, as described in Roder *et al.* (1998). These included five seagrass species, *Cymodocea serrulata*, *Enhalus acoroides*, *Halodule uninervis*, *Halophila decipiens* and *H. ovalis*, but patterns in species dominance and community structure were not described. This seagrass occurred primarily

Marine Environment

within the same locations as the July 2016 survey. Major declines in seagrass meadow distribution and extent occurred in the wet Tropics because of disturbance by tropical cyclones Larry (2006) and Yasi (2011) (Rasheed *et al.* 2014). In time, it is expected that seagrass will continue to recover, potentially occupying similar areas as observed by Roder *et al.* (1998).

Existing and historical seagrass meadows have been mapped in Figure 4-5.

Seagrasses represent a key sensitive ecological receptor due to their sensitivity to change in light climate/turbidity and hydrodynamic conditions. Seagrasses also have high ecological value as a food resource to threatened species such as dugongs (*Dugong dugon*) and green turtles (*Chelonia mydas*) and species of fisheries significance (particularly prawns but also a range of finfish species). None of the seagrass species in the Project area (identified in BMT WBM, 2016d; Aurecon, 2014; and Roder *et al.* 1998) are listed as threatened under the EPBC Act, NC Act or International Union for the Conservation of Nature (IUCN) Red List of Threatened Species.

There will be no loss of existing seagrass meadow habitat within the GBR Marine Park as part of the Project design.

As can be seen in Figure 4-6 the proposed breakwater and jetty will not directly impact on any existing seagrass meadows, and while the breakwater is immediately adjacent to an area of historical seagrass that is no longer present, the historical changes suggest that while seagrass meadows may be strongly impacted by cyclonic events reestablishment occurs relatively quickly afterwards. It is possible that the proposed breakwater may create more sheltered areas that provides protection to seagrass meadows that establish after construction is completed.

The boat ramp upgrade footprint area occurs directly adjacent to seagrass meadows, but boat wake from vessel traffic is not expected to be significantly different from the existing conditions.

Actions have been taken to limit the extent of potential seagrass meadow loss in the Project design. These include:

- Positioning the new breakwater to avoid existing seagrass meadow habitat
- Designing the new breakwater as a non-accessible structure. This allows the breakwater to be designed as an overtopping structure with a lower height, width and overall footprint. This minimises the loss of marine habitat in the footprint.
- The size of the facility has been rationalised to accommodate the number of vessels identified by most of the members of Reference Group (5-6 at pen berths – see Table 3-2). This decreases the size of the breakwater and hence the impacts on Marine habitat.
- The use of pen berths is the most efficient mooring method behind the breakwater to minimise the length of the breakwater required and hence the impact on marine habitat

New Seagrass Friendly Moorings would be installed in the more sheltered area protected by the new detached breakwater.

Marine Environment

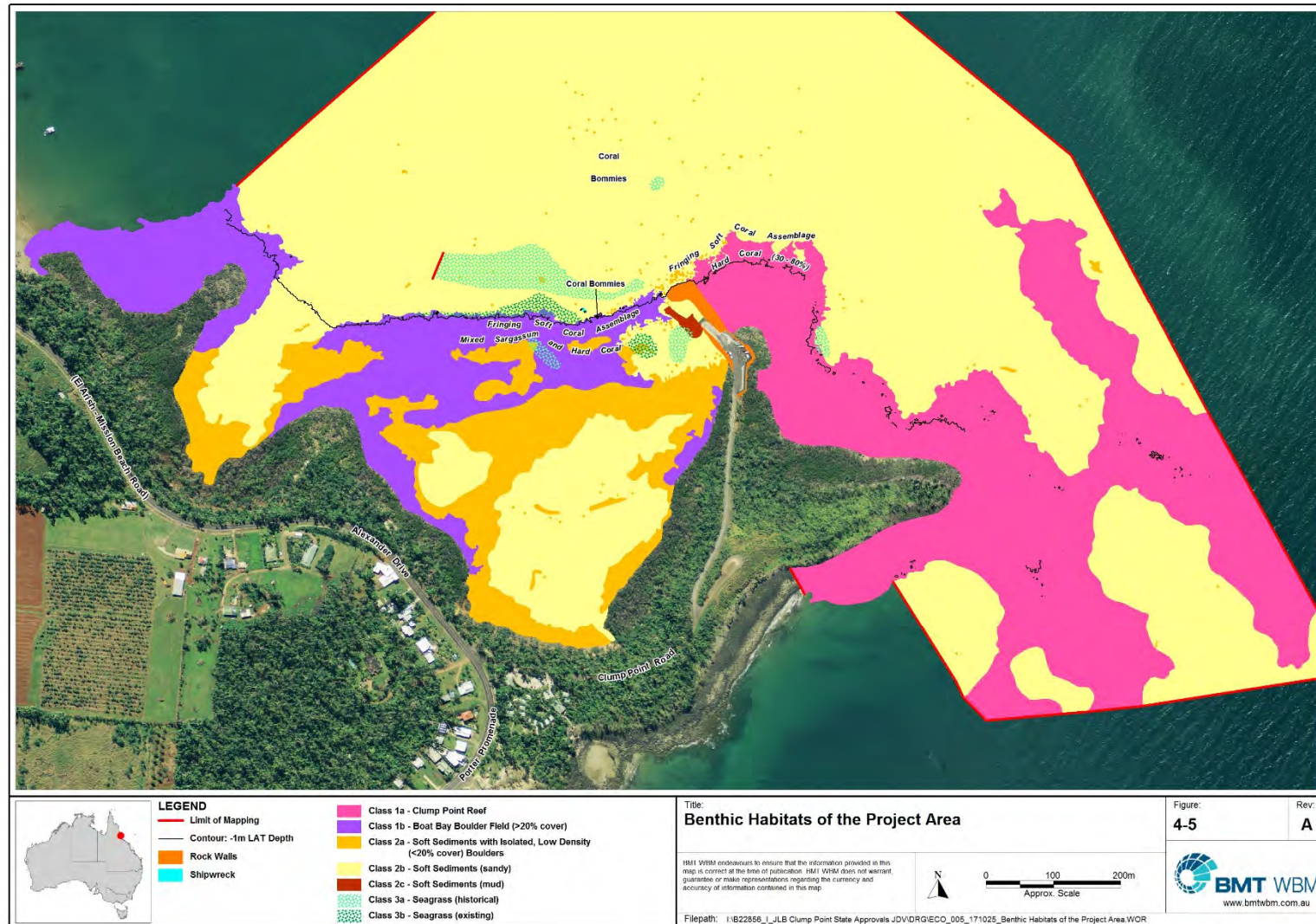


Figure 4-5 Benthic Habitats of the Project Area

Marine Environment

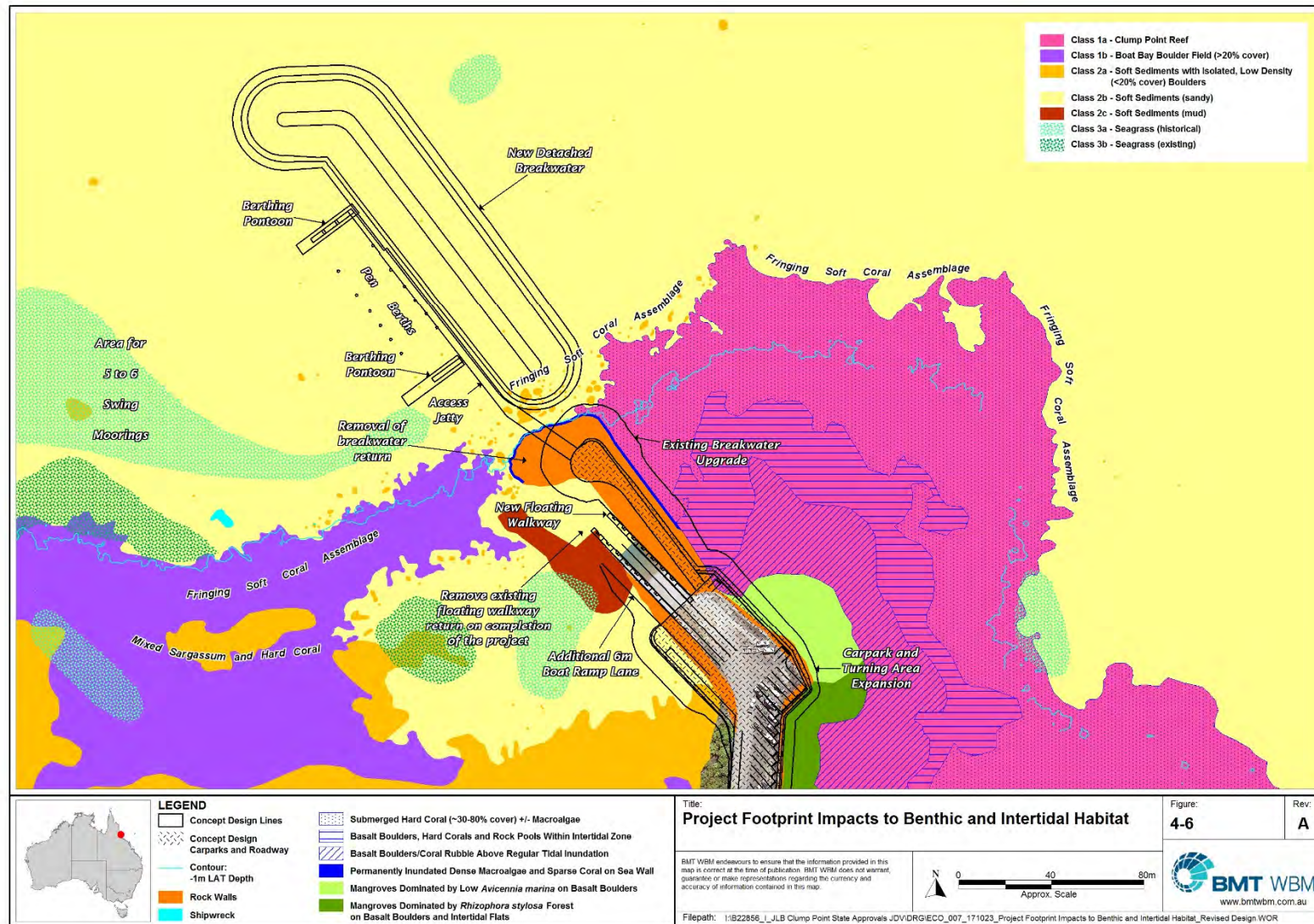


Figure 4-6 Project footprint Impacts to Benthic and Intertidal Habitat

Marine Environment

4.3.2 Soft Sediments and Rubble

Most of Boat Bay consists of broader intertidal/shallow subtidal sand/mud flat, with mud content reportedly decreasing and shell grit and rubble increasing with increasing distance seaward (Roder *et al.* 1998). A narrow sandy beach occurs directly adjacent to mangroves within the southern section of Boat Bay but is not well represented elsewhere.

Assemblages on shallow sand/mud flats consist of yabbies (Callianassidae), fiddler crabs (*Uca* spp.), cockles (*Gafrarium* spp.), moon snail (*Nassarius dorsatus*), soldier crab (*Mictyris longicarpus*), bivalve (*Placuna placenta*), horn snails (*Cerithidea* sp.), sea skater (*Halobates* sp.) and mudskipper (*Periopthalmus* sp.) (Clayton *et al.* 1990, in Aurecon, 2014). The mid-littoral zone of intertidal/shallow subtidal sand/mud flats has high burrow densities (probability Callianassidae) and a variety of hermit crabs (Paguridae) and swimming crabs (Portunidae) (Clayton *et al.* 1990). These species would provide food resources for fish and marine megafauna species.

Large sand flats occur seaward of the basaltic boulder zone at the entrance to Boat Bay, with bathymetry survey data also indicating several isolated high features. Epibenthic assemblages in this area are sparse.

The proposed project is not expected to have any significant impacts on the marine soft sediments and rubble, which can be seen in Figure 4-6. The sediment modelling, as noted in section 4.1, suggests that the proposed project may in fact reduce sediment build up and possibly even reduce sediment in the area landwards of the existing breakwater. This may be in part due to the proposed removal of the existing breakwater return, and due to changed flows resulting from the proposed breakwater and the dimensions of the gap between the existing breakwater and the proposed breakwater.

The boat ramp footprint contains both soft sediment (muds, sands) and breakwater habitats within Boat Bay. The marine environments in this area are in a modified condition as a result of the operation of the existing boat ramp, and do not support high ecological values (e.g. high quality habitat for threatened or migratory marine species)

The loss of Soft Sediments and Rubble habitat across an area of 9,533 m² will occur within the Marine Parks under the footprint of the new breakwater and the boat ramp expansion. That loss may be minimally offset by the removal of the existing breakwater return.

4.3.3 Reefs and Rocky Shores

A contiguous fringe of basaltic cobble and boulders occurs along the shoreline of Boat Bay and Clump Point. A contiguous fringe of basaltic boulders also extends across the entrance to Boat Bay to the northern tip of Clump Point. Surveys recorded by BMT WBM (2016) and Aurecon (2014) indicate a high cover of brown algae (*Sargassum* spp. and *Padina* spp.) on the boulder field at the entrance to Boat Bay, with lower cover in deeper sections. A wide range of hard corals (*Turbinaria* spp., *Euphyllia ancora*, *Porites* spp. and *Acropora* spp.) soft coral (*Sarcophyton* spp.), hydroids, sponges, oysters and other common reef benthos taxa were also recorded.

Large isolated submerged basaltic boulders (bommies) occur throughout the Project area, supporting a range of macroalgae (particularly the green algae *Bryopsis* and a range of brown, red and other

Marine Environment

green algae species) and epibenthic fauna, including hard corals (*Porites* spp., *Favia* spp., *Acropora* spp. and *Montipora* spp.) and other taxa (*Xenia* spp., colonial zooanthids, bryozoans etc.). Large living bommies (*Pavona frondifera*, *Porites* spp.) were recorded by BMT WBM near a ship wreck located seaward of the boulder field (BMT WBM, 2016d).

Benthic habitats located immediately north of the existing breakwater consist of isolated, patchy low profile boulders and rubble on soft (sandy) sediment. The boulders contain mixed assemblages of hard and soft corals, as well as encrusting reef fauna. While these boulders contain a diverse range of biota, at the time of the July 2016 survey they did not contain large, complex hard and soft coral assemblages as occurs on the adjacent Clump Point fringing reef.

Clump Point to the east of the existing boat ramp and breakwater contains a broad fringing reef of approximately 1.8 ha. Hard corals (*Acropora* spp., *Porites* spp., *Goniopora* spp.) were recorded along the reef and isolated bommies within this area during the July 2016 survey, consistent with Roder et al. (1998). Benthic assemblage structure varied with depth and across the reef, but generally consisted of the following:

- In the lower intertidal and upper photic zone of subtidal (~2-3m below AHD), the reef supported a high cover of *Sargassum flavicans* and other macroalgae, including *Padina* spp., *Halimeda opuntia*, *Galaxaura* spp., *Codium* sp. (cf. *Codium geppii*) and geniculate red coralline algae), intermingled with occasional hard coral colonies (mostly *Goniastrea*, *Turbinaria*, and small *Acropora*) and soft corals (*Sarcophyton*, *Lobophytum*, and *Sinularia*).
- Below approximately -3m AHD, macroalgae cover was lower and benthic assemblages were numerically dominated by hard corals and turfing algae. The outer reef margin had high (approximately 40% to 80% cover) cover of hard corals. Most of the hard coral was observed growing directly on boulders or dead coral skeletons. Most coral colonies were 0.2 to 0.3m diameter, although large coral colonies (approximately 0.5 to 1m in diameter) were also present but in moderate abundance. Few massive hard coral (e.g. *Porites* spp.) bommies greater than 1m in diameter were recorded.
- The hard coral genera recorded in the study area typically dominate on nearshore coastal reef systems in the region (e.g. Thompson *et al.* 2013). Corals, macroalgae and other reef taxa found in nearshore coastal environments have adaptations that allow them to survive periodic high turbidity conditions, but are sensitive to longer term increases in turbidity.
- Coral in July 2016 was observed to be in good health with no evidence of extensive bleaching or significant disease. This contrasts to other parts of north Queensland (particularly north of Port Douglas), where extensive coral bleaching and mortality occurred during the summer of 2015-16, because of heat stress from ocean warming and a major El Niño event. Anchor chains were observed to result in localised damage to coral colonies, and fishing lines were also observed around some coral heads, particularly those within casting distance from the breakwater.

Figure 4-7 shows examples of the subtidal reef features of Clump Point reef.

No coral species are currently listed under the EPBC Act or NC Act as threatened species. However, a variety of *Acropora*, *Turbinaria* and *Goniastrea* species that could occur in the Project area are

Marine Environment

listed as threatened (i.e. Near Threatened, Vulnerable, Endangered or Critically Endangered) on the IUCN Red List.

The boulders within the footprint of the marine facilities had a low cover of soft coral and isolated small hard coral colonies, and were less diverse and abundant than reef communities to the east on Clump Point Reef. The proposed breakwater is in subtidal waters over predominantly soft sediment, with occasional isolated boulders/bommies near the existing breakwater. Figure 4-6 shows the breakwater footprint in relation to existing benthic habitat communities.

As a result, while the Project will cause the loss of some benthic habitats and associated ecological values, the proposed detached breakwater and jetty will have limited impacts on the small area of corals within and immediately adjacent to the proposed works area.

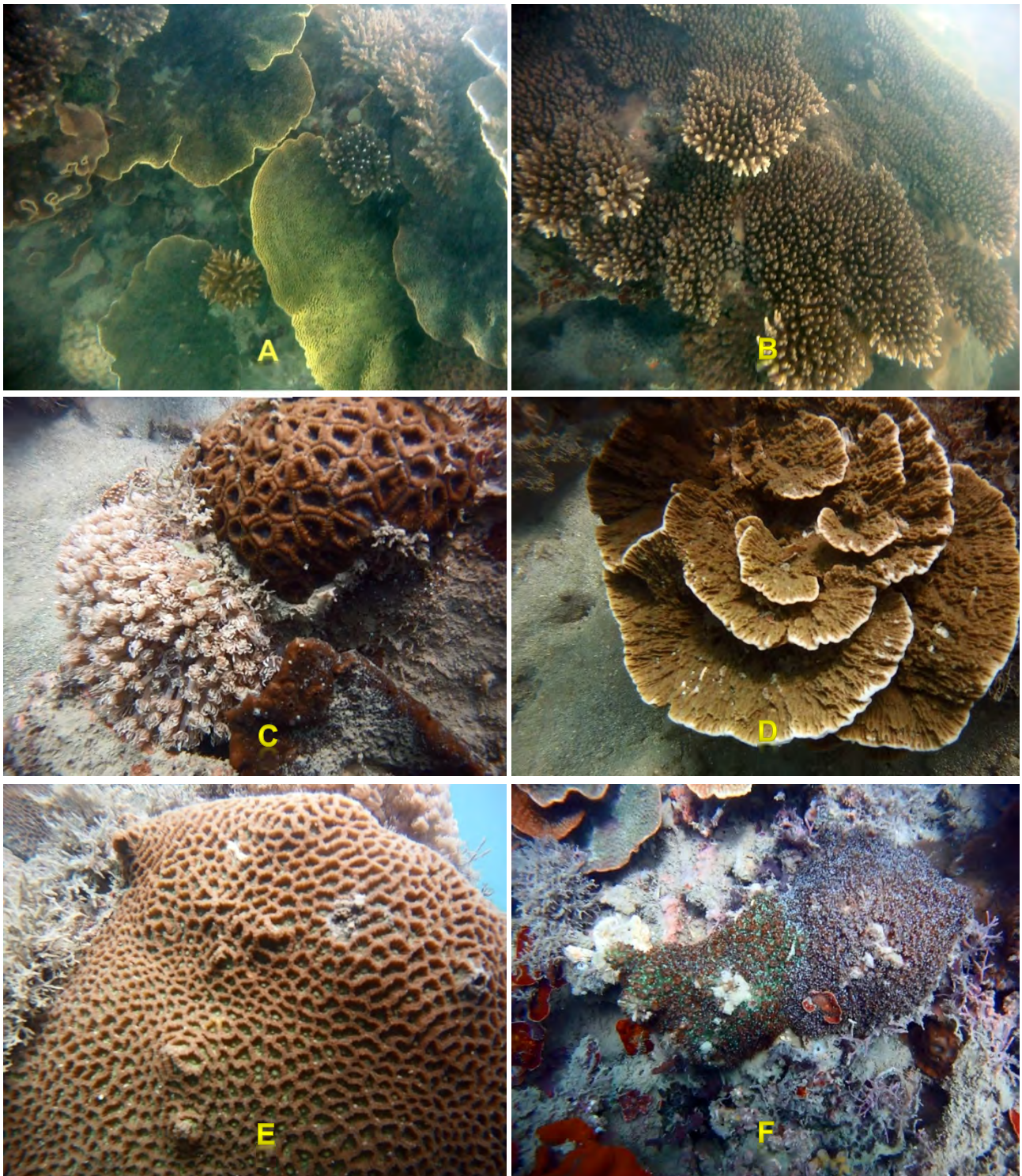
The proposed breakwater rock walls are expected to be colonised by reef-associated benthos and fish following completion of works. Similar types of communities as found on the existing breakwater are expected to establish (i.e. turfing algae, Sargassum, other macroalgae and oysters in the intertidal and shallow subtidal; soft coral and small encrusting hard coral colonies, hydroids, and other filter-feeding taxa in deeper waters). The works will attract reef-associated fish and crayfish.

Shading of the seafloor by the jetty will lead to indirect effects to the marine environment. Bommie 149 is located directly adjacent to the jetty (Figure 4-8) and currently supports coral, filter-feeding invertebrates and other reef-associated species. It is expected that shading will lead to assemblages being dominated by species that do not require high light levels, such as hydroids, bryozoans and a variety of heterotrophic hard and soft coral species.

The loss of reefs and rocky shores habitat will occur across an area of 771.6 m² within the GBR Marine Parks. These include a small area of reef assemblages under the footprint of the new breakwater, and within the Clump Point reef and intertidal zone under the expanded footprint of the existing breakwater.

Actions have been taken to limit the extent of Reefs and Rocky Shores habitat loss in the Project design. These include:

- designing the new breakwater to minimise the loss of rock and bommie habitat in the footprint.
- removing the existing breakwater return. This improves navigation in the area without the need to relocate/remove bommie 133 (see Figure 4-8).
- designing the new access jetty to avoid coral habitat impacts



A Mixed assemblage of plating *Montipora* and *Acropora* hard corals; B plating *Acropora*; C *Alveopora* and *Favia* ; D *Merulina*; E *Favia*; F *Galaxea* and *Turbinaria* hard corals with sponges and coralline algae

Figure 4-7 Photographs of Subtidal Reef Features (Hard Corals) on Clump Point Reef

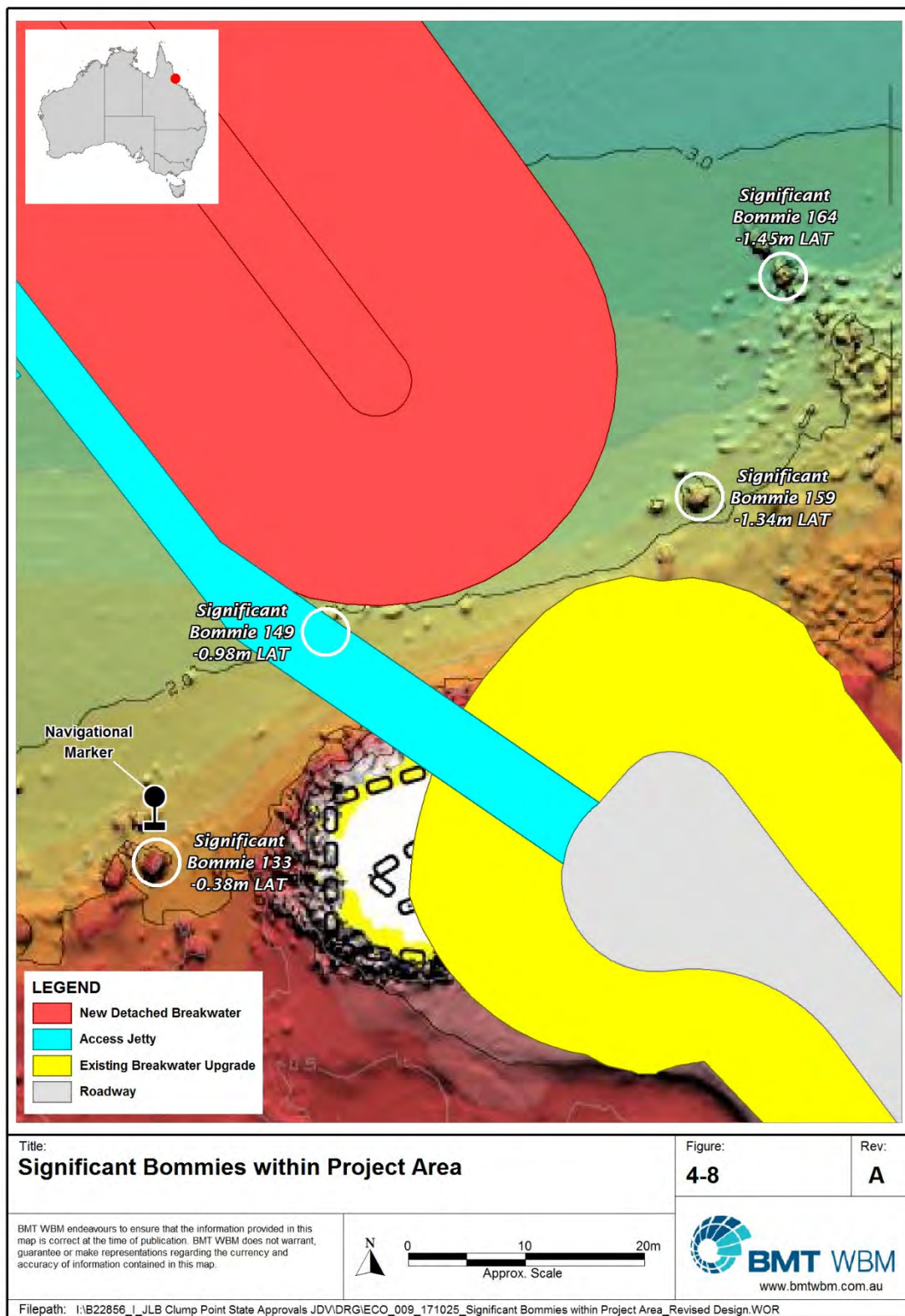


Figure 4-8 Significant Bommies within Project Area

Marine Environment

4.3.4 Mangroves

Mangrove communities in the Project area are mapped as RE 7.1.1: Mangrove closed scrub to open forest of areas subject to regular tidal inundation. This is a Least Concern RE under the *Vegetation Management Act 1999* (VM Act). Based on mapping of V9.0 of the Vegetation Management Supporting (VMS) Map, ground-truthed in 2016 surveys, there are 9.0ha of mangrove forest in the Project area. This includes 7.2ha of *Rhizophora* spp. mangroves and 0.15ha of *Avicennia marina* mangroves. These areas are shown in Figure 4-9.

The western and eastern shorelines of Boat Bay and the eastern shoreline of Clump Point have a narrow (averaging 20-60m wide) fringe of mangrove forest occurring landward of sand/mud shoals and boulder fields. The mangrove forest on the western shoreline of Boat Bay is numerically dominated by *Rhizophora stylosa* with *Avicennia marina* sub-dominant and *Aegiceras corniculatum* forming an understorey canopy in places. *R. apiculata* is more abundant in the mangrove forest on the eastern shoreline of Boat Bay, and the landward margin of this forest also contains *Osbornia octodonta*, *Ceriops tagal* and *Aegiceras corniculatum*. Only isolated mangroves, dominated by *Avicennia marina*, occur directly adjacent to the existing boat ramp. None of these species are currently listed as threatened under the EPBC Act, NC Act or IUCN Red List.

The structure of mangrove forests (i.e. dominant species, forest structure, zonation patterns) in the Project area is considered generally representative of those in north-facing coastal embayments within the wider region.

The proposed project will have an impact on a small area containing existing Mangrove patches within the footprint of the expanded carpark and roadway covering an area of 1,013.5 m² (which is 400 m² more than the previous proposal). Impacts on Mangroves have been minimised as much as possible, while ensuring the Project design provides safe access to the boat ramps, and vehicle turning space to reduce existing congestion conflicts.

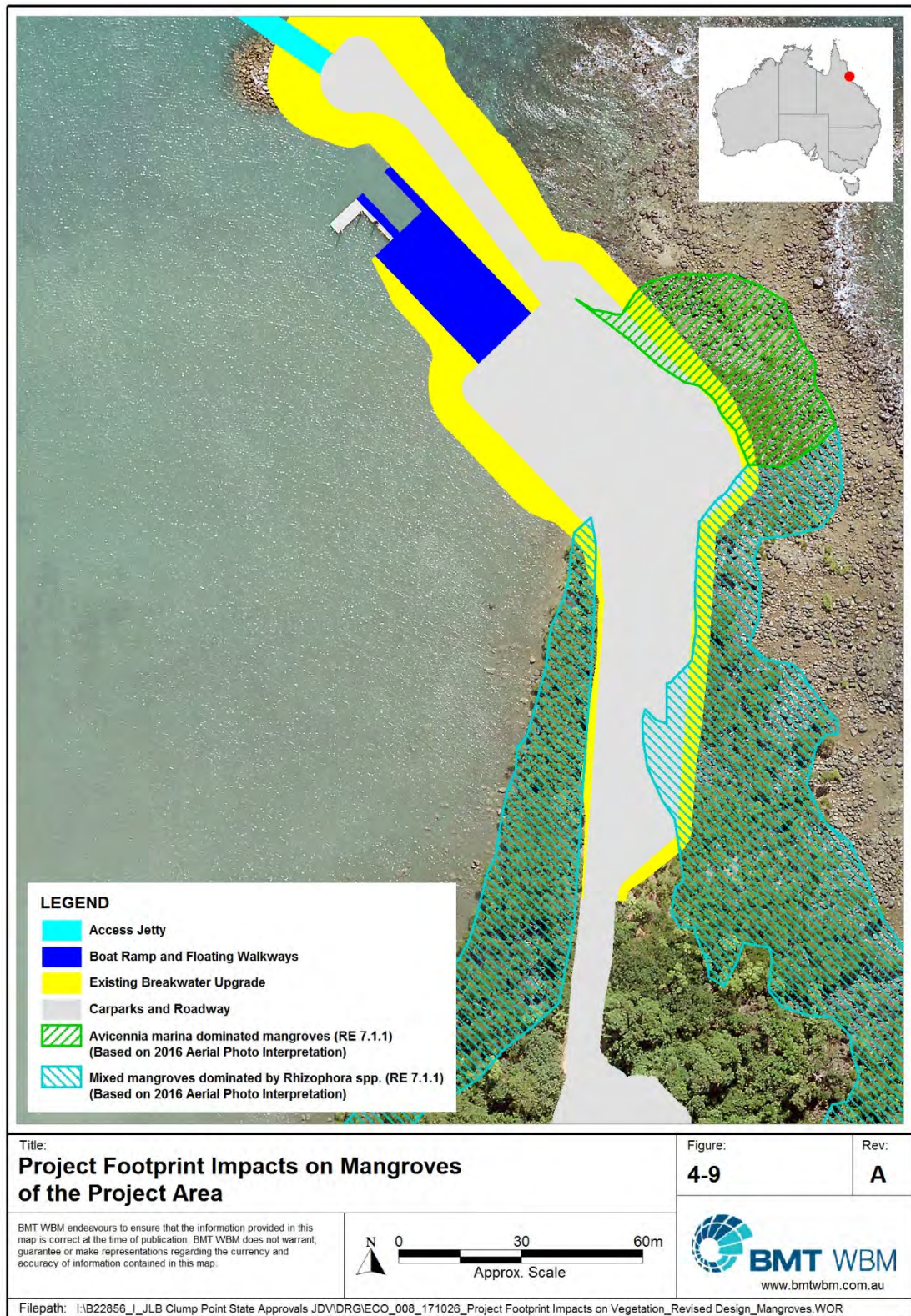


Figure 4-9 Mangrove Habitats of the Project Area

Marine Environment

4.3.5 Threatened Marine Species

The marine habitat types described above support a range of fish, reptile and mammal species, including several species that are listed as threatened and/or migratory under State and Commonwealth legislation. The Clump Point reef and Boat Bay boulder field provide suitable feeding habitat for the green turtle (*Chelonia mydas*) and other marine turtle species, and seagrass meadows in Boat Bay support feeding by green turtles and dugong (*Dugong dugon*) together with various fish and cephalopod species. Turtle nesting near Clump Point boat ramp is not expected as there are no sandy beaches. While turtles may occasionally feed in this area, reef environments to the east support higher quality feeding habitats (i.e. high cover of macroalgae and reef benthic fauna). The proposed project is not expected to have an adverse impact on turtle feeding habitat.

Intertidal areas may provide habitat for saltwater crocodiles (*Crocodylus porosus*) which are also expected to occur within the marine environment.

Table 4-3 presents the marine fauna species listed as threatened under State and Commonwealth legislation that could occur in the area. Additional species listed as globally threatened under the IUCN Red List but not under Australian legislation are also known or could occur in the Project area but are not included in Table 4-3. This includes for example several hard coral species (e.g. *Acropora* spp., *Turbinaria* spp., *Goniastrea* spp.), bony fish (e.g. *Epinephelus* spp., *Hippocampus* spp.) and sharks/rays (e.g. *Anoxypristis cuspidata* and *Carcharhinus albimarginatus*).

Marine megafauna species are mobile, and while they may occasionally visit the project area, there are not expected to be any adverse impacts.

There is the potential for noise and vibration and vessel (i.e. barge movements) to cause impacts to marine megafauna and other marine species during the construction phase. In addition, upgrades to the boat ramp are expected to increase vessel traffic in this area, increasing the existing risk of vessel strike and noise impacts on fauna species.

The following management approaches will be included in the Construction Environmental Management Plan (CEMP):

- All marine works that could potentially harm protected marine species will be limited to daylight hours when there is surface visibility of up to 1km (360°)
- Pre-start and ongoing regular visual inspections of the works area will be conducted during rock placement and piling activities. If marine megafauna are sighted within the works area, potentially harmful marine activities will be stopped until animals have moved away from the construction area.
- An exclusion zone (i.e. observation/shut-down zone) of 550m will be established for marine megafauna during pile driving (and underwater excavation) activities. If marine megafauna are sighted within this zone during pile driving (or underwater excavation) works, works will be delayed until they have been observed to move away outside the zone or, if they are no longer observable, ten minutes after the last sighting within the zone.
- Construction activities will be planned and executed to minimise and avoid interactions with marine mammals and turtles, including:

Marine Environment

- Construction vessel operational buffers of 100m from large cetaceans and 50m from dolphins
- No-wash speed limits within 100m of whales or 50m from dolphins
- 'Go-slow' zones for small construction vessels
- Water-based noise activities (e.g. pile driving, underwater excavation) will be commenced gradually to provide warning to nearby marine fauna
- Any sightings of marine megafauna in the works area or adjacent environments during construction will be reported and documented. Any incident of harm will be reported to the DEHP.

Table 4-3 Commonwealth and State Listed Threatened Marine Species that Could Occur in Project Area

Common name	Scientific name	Status*		
		NC Act	EPBC Act	IUCN Red List
BALAENOPTERIDAE (rorquals)				
Humpback whale	<i>Megaptera novaeangliae</i>	VU	VU	LC
CHELONIIDAE (marine turtles)				
Green turtle	<i>Chelonia mydas</i>	VU	VU	EN
Loggerhead turtle	<i>Caretta caretta</i>	EN	EN	VU
Hawksbill turtle	<i>Eretmochelys imbricata</i>	EN	VU	CE
Flatback turtle	<i>Natator depressus</i>	VU	VU	DD
Olive ridley turtle	<i>Lepidochelys olivacea</i>	EN	EN	VU
CROCODYLIDAE (true crocodiles)				
Saltwater crocodile	<i>Crocodylus porosus</i>	VU	-	LC
DELPHINIDAE (oceanic dolphins)				
Australian snubfin dolphin	<i>Orcaella heinsohni</i>	VU	-	NT
Australian humpback dolphin	<i>Sousa sahulensis</i>	VU	-	NT**
DUGONGIDAE (dugongs)				
Dugong	<i>Dugong dugon</i>	VU	-	VU
PRISTIDAE (sawfishes)				
Dwarf sawfish	<i>Pristis clavata</i>	-	VU	EN
Green sawfish	<i>Pristis zijsron</i>	-	VU	CE
RHINCODONTIDAE (whale sharks)				
Whale shark	<i>Rhincodon typus</i>	-	VU	EN

*Near Threatened (NT); Vulnerable (VU), Endangered (EN), Critically Endangered (CE); IUCN Red List also includes Not Evaluated (NE), Data Deficient (DD) and Least Concern (LC)

***S. sahulensis* has not been evaluated as a separate species on the IUCN Red List but is included in the evaluation of *S. chinensis*.

Marine Environment

Impacts from increased vessel traffic during the operational life of the boat ramp will be controlled through site-based arrangements developed as part of the approvals process. This will include speed limits and limitations/registration requirements for permanent moorings, new interpretive signs, as well as any provisions with an updated set of the GBRMPA Clump Point Site Management Arrangements to reduce risk to marine flora/fauna.

Lighting systems, including from construction equipment and operational marine facilities (e.g. navigation markers, carpark/boat ramp lighting) will generate light emissions to the marine environment. These impacts cannot be avoided due to the need for lighting to avoid navigational hazards.

Artificial lighting is not considered to have a major effect on foraging patterns of turtles, dolphins and dugongs (Mustoe, 2008) which may occur in the area. Lighting can impact on marine turtle nesting and hatching (which occurs November to April), however turtle nesting is not known from the study area. Despite this, the following measures will be implemented to minimise any potential impact from artificial lighting:

- Where possible light sources will be shielded, and redirected away from adjacent shoreline environments.
- Directional fixtures that point down will be used wherever possible.
- Lower intensity lighting will be used with the lighting colour selected to avoid environmental impacts.

Construction vessel lighting will meet security and safety requirements, and then adhere to the above approaches if possible. Navigational lighting is not expected to be a key emission source and will comply with relevant requirements set out by Maritime Safety Queensland and relevant standards.

5 Terrestrial Environment

5.1 Background

This document provides information relevant to a permit application being assessed by the Great Barrier Reef Marine Park Authority (GBRMPA) as part of an approvals process under the Great Barrier Reef Marine Park Act 1975 (Cth). The GBR Marine Park permit application relates only to works within the boundaries of the state and GBR marine parks (i.e. below HAT) and any submissions should address that permit application.

Many readers of this document may also be interested in the land-based aspects of the Project, not subject to the state and GBR Marine Parks permit application. For completeness, the land-based aspects of the Project are described below.

TMR is the proponent for all marine-based works and the upgrade of the lower (northern) carpark. The works for the upper (southern) carpark and Clump Point Road, including installation of water supply, will be undertaken by CCRC in consultation with the relevant agencies.

Once completed, the marine facilities will be owned by TMR and managed by CCRC while land-based aspects will be owned and managed by CCRC.

Figure 5-1 shows the type and extent of vegetation communities mapped in the Project area, based on 2016 ecological assessment survey and aerial imagery. The following section provides broad descriptions of terrestrial vegetation communities within the Project area based on the survey and associated ecological values.

5.2 Soil and Erosion

Soils within the study area are of basaltic origins. These soils have been mapped as follows:

- Eubenangee series soils, under the CSIRO Soils of the Tully-Innisfail Area, North Queensland (Murtha, 1986). These soils are considered red ferrosols or dermosols under the Australia Soil classification, which are typically friable non-cracking clay or clay loam gradational soils.
- A1, as mapped on the Agricultural Land Suitability of the Cardwell-Innisfail Area (DPI, 1992). This soil is suitable for sugarcane, bananas, papaws and improved pastures.
- 'High' probability of occurrence of acid sulfate soils (ASS) along north-west facing edge of Clump Point, and 'Extremely Low' probability for south-east facing edge.

No rivers or creeks are present on Clump Point and all runoff flows directly into the ocean.

Excavation, clearing and construction activities required for the project will expose soil to surface water runoff and potential erosion and sedimentation issues. Almost all required clearing has already taken place. Works will be undertaken to preserve topsoil and other soil materials for re-use to help with the rehabilitation and vegetation regrowth in construction areas, as well as avoiding temporary water quality impacts.

As there is potential for acid sulfate soils in the study area, excavation of material may cause the exposure of these soils. Disturbance of acid sulfate soils can lead to acid generation which can have an impact on soil or water pH and on the terrestrial and marine environments. Testing of all potential

Terrestrial Environment

acid sulfate soils will be undertaken before any excavation is undertaken and either disturbance avoided or treatment or appropriate disposal undertaken of any excavated acid sulfate soils.

Surface water drainage will be designed and managed to avoid erosion.

A construction-phase sediment and erosion control plan (ESCP) will be included in the Construction Environmental Management Plan (CEMP) for works under the control of TMR. Works undertaken by CCRC will comply with internal procedures and legislative requirements.

5.3 Vegetation

The Regulated Vegetation Management (RVM) Map for the Project area and the 2013 RE mapping (VMS Map) indicate the Project area is dominated by remnant vegetation comprised of the following REs:²

- RE 7.1.1: Mangrove closed scrub to open forest of areas subject to regular tidal inundation – see Section 4.3.4.
- RE 7.8.1a: Complex mesophyll vine forest. Lowlands and foothills on basalt, of the very wet and wet rainfall zone.

While these RE types were confirmed for the Project area based on 2016 ground-truthing, the survey identified errors of both commission and omission on the current mapping. This is largely due to the 1:100,000 scale of the VMS Map upon which the RVM Map is based. Project works will be informed by both the RE mapping and the surveys.

The basalt headland of Clump Point is dominated by remnant rainforest comprising RE 7.8.1a. The most seaward littoral rainforest fringe is generally narrow in extent (typically up to 10m in width) with an open forest canopy of small trees and shrubs ranging from 5 to 12m in height depending on level of exposure. Typical species noted during the 2016 survey included *Hibiscus tiliaceus*, *Terminalia* spp., *Thespesia populnea*, *Milletia pinnata*, *Macaranga* spp., *Mallotus philippiensis* and *Vitex trifolia* with *Pandanus tectorius* also occurring on the coast in the south of the area. The littoral rainforest corresponds to the TEC Littoral Rainforest and Coastal Vince Thicket of Eastern Australia which is a Critically Endangered TEC under the EPBC Act.

The more landward and protected foothills and upper slopes of the basalt headland supported more complex mesophyll vine forest. Typical canopy species observed included *Morinda citrifolia*, *Ficus* spp., *Myrsine globosa*, *Pittosporum ferruginum*, *Rhus taitensis*, *Schefflera actinophylla*, *Archidendron lucyi* and emergent *Intsia bijuga*. Disturbed and regenerating littoral rainforest in the southeast of the area comprises a sparse canopy of mixed species such as *Morinda citrifolia*, *Glochidion* sp., *Melia azedarach* and *Macaranga* spp. averaging 10m in height over a dense groundcover of *Megathyrsus maximums*.

Clump Point supports populations of *Arenga australasica* (Arenga palm) which is listed as Vulnerable under the *Nature Conservation Act 1992*. The following protected species may also occur in the Clump Point area (BMT WBM, 2016e):

² This does not include grassland communities (e.g. RE 7.8.7b) that occur on the southern part of Clump Point as these are outside of the area associated with the Project. These areas were surveyed, however.

Terrestrial Environment

- *Carronia pedicellate* (a climber) – Endangered (Qld and Cth)
- *Chingia australis* (a fern) – Endangered (Qld and Cth)
- *Dendrobium bigibbum* OR *Vappodes phalaenopsis* (Cooktown orchid) – Vulnerable (Qld and Cth)
- *Phaius pictus* (an orchid) – Vulnerable (Qld and Cth)

Other locally significant species in the study area include *Kleinhovia hospita*, *Archidendron lucyi*, *Intsia bijuga*, *Syzygium alliligneum*, *Dysoxylum gaudichaudianum*, *Ficus racemosa*, *Castanospermum australe*, *Erythrina fusca*, *Pleomele angustifolia*, *Alstonia scholaris* and *Polycias nodosa*.

Some minor clearing of littoral rainforest will be required for the lower carpark expansion proposed. The extent of this clearing is shown in Figure 5-2. This clearing has the potential to impact on protected species and habitat values. However, significant impacts on terrestrial ecology will be avoided by:

- Pre-clearance surveys will be undertaken to ensure no clearing of protected species occurs
- Any clearing of littoral rainforest will be limited to the greatest extent practicable and will not cause fragmentation of remnant communities into two or more patches
- Weed management will be undertaken during construction to ensure new weeds are not introduced to the area
- Wherever possible, clearing will be avoided and rehabilitation undertaken to preserve and enhance terrestrial ecology values.

Terrestrial Environment

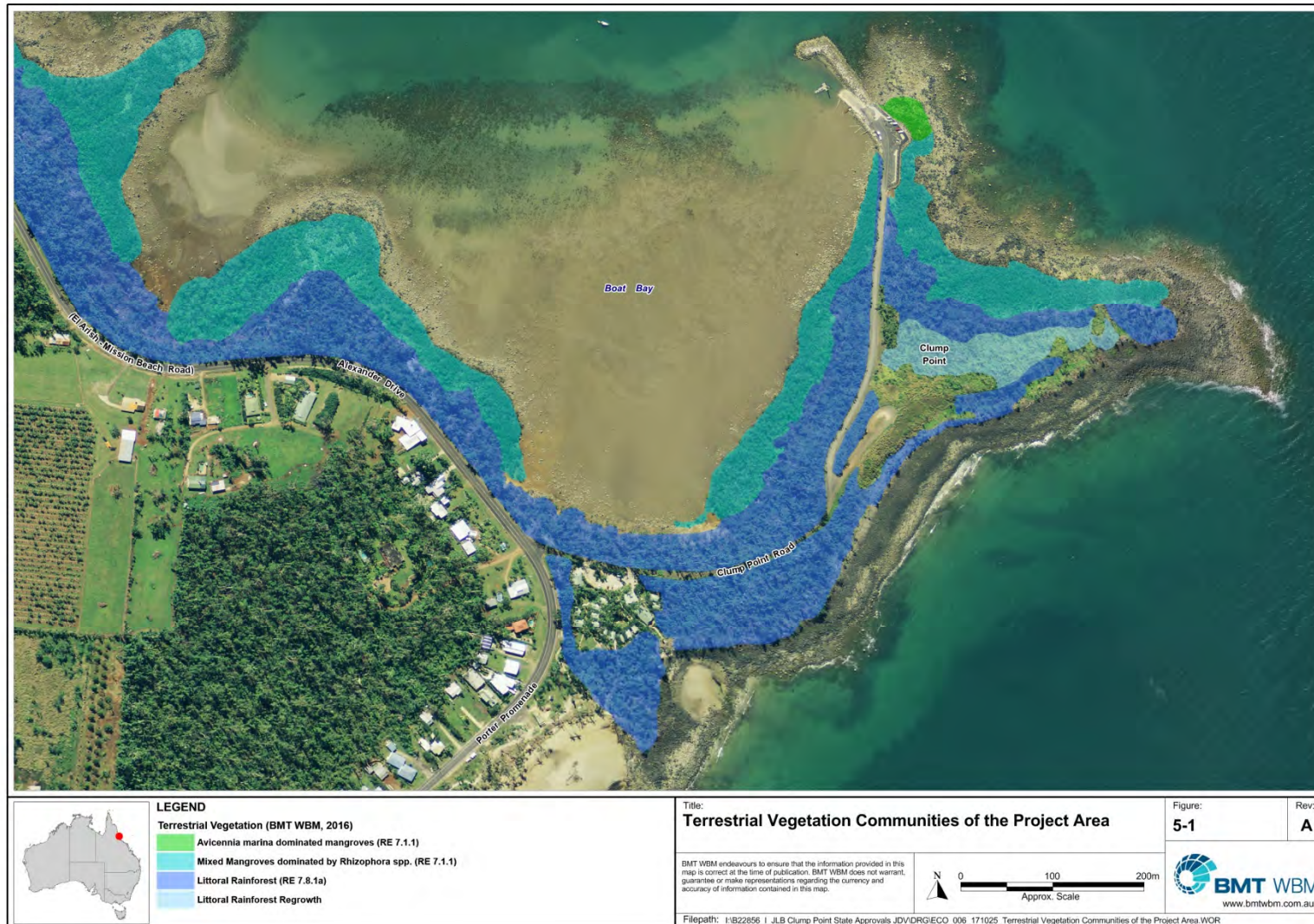


Figure 5-1 Terrestrial Vegetation Communities of the Project Area

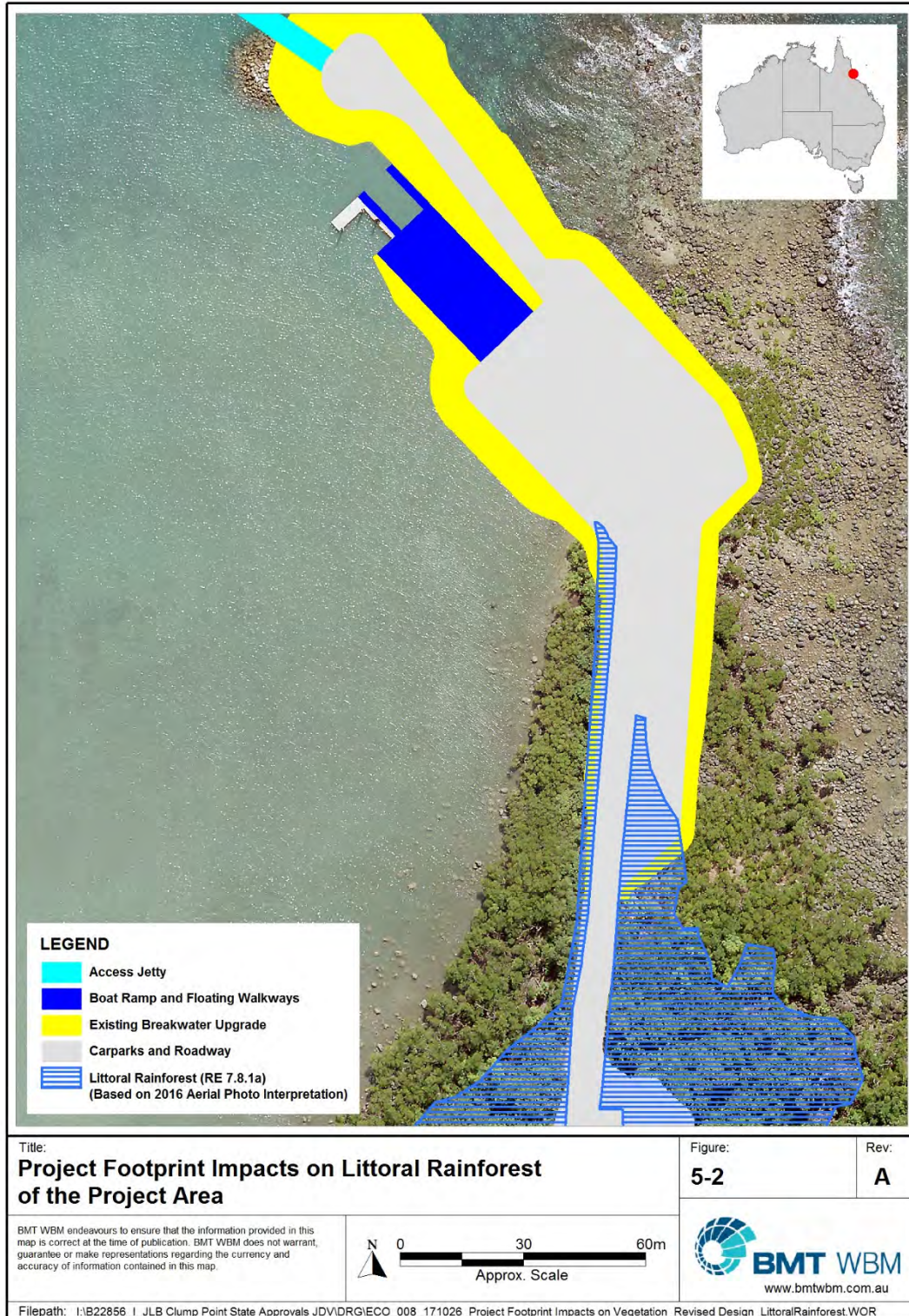


Figure 5-2 Project Footprint Impacts on Terrestrial Vegetation

5.4 Terrestrial fauna

Overall the Project area has very high habitat value for local and threatened fauna. Due to its high habitat diversity and complexity the fauna assemblage for the Project area is expected to be of high diversity and abundance. Birds are expected to be the dominant vertebrate group present whilst the number of mammals is also expected to be high. Arboreal mammals are expected to be common due to the high quality of rainforest habitat and the abundance of large hollow-bearing trees and plant resources, particularly fruits. Reptile numbers and diversity are also expected to be high due to high microhabitat complexity (particularly boulders, rocks, logs, litter). High rainfall and microhabitat features are likely to promote high numbers and diversity of frogs. The intertidal mudflats to the west of the headland are also likely to support a range of waders, including migratory taxa.

Threatened fauna known or that potentially could occur in the Project area are listed below in Table 5-1. This includes species listed as threatened under the Queensland NC Act and the Commonwealth EPBC Act. Species that may be listed as threatened on the International Union for the Conservation of Nature (IUCN) Red List but not under domestic legislation may also occur but have not been included. Species marked with an asterisk (*) are known to occur in the study area, based on previous sightings.

Essential habitat for the southern cassowary (*Casuarius casuarius johnsonii*) has been mapped in areas associated with remnant RE 7.8.1a. The area is known to support multiple adult cassowaries and estimates by Westcott *et al.* (2014) indicate a population of up to 187 birds within the Mission Beach area at a density of 1.09 birds/km². Cassowaries are Vulnerable under the NC Act and Endangered under the EPBC Act, as well as having local cultural and natural heritage values (see below). Cassowaries are known to commonly cross Clump Point Road but are unlikely to frequently visit the northern part of Clump Point due to lack of suitable habitat. A Cassowary Avoidance Strategy will be developed in the Traffic Management Plan to prevent strikes of cassowaries that may cross between habitat areas.

Migratory shorebird species (i.e. Charadriiformes) could occur in intertidal areas of Boat Bay. However, based on the criteria provided in EPBC Act Policy Statement 3.21, the area is not considered 'important habitat' for these species.

Pre-clearance surveys will be undertaken to ensure any fauna in works areas have been relocated.

Table 5-1 Threatened Fauna Species that Could Occur in Project Area

Common name	Scientific name	Status*		
		NC Act	EPBC Act	IUCN Red List
ACCIPITRIDAE (raptors)				
Red goshawk	<i>Erythrotriorchis radiatus</i>	EN	VU	NT
BURHINIDAE (stone-curlews)				
Beach stone-curlew*	<i>Esacus magnirostris</i>	VU	-	NT
CASUARIIDAE (cassowaries and emus)				
Southern cassowary*	<i>Casuarus casuarus johnsonii</i>	VU	EN	VU
DASYURIDAE (quolls)				
Northern quoll	<i>Dasyurus hallucatus</i>	-	EN	EN
Spotted-tailed quoll (North Queensland)	<i>Dasyurus maculatus gracillis</i>	EN	EN	NE / NT**
EMBALLONURIDAE (sheath-tail bats)				
Bare-rumped sheath-tail bat	<i>Saccolaimus saccolaimus nudicluniatus</i>	EN	VU	NE / LC**
HIPPOSIDERIDAE (Old World leaf-nosed bats)				
Semon's leaf-nosed bat	<i>Hipposideros semoni</i>	EN	VU	DD
HYLIDAE (tree frogs)				
Australian lacelid	<i>Litoria dayi</i>	EN	EN	EN
MEGADERMATIDAE (false vampire bats)				
Ghost bat	<i>Macroderma gigas</i>	EN	VU	VU
PSITTACIDAE (true parrots)				
Macleay's fig-parrot	<i>Cyclopsitta diophthalma macleayana</i>	VU	-	NE / LC**
PTEROPODIDAE (fruit bats)				
Spectacled flying-fox	<i>Pteropus conspicillatus</i>	VU	VU	LC
SCOLOPACIDAE (sandpipers)				
Bar-tailed godwit (baueri)	<i>Limosa lapponica baueri</i>	VU	VU	NE / NT**
Northern Siberian bar-tailed godwit	<i>Limosa lapponica menzbieri</i>	EN	CE	NE / NT**
TYTONIDAE (barn owls)				
Masked owl	<i>Tyto novaehollandiae kimberli</i>	VU	VU	NE / LC**

*Near Threatened (NT); Vulnerable (VU), Endangered (EN), Critically Endangered (CE); IUCN Red List also includes Not Evaluated (NE), Data Deficient (DD) and Least Concern (LC)

**The first status listed applies to the subspecies; the second to the overall species. Several subspecies recognised under domestic legislation have not been identified/accepted for the IUCN Red List.

6 Socio-Cultural Values

6.1 Heritage

Clump Point is a significant cultural heritage location for the Djiru people. It represents a key basalt formation along the coastline of the Wet Tropics that is unique to the Clump Point region and therefore of environmental and research significance for the Djiru people. Clump Point is also the location of several recognised cultural heritage features/sites.

Sites registered on the Department of Aboriginal and Torres Strait Islander Partnerships (DATSIP) register in the Project area and surrounds are listed below. This was based on a search conducted on 18th July 2016:

- FM:B33 – earthen arrangements/ceremony ground, located on Lot 115/NPW502
- FM:B42 – weir/fish trap, located in intertidal area south of the ‘elbow’ of the Clump Point boat ramp
- FM:B43 – isolated find (likely a stone alignment), located in Alexander Drive road reserve, near junction with Clump Point Road
- FM:B44 – weir/fish trap, located in the intertidal area south of Clump Point Road.

All sites and measures to protect them have been discussed by DSD and the Djiru people.

In a study undertaken by the Giringun Aboriginal Corporation (GAC) in 2007, the following cultural heritage values were noted for Clump Point:

The Djiru people’s sense of identity as ‘rainforest people’ is very strong and is demonstrated by their relations with their rainforest neighbours and their affinity with the rainforest environment.

Clump Point is universally seen by the Djiru people, both young and old, as a core place in their homeland, a hub of traditional life in pre-European times and a place today that they enjoy for its beauty, for its natural benefits and for the sense of connection to tradition and country that it brings to them.

The cultural components within Clump Point area are seen as tangible expressions of connection. The fish traps on either side of Clump Point and the ceremony ground are seen to be very significant as they invoke potent images of traditional life. Shell and artefact scatters recorded in the area are seen as lesser though still significant evidence of connection. These oral history and material items have significant value to researchers.

The natural estate of the Mission Beach area is extremely significant to the Djiru people.

There is a unique affinity between the people and the rainforest that provided food, shelter and spiritual regeneration to their people. An integral part of this relationship is the highly visible and ubiquitous gunduy (cassowary) which is important to the health of both the people and the rainforest.

Socio-Cultural Values

The Clump Point coastal basalt formations and their ecosystems are unique to the Wet Tropics Bioregion of North Queensland and are of extreme significance to the Djiru people as land managers and to researchers.

Table 6-1 presents an assessment of all cultural and natural heritage values of the Clump Point area, based on the GAC study (GAC, 2007) and the Greater Mission Beach Area Foreshore Management Plan (BMT WBM, 2015b).

Table 6-1 Assessment of Cultural and Natural Heritage Values at Clump Point

Cultural item	Significance assessment	
	Indigenous	Scientific
Cultural values		
Djiru – part of unique rainforest culture	High significance	High significance
Clump Point area	Very high significance	Medium significance
Clump Point fish traps (FM:B42 and B44)	High significance	High significance
Clump Point ceremony grounds (FM:B43)	Very high significance	High significance
Shell and artefact scatters	Medium significance	Medium significance
Natural values		
Clump Point basalt formations	High significance	Very high significance
Cassowary	Very high significance	Very high significance
Rainforest precinct	Very high significance	Very high significance
Seagrass	Very high significance	Very high significance

The Cutten Brothers walking track, which passes the junction of Alexander Drive and Clump Point Road, is also of Indigenous and local cultural heritage significance. This track reflects the historical development transition in the area.

Another feature of non-indigenous heritage significance is a shipwreck within Boat Bay, identified during the July 2016 marine ecology surveys. This wreck has not been identified on the national shipwreck database but is of historical heritage significance for the area.

Clump Point has local significance as the 'gateway' to the GBR and Dunk Island, giving it local maritime importance. While this is not a formally recognised heritage value, it is supportive of local access to the world heritage values recognised in the GBR World Heritage Area (WHA) and National Heritage Property (NHP). Clump Point is particularly significant as it allows this GBR access directly from a rainforest environment. This 'access' value was recognised as part of Reference Group discussions.

The GBR WHA and NHP cover all marine water and land within the Project area up to mean high water spring (MHWS). Of the heritage values associated with the GBR, the following are relevant to Clump Point and the Project area (cf. DoE, 2014):

- basalt formations of Clump Point

Socio-Cultural Values

- coral assemblages of hard and soft corals
- intact rainforest and mangrove communities directly adjacent to reef.

These values contribute to the overall heritage significance of the GBR.

The fish trap due south of the existing boat ramp (FM:B42) is not within the Project footprint and will be impacted.

FM:B43 occurs along Clump Point Road and pull-off bays will be designed to avoid any impacts. Any proposed works that may potentially impact this feature will be preceded by a survey to identify the exact location, and disturbance avoided.

In addition to these features, less specific heritage values within the study area include the Clump Point basalt formations, the rainforest, seagrass, cassowaries, and the GBR World Heritage Area. The works are designed as far as possible to avoid impacts on these features. Some inevitable impacts are expected, however. To manage this process as works progress advice will be sought from the Djiru people and subject to a Cultural Heritage Management Plan. This Plan will address any discovery of artefacts and other items of cultural heritage significance that have not yet been recorded for the study area.

6.2 Visual Amenity

Clump Point has been identified as a 'scenic esplanade/foreshore' under the CCRC Planning Scheme scenic amenity overlay. This reflects the importance of Clump Point, along with other foreshore areas, to the visual amenity of the region. In addition on a broader level, the Outstanding Universal Value(OUV) of the Great Barrier Reef and adjacent World Heritage areas highlight the important contribution of visual amenity makes to these World Heritage places

It is for this reason that a primary objective of this proposal has been to minimise impact on the visual amenity of Clump Point and Boat Bay.

No specific assessments of the existing visual amenity of Clump Point are known to have been conducted to date. However, the following factors are considered relevant in relation to the amenity of the area:

- There is an existing boat ramp facility at the end of Clump Point supported by a low, attached breakwater and car-parking facilities.
- Despite this, the scale of marine facilities is low when balanced against the existing natural features of the area.
- Clump Point includes a mix of rocky outcrops (basalt) and rubble, reef structures, intertidal sand/mud flats, mangrove forest, and littoral rainforest.
- Views to Clump Point from Alexander Drive are obscured by vegetation along much of the foreshore, although there is a clear view from in front of this vegetation and from higher elevations. The existing facilities at Clump Point can be seen from these locations.

- With the exception of the Clump Point boat ramp and Perry Harvey jetty, the foreshore of Boat Bay is undeveloped and provides views for boat users of the rainforest and mountains directly adjacent to the water.

The following figures below show the contrast between the existing and developed scenarios as viewed from the end of the existing carpark (Figure 6-1) and the Perry Harvey jetty (Figure 6-2 and Figure 6-3) at spring low tide. This tidal stage reflects the largest scale of structure observed and hence the worst case visual impact

As viewed from the Perry Harvey jetty, the new infrastructure has a negligible impact to overall visual amenity and is consistent with the current view of boating infrastructure with a headland backdrop. Importantly, the new breakwater structure does not significantly change the amenity of Boat Bay as viewed from this location. Similarly, the change in amenity from the existing carpark is minor, related primarily with a slight increase in breakwater crest height and the addition of new piles and jetty infrastructure.

The relative change in visual amenity associated with the project is not considered to be of a scale which would result in the loss or degradation of areas that are essential for maintaining the beauty of Boat Bay and the GBRWHA.



Figure 6-1 Change in Visual Amenity between Existing (top) and Developed (bottom) Scenarios – View from Lower (Northern) Carpark at Low Tide



Figure 6-2 Change in Visual Amenity between Existing (top) and Developed (bottom) Scenarios – View from Perry Harvey Jetty at Low Tide



Figure 6-3 Change in Visual Amenity between Existing (top) and Developed (bottom) Scenarios – View from Perry Harvey Jetty at Low Tide (Inset)

6.3 Traffic and Parking

Access to the Clump Point boat ramp is via Clump Point Road. This is a narrow, low standard, partly sealed road which connects to Alexander Drive near the Mission Beach Eco Village. The narrow road is generally of poor geometric standard with insufficient width to permit the safe passing of two vehicles in opposing directions. The unsealed section of the road combined with the local wet season often results in a poor running surface condition with potholing and undulations which enforces low speed movement of vehicles.

Alexander Drive/Porter Promenade is the north/south route between Mission Beach and Bingil Bay. The change of name from Alexander Drive to Porter Promenade occurs at the intersection with Clump Point Road. TMR is responsible for management of Alexander Drive/Porter Promenade as a state controlled road and will consider the need for and timing of an upgrade to this intersection following completion of the Project and review of the first months of usage.

The boat ramp is predominantly utilised by recreational fishers living and holidaying in the Mission Beach area and fishing charter operators. Thus, most vehicles utilising the facility are large passenger vehicles towing trailer boats up to 9m in length. There is occasional movement of larger commercial vehicles with larger boats and maintenance vehicles used to conduct maintenance of the facility. Assuming up to 50 vehicles/trailers can currently park informally at the facility, it is estimated that 50-75 vehicles and boats could be turned over each day in peak periods.

The boat ramp does not currently service the Dunk Island ferry or related high-volume tourist transport operations and hence the facility is not accessed by tourist coaches or buses. It is likely access is required occasionally by smaller buses or taxis for those patrons meeting with charter boat operators.

The boat ramp is serviced by the lower (northern) carpark situated at the boat ramp site, and the upper (southern) carpark which serves as an overflow. The lower carpark caters for four single car parking bays and 15 car and trailer unit bays. The upper carpark is less formalised with no marked bays and unsealed surfaces, catering for 10-15 car and trailer units. Due to the distance of the upper carpark from the boat ramp, it is observed that users tend to park along the Clump Point Road verge in preference to this carpark. Hence at busy periods, the section of Clump Point Road between the carparks is often congested and difficult to manoeuvre in, particularly when towing a boat trailer.

A small turnaround is provided to cater for 'U-turning' and manoeuvring of boat trailers onto the boat ramp. The current turnaround does not meet TMR standards but has been adequate to meet the needs of small-to-medium trailer boat users historically. However, it would be problematic for the launching of larger vessels as the turnaround is offset from the centre of the boat ramp and would require sharp turning of trailers to reverse into the ramp. The turnaround also serves a function as a staging area for set up and securing of trailers and boats prior to and after launching, which additionally constrains the turning area.

The proposed Project includes a small expansion of the lower (northern) carpark north east to provide sufficient functional space for safe turning circle access to the three boat ramp lanes and breakwater access. The lower (northern) carpark will be raised to provide a single fall east to west from 2.9m AHD to 2.5m AHD to avoid high spring tide inundation with an allowance for sea level rise.

Socio-Cultural Values

Improvements to the upper carpark and Clump Point Road will be undertaken generally in accordance with the 2015 DSD tender package, including the installation of a composting toilet. In addition, the following will be undertaken:

- Redesign of drainage for the carpark to direct surface drainage to adjacent vegetated areas, where possible
- Inclusion of large canopy trees in nature strip landscaping for the carpark, where possible
- Inclusion of a mini-bus drop off area and restrictions on parking on Clump Point for passengers of commercial vessels
- Formalisation of pull-over bays on the access road by hardening of existing non-vegetated areas, provision of signage, and pruning of low-hanging branches.

Parking layouts in both the upper and lower carparks will be marked out once they are resurfaced after construction is completed.

7 Management of Environmental Risk

7.1 Construction

To control impacts during the construction phase, a Construction Environmental Management Plan (CEMP) will be prepared. This document will set out the management objectives for environmental elements relevant to construction (e.g. water quality, flora and fauna), and provides the framework for the construction approach, further investigations, sub-plans and management actions required to meet these objectives. The successful contractor for the Project will be required to finalise the CEMP based on the construction methodology and relevant requirements of approval conditions, and to develop the various plans and programs required. The CEMP will then be signed off by relevant agencies before construction commences.

The management objectives of the draft CEMP are set out in Table 7-1.

Table 7-1 Management Objectives for CEMP Elements

Element	Objective
Water quality	No impact to aquatic ecology EVs in Boat Bay and nearby open coastal waters
Marine megafauna	No impacts to marine megafauna species as a result of construction activities
Mangroves and littoral rainforest	Vegetation communities, outside of the Project footprint, are retained in a natural condition and do not suffer community collapse
Terrestrial flora and fauna	No impacts to threatened flora or to fauna as a result of construction activities
Cultural heritage	Works undertaken in accordance with the Aboriginal Cultural Heritage Duty of Care Guidelines and in recognition of the cultural heritage values of Clump Point and the Cultural Heritage Management Plan
Dust and noise	No impacts to EVs for air and noise within the Project area and surrounds
Spills and waste management	No net contribution of waste or contaminants to the environment within the Project area as a result of construction works

The key management actions and investigations to achieve these objectives are set out below, noting that more detailed management actions will be included in the draft CEMP and will be finalised prior to construction. Further detail on the pre-construction monitoring programs and control of traffic impacts is provided below.

- Works will ideally be planned to primarily occur in winter months and spring/early summer to avoid the worst of the wet/storm season which would otherwise increase the risk of impacts of sediment and contaminant discharges into the marine environment.
- Prior to commencement of construction, the footprint of the works will be refined to ensure that high habitat value features (i.e. seagrass, coral assemblages and underlying reef, mangroves and littoral rainforest) are avoided to the greatest extent practicable.
- Final detailed design will be provided to all relevant agencies for sign off (respective to their jurisdiction) prior to commencement of construction.

- All construction stockpile and laydown areas will be established on already disturbed areas outside of tidal influences (e.g. existing car park).
- The installation of Environmentally Friendly Moorings will be supervised by an authorised person, as nominated by GBRMPA.
- The following sub-plans will be developed to govern the construction:
 - Erosion and Sediment Control Plan (ESCP)
 - ASS Management Plan (ASSMP)
 - Refuelling Plan (if refuelling occurs in the Project area)
 - Clearing Plan
 - Rehabilitation Plan
 - Cultural Heritage Management Plan (CHMP)
 - Spills Management Plan
 - Traffic Management Plan (TMP), including measures to control potential impacts to southern cassowary from truck movements and minimise the social impact of truck/construction plant movements.
- A Notice to Mariners will be prepared for any works undertaken in the water prior to commencement.
- A water quality monitoring program will be developed and implemented, including the collection of baseline water quality data and monitoring of potential impacts throughout construction.

A Traffic Management Plan (TMP) will manage impacts to local amenity associated with truck movements and closure of boat ramp facilities (including the car parking facilities). Regardless of construction methodology (i.e. truck-based vs. barge-based supply of rock material), significant plant will need to be mobilised by road to the site and a significant number of trucking movements will need to transport raw and prefabricated elements to the site to complete the extent of the works. These impacts will significantly increase where truck-based supply of rock is required. The contractor is also expected to utilise a significant portion of the site, minimising available parking space.

The TMP will include the following elements:

- scheduling of activities to minimise facility closure, including arrangements to facilitate commercial operator access to boat launching and retrieval facilities when possible
- works required along Clump Point Road, if any, to avoid over-head canopy damage and vegetation disturbance (e.g. minor pre-trimming works, walking of excavators)
- choice of access route from quarry (if utilising truck-based supply) that avoids cassowary habitat and common sighting areas wherever possible, minimises impact to central business and residential areas, and maximises efficiency of the route (i.e. keeps disturbance as short as possible)
- management measures for specified routes, including preferred trucking hours and access arrangements determined through stakeholder engagement.

- Cassowary Avoidance Strategy, including measures for pre-start meetings, ongoing reporting of sightings and amendments to routes. There should also be specific measures to minimise risk of striking cassowaries along Clump Point Road.

7.2 Operations

The Clump Point boat ramp is already operational and used for the launching and retrieval of boats. And the floating walkway for pick-up and set-down of passengers. Operational impacts from the Project, therefore, are isolated to any *increase* in impact and risk associated with these activities as well as any impacts or risks associated with providing for berthing of vessels. These new considerations include:

- Increased risk of spills and wastewater discharge from vessels
- Increased risk of strike of marine megafauna (by boat) or terrestrial fauna (by car) due to increased usage of the area for boat launching and retrieval and passenger transfers
- New risk of fuel spills if refuelling activities are undertaken at the jetty. (However anecdotally refuelling may currently occur from the existing floating walkway so formalisation of a facility designed for the purpose may reduce the spill risk associated with this activity)
- New risk of infrastructure being damaged in cyclones and severe weather events and causing damage to benthic and intertidal habitat.

These risks will be managed through operational management plans for the facility (see Section 3.2.3), including strict licencing requirements for refuelling, environmental conditions within lease agreements for berths and moorings, and the sinking of pontoons prior to cyclone events or suitable design to resist cyclone loadings.

These risks are balanced against the following benefits associated with the Project:

- Reduced conflict between recreational and commercial users due to separation
- Lower risk of collisions on Clump Point Road due to pullover bays
- No maintenance dredging requirements for any of the facilities (compare to current situation where siltation occurs on the boat ramp due to the breakwater return)
- Lower risk of collision with bommie
- Lower risk to pedestrians and better use of parking facilities
- Greater safety provided to boat-users, especially when launching and retrieving vessels.

Conclusion

8 Conclusion

TMR is seeking approval to construct a new detached breakwater in the GBR Marine Park, supporting a limited number of pontoons, pen berths and moorings, the upgrade of the existing Clump Point boat ramp to provide a third lane and additional floating walkway, and an upgrade to the existing lower carpark configuration. These works will be accompanied by upgrades to the upper southern car park and Clump Point Road. Most of these terrestrial upgrades will be undertaken by CCRC in accordance with existing approvals associated with the 2015 DSD tender.

These works have been designed based on the needs of recreational and commercial users, safety requirements, environmental and cultural heritage protection, and the various interests of local stakeholders, as represented primarily through the Project Reference Group. Important factors and considerations in the design of the works include:

- extensive stakeholder engagement with the members of the Reference Group (i.e. community groups representing various interests in Mission Beach), the Djiru people, and government agencies
- environmental, cultural heritage, legislative and spatial constraints of the Project area, identified in part through extensive technical investigations conducted in 2016
- the need to maintain a breakwater gap, and technical assessments of this gap
- objectives of the Project, including the need to provide safer boating infrastructure while reducing the conflict between recreational and commercial boat users.

The Project does not represent the first stage of a future marina development and no expansion in the facilities is planned or supported other than what is set out in the Development Plan and this Public Information Package.

The detailed Advice Statements from the Reference Group have informed specific design aspects to reduce the environmental and cultural heritage impacts of the proposed works.

The detailed Advice Statements from the Reference Group have informed specific design aspects to achieve the optimum affordable outcomes for recreational and commercial boat owners and tourists and visitors.

The proposed works will cause limited permanent loss of the following habitat values: Soft sediments and rubble 9,533m² (primarily the new breakwater footprint), Mangroves 1,013.5m² (the increased boat ramp turning area and breakwater access footprint) and Reef and Rocky shoreline 771.6m² (upgrade of the existing breakwater). This loss has been reduced through rationalisation of marine infrastructure and through design to the greatest extent possible. The proposal design has avoided any loss of existing or historically surveyed seagrass areas. The works are not expected to have a significant impact on local hydrodynamics, other than immediately behind the breakwater, and will not cause significant siltation. The proposed facility has met a primary design objective of minimising impact on visual amenity by keeping the facility as low and small as possible to stay in keeping with the existing marine infrastructure. Construction of the Project contains risk of impacts to the environment, particularly in relation to water quality and traffic. A draft CEMP provides the basis for

Conclusion

management of these impacts and will be updated and approved prior to works commencing, consistent with approvals requirements.

An increased volume of vessels and vehicles using the facility will potentially increase the risk of impacts to the environment and will need to be managed through operational plans.

Once completed, the operation of the facility will be controlled by TMR as owner and CCRC as manager for marine infrastructure, and by CCRC as owner and manager of land-based infrastructure.

The composition and design of the proposed works has been informed by the views and advice provided by the Reference Group. All comments and views were carefully listened to. There was considerable consensus on many issues but there were also differing views on several aspects. The works proposed have been influenced by all the views expressed, and seek to provide a balanced approach that recognises the safer marine infrastructure and parking arrangements sought by boating interests, provides opportunity for carefully controlled economic development to benefit the Mission Beach and regional community, and respects the environmental and cultural heritage of Clump Point.

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Appendix A Initial Reference Group Advice Statement

1 Background

A community information session was held on 18 May 2016 to discuss the project with a range of groups and individuals representing commercial and recreational boating, community and environmental stakeholders. The high level project objectives were summarised at the meeting as:

1. Provision of safe boating infrastructure
2. Facilitation of local economic development
3. Reduce conflict arising from joint commercial and recreational use
4. Respect the rich natural environment and cultural heritage of Mission Beach

The Department of State Development (DSD) confirmed that, in response to the feedback from a number of community groups, the project scope had been reviewed and the focus was now on delivering boating facilities at Clump Point, as opposed to Perry Harvey jetty. The majority of those present considered that the priority for the project should be the delivery of a breakwater extension that provided safe overnight mooring and would facilitate expansion of the tourist industry. It was accepted that the project may not provide safe haven in cyclonic or major storm events. Representatives from conservation and environmental groups raised concerns however about the impact of intensifying use at Clump Point.

To advance the project DSD invited key boating, community and conservation groups to join a Reference Group to provide community input on issues, concerns and values during the preparation of a Development Plan for the Clump Point project. Reference Group deliberations have been informed by new bathymetry, marine ecology survey and terrestrial surveys, and previous studies.

The Reference Group agreed responsibilities are:

- The Reference Group is to provide community input on a range of matters
- The Reference Group will provide an advisory role on issues, concerns and values
- The Reference Group is not a decision-making body

The Reference Group agreed Charter is to:

- Receive and discuss information
- Provide advice during the preparation of a Development Plan for the Clump Point project
- Monitor and represent community views regarding issues, impacts and benefits
- Provide information about the project to other community members

The Reference Group has considered planning and legislative matters, environmental and cultural heritage issues, and the requirements of the Council, DTMR and DSD. Discussions have been held about the desired features to determine core elements to be delivered with existing funding including appropriate contingency allowance, and options to be included if existing and future funding permit.

The Reference Group has progressively considered issues at a sequence of meetings, and been provided with a draft copy of the proposed Development Plan. This Advice statement sets out the Reference Group views on key issues and includes points of agreement and any points of disagreement ordered by the organisation represented.

The draft Development Plan may be updated to address issues raised in this Advice. That version of the Development Plan and this Advice will then be considered by the Cassowary Coast Regional Council (CCRC), the Department of State Development (DSD) and the Department of Transport and Main Roads (DTMR). The Department of Transport and Main Roads will then consider the views of the other two agencies before deciding whether the project is viable and should proceed

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to the next phase. If it does the project will be transferred from DSD to DTMR for detailed design, approvals, and then tendering and construction.

The detailed design will address a number of issues and the Development Plan may need to be updated to reflect design refinements.

The member organisations in the Reference Group are:

- Mission Beach Boating Association (MBBA)
- Mission Beach Community Association (MBCA)
- Cassowary Coast Alliance (CCA)
- Community for Cassowary and Coastal Conservation (C4)
- Department of State Development (DSD)
- Cassowary Coast Regional Council (CCRC)
- Department of Transport and Main Roads (DTMR)
- Cassowary Coast Safe Boating Association (CCSBA)

Appendix A sets out the individuals who participated in the Reference group process.

2 Clump Point issues

2.1 Indigenous Heritage

Clump Point holds very high significance and cultural, social and spiritual value for the Djiru people.

Points of agreement

- The Aboriginal heritage values of Clump Point are recognised and must be protected. (RGM1).
- Native title land is an important point and requires follow-through regarding all development works including car parking.
- Basalt boulders to the north-east and east of the current parking area (next to the boat ramp) should not be covered over but kept as a site feature. They should remain in the area and be visible, to contrast with imported granite. The Djiru people need to be consulted (RGM3).

Points of disagreement

- None

2.2 Vegetation

Remnant native vegetation on Clump Point is protected under the provisions of the *Vegetation Management Act 1999* (Qld) and EPBC federal act.

Points of agreement

- Revegetation, rehabilitation and the removal of weed species is desirable in all areas directly impacted by the project, and in other areas on Clump Point where agreement can be reached for any required offsets.

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- Retention of the wilderness character and the diversity of the rainforest species makes this area special.
- The rainforest atmosphere, especially the canopy, should be retained to the fullest extent possible.

Points of disagreement

MBBA none

MBCA none

CCSBA none

C4 none

CCA Agree with points above.

Studies have identified the shortcomings of protection under current VMA legislation. Advice from local ecologists should be sought to inform any offsetting or vegetation management on the Clump Point headland.

2.3 Mission Beach Area Boating Management Plan

It was suggested that a Management Plan for the larger area should be prepared that could include Clump Point, the Perry Harvey jetty, and interactions with the surrounding area. (RGM1).

Points of agreement

- The Reference Group focussed on matters directly related to the Project (RGM1).
- Broader planning issues are a matter for the Cassowary Coast Regional Council (CCRC) and possibly the Queensland Government depending on the issues to be addressed (RGM1).
- The CCRC and the Queensland Government will be informed about any issues arising from the Reference Group deliberations relevant to those broader planning processes (RGM1).

Points of disagreement

MBBA none

MBCA none

CCSBA none

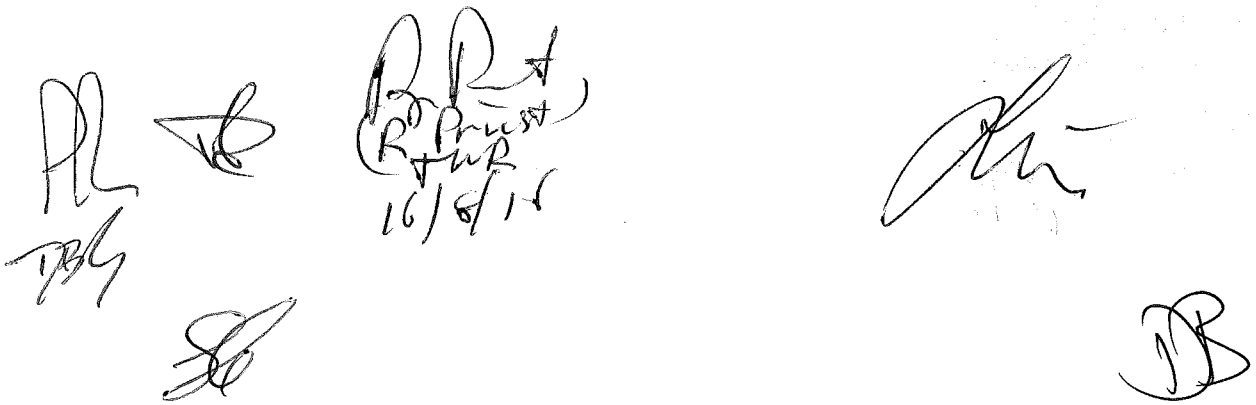
C4 C4 recommends that a management plan is prepared.

CCA Acknowledgement of the importance of World Heritage status of the land and sea environments to the Mission Beach economy should be included in the Development Plan.

A plan for the whole area that includes the Perry Harvey jetty is recommended, and the Development Plan should include the jetty as part of the safe boating infrastructure.

There is a limited capacity for development of the Clump Point headland.

The MBSBI project should be seen as THE limit with no room for future expansion.


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2.4 Clump Point integrated management plan

It was suggested that an Integrated Management Plan for the full Clump Point area is desirable (RGM3).

Points of agreement

- Broader planning issues are a matter for the Cassowary Coast Regional Council (CCRC) and possibly the Queensland Government depending on the issues to be addressed (RGM1).
- The CCRC and the Queensland Government will be informed about any issues arising from the Reference Group deliberations relevant to those broader planning processes (RGM1).

Points of disagreement

MBBA none

MBCA none

CCSBA none

C4 Environmental and cultural values and available space significantly limits possible development on Clump Point, and a detailed plan for the whole of Clump Point should be prepared to guide all development and future use including matters addressed by the Development Plan.

CCA Environmental and cultural values and available space significantly limits possible development on Clump Point, and a detailed plan for the whole of Clump Point should be prepared to guide all development and future use including matters addressed by the Development Plan.

2.5 Perry Harvey jetty

The jetty is owned by CCRC and does not form part of this project. A number of group members wanted to make observations about the jetty and the advice below will be passed on to the CCRC for its consideration.

Points of agreement

- D-rubber fenders would improve access to Perry Harvey jetty.
- Could put a head on the end of the jetty to extend it.
- Could put staged landings on the northern side.

Points of disagreement

MBBA none

MBCA The jetty should not be included in planning and should not be improved as it is a waste of CCRC finances. There is nothing to be gained in continuing to try to justify the existence of the Perry Harvey jetty. Fuel and water may be able to be provided from there but not without spending a lot on berthing improvements. Even then it would be inconvenient for operators to use at all times, and unsafe when winds exceed 10-12 knots.

CCSBA none

C4 Consider that the jetty should be included in planning for the whole Boat Bay area and the jetty should be improved to make it usable (RGM3).

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This Advice document should include the comment that 'because of physical, cultural and environmental constraints on Clump Point, the Perry Harvey jetty will need to be included in future plans for marine infrastructure in Mission Beach.

CCA Tourism and private boat operators who currently use the jetty, or may wish to in the future, should be consulted about necessary enhancements to increase the use of this valuable asset.

The Perry Harvey jetty is safe to use a lot of the time and should be included in this project with some of the MBSBI funds allocated for the above points of agreement and it would take the pressure off the limited capacity of Clump Point.

3 Land infrastructure issues

3.1 Access road

Clump Point is accessed from Alexander Drive and Porter Promenade via Clump Point Road. The first part of that road (heading towards Clump Point) is narrow and surrounded by remnant native vegetation which provides a canopy effect. The surrounding vegetation is Cassowary habitat. About half way along the road it becomes wider and passes by recently cleared car parks.

Points of agreement

- Clump Point is a special place and an essential part of the special character of Mission Beach (RGM1).
- The low key, heavily vegetated, canopied entrance needs to be protected as does the surrounding remnant vegetation, and the contained Cassowary habitat (RGM1).
- The access road should be generally maintained at the current width but pull-over areas could be informally provided with no parking allowed in those sections (RGM1).
- The informal pull-over areas should be clearly signed and notification signs of passing areas ahead should be provided (RGM1).
- The pull-over areas need to be able to contain vehicles with attached boat trailers (RGM1).
- Suitable non-vegetated areas are already available but some trimming of lower branches may be needed in those pull-over areas (RGM3).
- The access road should generally remain as it is with some widening in non-vegetated existing areas to create informal pull-over zones.
- The full length of road should be sealed (CCRC) with shoulders and pull-off areas hardened.

Points of disagreement

MBBA none

MBCA none

CCSBA none

C4 Agree with most.

Complete section of road through forest should be 'No Parking' with signage at beginning and end only.

CCA All signage (including non-parking for the distance of the canopied approach road) should be placed at each end of the narrow road section rather than at each passing area.

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DTMR Access road - the community understands and supports that the environmental and cultural heritage values of Clump Point significantly constrain the access. Because of these constraints the site needs to be developed and managed under an operational management plan to avoid unnecessary traffic. This will involve bussing most commercial passengers.

CCRC none

3.2 Parking

Parking arrangements were addressed in plans for the recently withdrawn tender works. Those works have already been approved.

Points of agreement

- Parking at Clump Point should be limited to protect the special environment to avoid acting as an attractor of users that may exceed the available capacity (RGM 1). A parking management plan is required as part of the overall operational management plan.
- The existing parking as included in the works already approved is generally considered to be the limit of what parking could be provided on Clump Point (RGM1).
- Part of the demand for longer term and overflow parking and any required coast guard storage shed could be provided nearby but not out on Clump Point. (RGM 2).
- CCRC would be prepared to review possible locations for longer term and overflow parking, close to but not on Clump Point, if future demand requires it (RGM3).
- The parking area adjacent to the existing ramps needs to be raised to reduce wave overtopping and the associated damage to the parking surface (RGM 2).
- The parking area adjacent to the existing ramps should be reviewed to ensure adequate turning circle for vehicles (RGM3).
- The existing and planned parking areas should be reviewed to ensure optimal use of the area available (RGM 2).
- Parking areas should drain to adjacent areas to support vegetation with 'soft edges' and where possible permeable surfaces provided (RGM 2).
- Parking designs should be reviewed to identify opportunities for the planting of native shade trees that also enhance the current habitat and views on Clump Point (RGM 2).
- The highest astronomical tide (HAT) causes significant inundation of the lower road and car park with resulting damage to the road surface and it should be raised.
- Eastern side of the lower car park be extended, particularly turning area and derigging area (RGM3).
- Some parallel parking could be provided from the boat ramp area up towards the existing large car park on the western side of the road (RGM3).
- Single vehicle parking for clients of commercial operators should be such that the commercial operator needs to transfer clients, or advise them to park remotely (RGM3).
- A mini-bus set down area is required. There is potential for areas under trees in the nature strip in the current design to potentially facilitate this. Other suitable locations closer to the marine facilities could be considered in the design stage (RGM3)
- The southern carpark boundary is the extent of the council reserve, so any extension would require negotiation with the Djiru people (RGM3).

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- The parking areas should generally be consistent with the details shown on the withdrawn tender plans, except that the parking area adjacent to the ramps should be raised, the drain to the ramps removed, details revised to allow runoff to adjacent vegetation and infiltration where practical, and native shade trees planted to enhance views in the vegetation strip and adjacent to the southern car park.
- Parking arrangements should be reviewed to ensure adequate turning circle for vehicles near the ramps, a mini-bus set down area is available and passengers for commercial operations park away from Clump Point.

Points of disagreement

MBBA none

MBCA Dot point 2. Existing parking is not considered to be the limit of what parking could be provided.

Dot Point 11. The lower carpark should be extended south to the accepted boundary of the littoral rainforest as discussed during our walk around. Sufficient space needs to be provided wherever possible for turning areas and derigging areas. Average trailer-boat owners are generally inexperienced and need plenty of room to manoeuvre.

MBCA supports maximising the number of carparks taking into consideration all reasonable limiting factors including vegetation protection and other environmental factors and abiding by agreements negotiated between CCRC and the Djiru people.

CCSBA Supports seeking a moderate increase in parking to that shown in the tender plans.

C4 Agree with most as indicated above, except some concerns. Raising the height of the carpark will already have extended the footprint eastward by the amount recognised on the field-trip inspection.

Wherever water flow is concentrated due to heavy rain, erosion will occur. Some control measures will be necessary to deal with surface run-off from hard surfaces such as roads even when some permeable surfaces are included. Some storm-water drainage will be necessary. See Section 3.3 point 2.

CCA Rehabilitation should be consistent with the current vegetation RE and advice should be sought from local ecologists.

In regards to the suggestion that 'eastern side of the lower car park be extended' parking should not be extended into the intertidal rock pools or any further into the bay, and the requirements for the turning circle and car park raising will probably be the limit of what can be achieved in this area.

Raising of the car park should only be of a height to avoid inundation at those rare times during the highest spring tides. This area cannot continue to be raised to mitigate anticipated rising sea levels as a result of global warming. Perhaps raising walls should be considered against raising whole carpark to reduce rock wall footprint now and in the future.

CCRC Point 8 - Formal parallel car-parking would need to meet current design standards.

Point 10 - A formal mini-bus set down area should not reduce the number of carparks.

DTMR Parking - the community understands and supports that the environmental and cultural heritage values of Clump Point significantly constrain parking at the site. Because of these constraints the site needs to be developed and managed under an operational management plan to avoid unnecessary traffic. This will involve bussing most commercial passengers.

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3.3 Pedestrian access

Current pedestrian access is informal along the road.

Points of agreement

- Safe pedestrian access from the southern carpark to the boat ramps is required.
- The removal of the stormwater drain to the boat ramp, as described in the withdrawn tender plans, provides an opportunity for informal parking or pedestrian access.
- Pedestrian safe access arrangements along Clump Point Road especially from the car parks should be reviewed in detailed design.

Points of disagreement

MBBA none

MBCA none

CCSBA none

C4 Width of pedestrian access should not compromise parking or road width, or require expansion of overall footprint. Some storm-water drainage will be necessary and may be best combined with pedestrian access. Otherwise agree.

CCA Pedestrian access should be kept as informal as possible and consistent with the wilderness character of the headland.

DTMR none

CCRC none

3.4 Water supply

There is currently no mains water supply to Clump Point and if installed a water main would need to be provided along the road to avoid impacts on surrounding vegetation. A mains water supply could be used for boat re-supply, boat wash down, firefighting, drinking water bubblers, and within any toilet block. Water is available on the Perry Harvey jetty. CCRC have advised any water supply line would be trenched up the centre of the road, and CCRC has no budget in the current F/Y for contribution to a Clump Point water supply. If a water main is provided at Clump Point, CCRC would not charge for use of water but would need to look at appropriate management techniques.

Points of agreement

- Liable to be a costly installation. A lot of disruption during construction (RGM3).
- The provision of a water main should be included in the project and reviewed in detailed design.

Points of disagreement

MBBA A reticulated water supply is essential at Clump Point.

MBCA Regards mains water supply as an 'essential' and thinks it should be funded from the project budget and not left to CCRC. Does not believe it is a costly installation and its construction does not need to be disruptive if directional boring is utilised.

Please refer to Mager's all inclusive quote of \$101,000.

CCSBA A reticulated water supply is essential at Clump Point.

R. Priest
16/8/16

- C4 Mains water is not essential; there is potential for considerable usage/wastage of potable water (cost to rate-payers for private benefit); boat and trailer wash-down liable to lead to congestion of traffic in de-rigging area.
Alternatives – water available at PHJ for boat re-supply. CCRC wash-down on Porter Promenade (check current status). Note that water is not acceptable for fighting fuel or electrical fires which are common boat fires (apart from the fact that all commercial vessels and most recreational ones are required to have fire extinguishers).
If included, trench required by CCRC must be along middle of road to minimise effect on vegetation.
- CCA A tank supplied from the roof of the toilet block is appropriate, and water is available at the jetty. Recreational boating needs can be addressed before arriving at the boat ramp.
The provision of water will act as an attractor of users, including campers, that may exceed the available capacity and increase congestion.
Water is available at the Perry Harvey Jetty. Introducing a fence for any purpose on the approach road is not supported.
- CCRC Running a water main along the back of a low fence is not supported, and any water main would need to be placed underground.
- DTMR none

3.5 Toilet facilities

There are currently no toilet facilities near the boat ramps at Clump Point. The nearest public toilets are provided by the CCRC on Porter Promenade about 1km away. A sewerage connection to the end of the Clump Point Road would require trenching and power for a pump station, as well as a water main. CCRC have advised any sewer line would be trenched up the centre of the road, and CCRC has no budget in the current F/Y for contribution to a Clump Point sewerage facility.

Points of agreement

- A toilet block is needed close to the boat ramp area (RGM2).
- The toilet block should be located as shown on the plans for the withdrawn Stage 1 tender.
- A composting toilet is acceptable to most groups.
- The final type of toilet should be considered during detailed design informed by costings (RGM3).
- If power and water is to be installed the provision of sewerage should be investigated in detailed design.
- While a toilet block serviced by a sewer is preferred by many members, a composting toilet is acceptable if costings in detailed design show the sewer is unaffordable and the composting toilet will provide an acceptable level of amenity.

Points of disagreement

MBBA none

MBCA The provision of sewerage would be preferred. Other possibilities, a composting system or a holding tank and pump out system as costed in the MBBA/Mager tender would be acceptable if sewerage is unaffordable.

CCSBA A toilet block served by mains water and a sewer, and hence power is essential.

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- C4 Sewerage is not necessary on Clump Point – too disruptive in installation. Potentially problematic if it fails (power outage to pump, pump failure, broken or blocked pipes). Composting toilets are more contained. A sewerer toilet is about 400m away on the northern end of Mission Beach and another is at PHJ.
- CCA A compost toilet is appropriate, in the location shown on the withdrawn tender plans.
- DTMR none
- CCRC CCRC suggested that the toilet block should not be in the boat ramp area as this would expose the building to wave action in a large event and take up car parks close to the boat ramp.

 CCRC is not opposed to taking ownership of a sewerage system delivered by the project, but is satisfied that a composting toilet can fulfil the requirements of a boat ramp toilet facility.

3.6 Electric power

Electric power is highly desirable for lighting and navigation aids to ensure safe access in the dark, to ensure any marine infrastructure is not a navigation hazard, and for public safety.

Points of agreement

- The use of solar and generator backup could be considered (RGM2).
- If a water main is to be installed the inclusion of power, and sewerage in the trench could be considered, or at least conduits considered for future services.
- The provision of electric power using the same trench as the water main should be considered in detailed design, and is seen as an essential service to support commercial operations.

Points of disagreement

- MBBA none
- MBCA none
- CCSBA none
- C4 Mains power is not needed to run the relatively limited power requirements. Solar is adequate for LED lighting and navigation hazard marking.

 Lighting should not be excessive (some could be movement activated). Lights require shading to limit light pollution away from carpark/ramp area.

 Minimise number of trenches – would greatly prefer none, but if included, one may be acceptable along middle of access road.
- CCA Support solar with generator back-up.

 The development plan for MBSBI should be considered the limit of the capacity of Clump Point (see 2.3).

 Introduction of extra amenities will increase demand and cause congestion. (See comments on 3.4)
- CCRC none
- DTMR none

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- Initials "IB" at the bottom right.

3.7 Booking office, kiosk and store rooms

It is understood that some commercial operators would like to have these facilities available for their use near the boat ramps and the potential future marine infrastructure.

Points of agreement

- A booking office, and other commercial activities such as a kiosk or store rooms are not essential (RGM2).
- These facilities should not be included to preserve funds for other essential features.
- If these facilities are considered essential in future years due to tourist numbers they could be provided by commercial operators as relocatable small buildings.

Points of disagreement

MBBA none

MBCA Agree in principle. But if these facilities are to be provided in the future, should not a space allowance be made for same in the design? Any such buildings need to remain out of sight as much as possible when the site is viewed from the ocean.

CCSBA none

C4 Not required. Will impose on limited space available. Previously available at jetty and could be easily replaced there.

CCA Not needed as commercial operators should be transporting passengers from elsewhere to avoid parking congestion, as previously agreed by the RG.

CCRC none

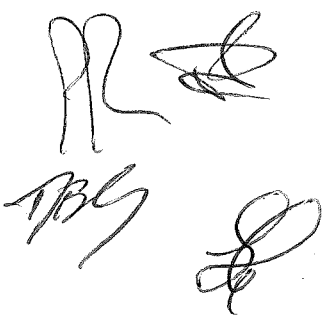
DTMR none

4 Marine infrastructure issues

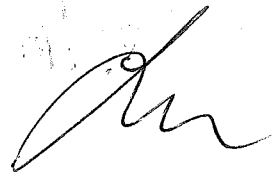
4.1 Safe boat ramps

Points of agreement

- There is a need for launching facilities at a number of locations (RGM1).
- There is a need for safe retrieval areas when the weather changes during the day (RGM1).
- Enhanced protection at Clump Point would provide a much safer facility under rough conditions (RGM1).
- Safe access should be provided to and especially from the water for recreational boating users (RGM1).
- Removing return/toe off existing breakwater would improve access and remove the need to relocate coral bommies (RGM3).
- Safe recreational access must be incorporated in the larger project and not limited to the \$500k from boating registration fees (RGM3).
- The boat ramps should be upgraded with the layout generally consistent with the withdrawn tender plans, but reviewed to ensure protection next to the rock wall and with provision for pontoon or floating walkway access next to each boat ramp lane. The existing breakwater return should be removed to provide a more direct access path and to avoid the need to relocate the coral bommies. The safe navigation channel should be marked.



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16/8/16



Points of disagreement

- MBBA none
- MBCA Relocation preferred or at least mark bommies with navigational markers if that will suffice.
- CCSBA none
- C4 none
- CCA none
- CCRC none
- DTMR none

4.2 Moorings and berths

Berth options could be any one of – (1) isolated pile pen berths – (2) jetty with pen berths – (3) jetty with gangways and pontoons (which would be towed away under a contract in the event of a cyclone threatening or sunk) (RGM3). Moorings are likely to be swing moorings.

Points of agreement

- There needs to be a balance between capacity and environmental protection (RGM 2).
- The future demand for access for berths for larger boats will not be able to be met (RGM 2).
- An acceptable number of berths should be provided for commercial operators who will have a beneficial impact on the local economy (RGM 2).
- Short term loading and unloading access should be provided for recreational and commercial users (RGM 2).
- The development should not be a 'marina' catering for a large number of boats (RGM 2).
- Safe haven (but not in a cyclone) for commercial operators may be from a mixture of permanent berths, swing moorings and possibly pens (RGM 2).
- Given that the demand for commercial access may exceed the available capacity it is recommended that access will need to be bid for at regular intervals, possibly with some method of also considering the benefits provided by a user to the local economy (RGM 2).
- Safe haven should be provided for 7 boats, as assumed in the MBBA design (RGM 2).
- Commercial operators, including fishing, need access for offloading and berthing or mooring. While some commercial operators may want permanent berth access, many could work with loading and unloading access combined with a safe mooring or pen (RGM 2).
- It was suggested that between 4 and 6 moorings may be required, with an upper maximum of 10 also discussed (RGM 2). Subsequently GBRMPA indicated at a meeting that they would consider 11 moorings or berths in the area.
- Pen berths could be considered (RGM3 - but not full support).
- A margin is needed for under keel clearance of up to 0.3m to 0.7m in normal sea-states (low wave heights) (RGM3).
- Berthing load/unload for a public pontoon is supported (RGM3).

Points of disagreement

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	MBBA	MBCA	CCSBA	C4	CCA	DTMR
Recreation user short stay moorings	2 or 3	3	2	2 or 3	6	3
Commercial user multi-year lease mooring	2 or 3	4	3	2 or 3	5	3
Recreational user loading pontoon boat spaces*	2	2	1	2?	2	2
Commercial user loading pontoon boat spaces*	4	2	4	2?	2	2
Pontoon berths – commercial lease	0	4	0	0	0	0
Pen berths – commercial lease	6	0	6	5?	0	5
	11 max?	11 min	11 max	11 max	11 max	

- * loading facility

Comments:

MBBA Total capacity needs to be negotiated with GBRMPA.

Permanent berths/pens are needed.

MBCA GBRMPA's allowance for 11 permanent moorings or berths is considered satisfactory.

MBCA requests DTMR to consider an amalgam of the three existing design options that have been put forward for consideration.

Delete the commercial/barge ramp as designated in the MBBA/Mager Community Plan. Delete the road on the new breakwater and restructure the breakwater to support only a pedestrian pathway which would also support an electric buggy that could tow a trailer. The bridge as well as the breakwater could then be of considerably lighter construction. This would save an estimated \$3 million.

Upgrade the existing breakwater as suggested by DTMR, delete most of the existing return and provide a single lane concrete road with a turnaround at the return, as suggested. This would be the staging point for fuel and supplies trucks and emergency services.

The Community Plan suggests that the new breakwater should extend approximately 170m [including the length of the bridge] from the centre line/high tide mark of the existing breakwater.

It is accepted that a final on-water design still requires a lot of professional input before a preferred option could be agreed upon. It is requested that the best possible advantage must be made out of the deeper water at the NW extremity of the breakwater.

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All non-trailerable commercial vessels require access to a walkway at all times for cleaning, provisioning, and maintenance. All vessels require a floating platform to load and unload passengers regardless of their being commercial or private.

The basic DTMR design with the 5 holding pens was not looked upon favourably by anyone at the recent MBCA general meeting.

Tully Coast Guard should be further consulted re their requirements.

CCSBA none

C4 Pontoon loading/unloading spaces need to be shared. Set times for commercial operation (preferential use). The 50m pontoon (assumed length from diagrams showing Options 1A and 1B) could take 2 larger boats at a time or three smaller vessels.

There should not be any permanently occupied berths at the pontoon (implies safety from storms).

The GBRMPA-suggested total of 11 would be distributed as swing moorings through Boat Bay, not all clustered behind the proposed breakwater. We could consider a small number of piled moorings closer to the breakwater.

C4 advocates that a provisional set of operating procedures is developed in conjunction with the design in order to adequately achieve safe boating objectives.

Pen berths – commercial lease - 0, but could consider up to 5 maximum if not connected to land.

Commented [P1]: Pen moorings – no land access

Detailed design would need to consider how dinghies are stored or left unattended.

CCA 'Safe haven' needs to be further clarified. (See 2.3)

No permanent berths should be provided.

Finger pontoons should not be allowed for berth access.

The development should not be a marina, that is, any permanent berths including pen berths.

Mooring numbers should be determined by permit application to GBRMPA.

CCRC none

DTMR none

4.3 Boat clearway

Points of agreement

- On-water access space is needed to allow ramp, berth and mooring movements without conflicts (RGM 2).
- A new breakwater will create a safer area for all boats to wait for access to ramps or landings, and this area needs to be kept clear of permanent moorings and anchored boats.

Points of disagreement

None

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4.4 Commercial ramp

The MBBA proposal included a heavy duty commercial ramp for small to mid-size barge access and the launching and recovery of larger commercial vessels (RGM 2).

Points of agreement

- Barge access needs clear approach and departure lines, and possibly piles for pivot movements depending on the required approach angles (RGM 2).
- Medium sized commercial barges could occasionally use the existing boat ramps at higher tides if approach angles were improved. (RGM 2).
- Ongoing occasional medium barge ramp use would require a greater thickness of concrete on than that currently in place on the two existing ramps which could be included in a new third ramp lane (RGM 2).
- Dual use of the current and planned third ramp lane could be further considered to provide the occasional commercial requirements for a medium weight barge (RGM 2).
- Occasional medium barge ramp use would require improvements to the approach angles by either removing coral bommies or part of the return of the existing breakwater (RGM 2).

Points of disagreement

MBBA MBBA accepts that the commercial boat ramp shown on the MBBA proposal will not proceed.

MBCA none

CCSBA none

C4 No separate ramp for barge or commercial operations (no demonstrated need). The western ramp may be suitable for very occasional barge use (extraordinary occasions), so may need strengthening, piles and improved approach lines by removing the return of the existing breakwater (as previously agreed). Note – on the Options diagrams, the return is not fully removed as it is being used as a turning-circle.

CCA No commercial barge access should be provided.

There is limited space in this location for barge operations, and there would be considerable conflict with recreational usage.

Removal of bommies is different to relocation of bommies and should be clarified.

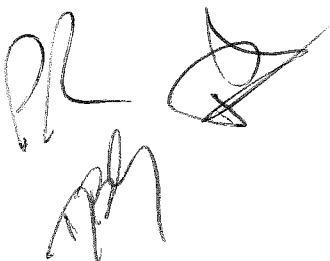
Commercial barge operations would place additional impacts on Clump Point and community usage.

CCRC Barge use at this facility is problematic in that it needs to coexist with recreational users.

DTMR DTMR wishes to note that upgrading the proposed third boat ramp lane to small barge capacity can be considered in detailed design, however this will require an upgrade to the adjacent floating walkway to prevent damage by barge impact to the light duty existing walkway.

4.5 Fuel supply

There is currently no permanent on-water fuel service at Mission Beach. Safe refuelling is an important issue for non-trailer boats, the majority of which are expected to be commercially operated. At some other locations fuel supply lines are built into pontoons with feed-in points provided at a safe tanker discharge point. The connecting fuel lines include automatic shut off



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connectors. There may be a requirement for a GBRMPA permit for any fuelling facility. Environmental values and safety are paramount to CCRC management of fuelling facilities. Perry Harvey jetty can be used for supply from a fuel truck direct to a boat. This method is the preferred CCRC option at either Perry Harvey jetty or Clump Point. However, if the selected configuration requires a fixed fuel line, then it may be expensive and require significant approvals and management protocols. Permits can be issued for fuelling from Perry Harvey jetty, if applied for. GBRMPA has sanctioned this. No permits have been issued yet. CCRC has issues with authorising and managing a fuel installation. They would prefer to licence one or more fuelling tanker operators, who would be required to sign off on strict protocols. (RGM3)

Points of agreement

- Safe fuel delivery is essential (RGM2)
- Fuel supply can occur at the Perry Harvey Jetty during calm weather

Points of disagreement

- MBBA Forget the jetty as previously mentioned. A fixed fuel line appears to be the most appropriate.
- MBCA Forget the jetty as previously mentioned. A fixed fuel line appears to be the most appropriate.
- CCSBA The management of fuel trucks backing down the jetty is a serious concern – especially for pedestrians on the jetty.
- C4 No fixed fuel lines. All fuel delivery through removable hoses controlled by fuel delivery contractor. Fixed line refuelling ('bunkering') is a high risk activity requiring multiple skilled personnel in attendance.
- CCA Strongly disagree with any fuel supply at Clump Point – existing arrangements are in place at the jetty.
- CCRC Do not want to manage refuelling facilities and would prefer to licence one or more fuelling tanker operators, who would be required to sign off on strict protocols.
- DTMR Do not want to manage refuelling facilities.

4.6 Breakwater

Points of agreement

- Barging rock needs to be looked at in terms of cost and local impact (RGM3).
- Tidal ducts should be further investigated and supported – within the breakwater (RGM3).
- The method of breakwater construction will be decided during detailed design, with barging supported even if it is acceptably more expensive than delivery through Clump Point by truck.
- The breakwater design approach should be selected during detailed design, depending on cost and impacts. The concept of a lower breakwater protecting an adjacent pier access has merit and is worth comparing with access via the breakwater.

Points of disagreement

- MBBA none
- MBCA Refer to comments above regarding the breakwater. MBCA would like DTMR to adopt the best final design plan even if it is [acceptably] more expensive than an alternative. Rarely is the cheapest the smartest way to go.

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CCSBA

C4 Lower breakwater has smaller footprint on sea-floor as well as for scenic values. Removal of pen moorings would allow shorter length of breakwater.

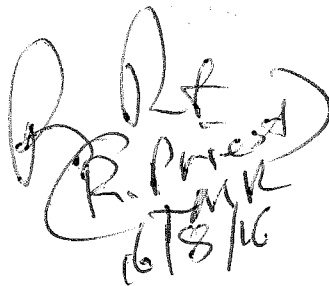
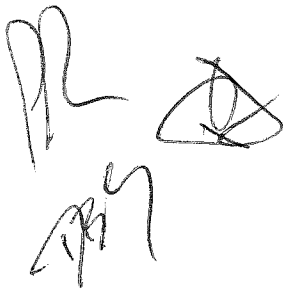
Agree that tidal ducts may be beneficial (though unproven in our conditions), but modelling of coastal processes needs to be undertaken.

Placement of rock is important irrespective of cost (as is size of rocks). While car-park may be built up using material carried by trucks, the offshore breakwater should be constructed from material carried by barge. Need to discuss details of construction methods.

CCA If a breakwater is to be built it should have the smallest possible footprint to support safe loading and unloading. In this regard the lower breakwater is preferred.

CCRC none

DTMR none



Appendix A

Meeting attendance

Organisation	Member	Meeting		
		1 22/06/16	2 20/07/16	3 03/08/16
Mission Beach Boating Association (MBBA)	Alan Jago	✓	✓	✓
	Danny Dade	✓	✓	x
	Richard Giuliani	x	x	✓
Mission Beach Community Association (MBBA)	Glen Murray	✓	✓	x
	Peter Heywood	x	✓	✓
Community for Cassowary and Coastal Conservation (C4)	Peter Rowles	✓	✓	✓
	Dr Helen Larson	x	✓	✓
Cassowary Coast Alliance (CCA)	Liz Gallie	✓	✓	✓
Cassowary Coast Regional Council (CCRC)	David Goodman	✓	✓	✓
Cassowary Coast Safe Boating Association	Stephen Chillcott	x	x	x
	Glen White	x	✓	x
Department of State Development	Ian McKirdy	✓	✓	✓
Department of Transport and Main Roads	Chris Voisey	x	✓	✓
	Roger Priest	x	✓	✓
Reference Group facilitator	Simon McNeillage	✓	✓	✓
Advisor - commercial vessel operator	Jason Shearer	x	x	✓
Advisor - barge master Dunk Island Landing Barge	Justin McCallum	x	x	✓

[Handwritten signature]

[Handwritten signature]
 (R. Priest)
 T.M.G.
 16/8/16

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 RL
 DBS

[Handwritten initials]

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I AM SIGNING THIS DOCUMENT
IN TRUST & WITH RESERVATION

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Appendix A - Meeting attendance

It was agreed at the end of Meeting 4 on 16 August 2016 that the signed meeting attendance list on the previous page would be updated to include the final meeting and be attached to the Advice statement.

Organisation	Member	Meeting			
		1 22/06/16	2 20/07/16	3 03/08/16	4 16/08/16
Mission Beach Boating Association (MBBA)	Alan Jago	✓	✓	✓	✗
	Danny Dade	✓	✓	✗	✗
	Richard Giuliani	✗	✗	✓	✗
	David Breadmore	✗	✗	✗	✓
Mission Beach Community Association (MBBA)	Glen Murray	✓	✓	✗	✗
	Peter Heywood	✗	✓	✓	✓
Community for Cassowary and Coastal Conservation (C4)	Peter Rowles	✓	✓	✓	✓
	Dr Helen Larson	✗	✓	✓	✓
Cassowary Coast Alliance (CCA)	Liz Gallie	✓	✓	✓	✓
Cassowary Coast Regional Council (CCRC)	David Goodman	✓	✓	✓	✓
Cassowary Coast Safe Boating Association	Stephen Chillcott	✗	✗	✗	✓
	Glen White	✗	✓	✗	✗
Department of State Development	Ian McKirdy	✓	✓	✓	✗
	Alicia Fava	✗	✗	✗	✓
Department of Transport and Main Roads	Chris Voisey	✗	✓	✓	✓
	Roger Priest	✗	✓	✓	✓
Reference Group facilitator	Simon McNeilage	✓	✓	✓	✓
Advisor - commercial vessel operator	Jason Shearer	✗	✗	✓	✗
Advisor - barge master Dunk Island Landing Barge	Justin McCallum	✗	✗	✓	✗

Appendix B Final Reference Group Advice Statement

Mission Beach Safe Boating Infrastructure Project

Development Plan – Reference Group feedback form

27 February 2017

Cy Peterkows

CCSBA

MBBA

MBC

MBBA

Raymond

27/2/17

This document has been signed by a representative from each Reference Group member organisation to verify that the comments have been made by their organisation. The signatures do not indicate endorsement of the comments made by the other organisations or the Development Plan.

OVERALL COMMENTS

Member org	Comment
MBBA	<p>The committee is very happy with the design generally and wishes to express the Members appreciation for all the effort and expertise that has been invested to bring this fantastic and vital piece of Mission Beach marine infrastructure to fruition.</p> <p>MBBA congratulates the Department of State Development and Department of Transport and Main Roads for their achievement.</p>
CCSBA	<p>Current design will help attract tourism and commercial vessels which is vital for the Mission Beach community.</p> <p>From a safety aspect, this development at Clump Point is essential for commercial operators. Under adverse weather conditions the use of Perry Harvey jetty is not adequately safe. This means that there is too much uncertainty for commercial operators to successfully and financially operate out of Mission Beach.</p> <p>The proposed design at Clump Point is a much better outcome from the previous works proposed at Perry Harvey jetty.</p> <p>Safe Boating Association is extremely happy with the level of consultation that has been undertaken on this project since the May 2016 community meeting.</p> <p><i>RC - [Signature]</i></p> <p><i>[Signature]</i></p>

Member

0142

Comment

MBCA

As this is the final Reference Group meeting, MBCA would like to congratulate the Department of State Development [DSD] for providing Mission Beach stakeholders with an excellent consultation process of a quality we've never experienced before. All Reference Group members were given every opportunity to share and discuss their design ideas in regard to the consolidation of safe boating infrastructure at Clump Point. That was the instruction given by the Minister and the reason why the Reference Group was formed. We were not expected to include the totally unsuitable Perry Harvey Jetty in our considerations nor to make any attempt to justify its existence. Commercial operators, recreational users, members of the community and environmentalists were directly, or through their organisations, invited to express any concerns or alternative ideas they may have had regarding any aspects of the emerging design. The consultative process was completely inclusive and all members were treated equally and fairly. The Department of Transport and Main Roads representatives were very helpful and knowledgeable. Having the opportunity to discuss various engineering aspects of the proposed design, both terrestrial and marine, with the design co-ordinators, clarified some matters quickly and clearly.

MBCA forwarded the Development Plan to our 650 members and also discussed the design at our AGM on Tuesday night, 21 February. We have heard only support for the proposed design from our members. One of our members expressed concern at the AGM about the prolonged period of time that rock for the breakwater will need to be trucked to Clump Point. MBCA suggests that a Traffic Management Plan needs to be adopted by the contractors whereby it will include that drivers have to be educated to be cassowary aware and to proceed through endangered species habitat and built-up areas at a subdued speed. We haven't received any other expressions of concern from members, so it is proper to state that iMBCA strongly supports DSD's Development Plan.

Nevertheless it is relevant to pass on the following comments which may or may not assist DSD and TMR in making an improvement or two to the proposed design.

With very few reservations, the Development Plan is excellent and is strongly supported by MBCA. Thank you to all concerned.

27/2/17

C4

Representatives from C4 acknowledge that the Reference Group process has been carried out in a smooth professional manner by a very capable facilitator and personable staff from DSD and DTMR who were very willing to assist whenever asked.


The main concerns with the process have been due to external constraints which have prevented the process from achieving a result more in keeping with the exceptional natural beauty of Mission Beach area and the Clump Point/ Boat Bay site and its recognised environmental, social and cultural values.

Being aware of the need for increased safety for commercial and recreational boating, C4 has always been in favour of improving the marine infrastructure on Clump Point to provide better ramp access, more parking and safer unloading/loading of passengers in rougher sea conditions. To this end, we cooperated with DSD and DTMR in developing the initial proposal put forward in 2015, agreeing with the Clump Point plans but advocating for a better solution for the jetty than the unacceptable breakwater proposed.

Unfortunately when the Minister for State Development visited Mission Beach in January 2016, he met only with a small group of strident anti-jetty lobbyists whose disingenuous claims to represent the viewpoint of the whole Mission Beach community persuaded him to exclude the Perry Harvey Jetty from the project. This decision by the Minister has pushed the whole process along a line which favours a few influential vested interests at the expense of the concerns of much of the wider Mission Beach community.

Efforts to redress this situation, from the 'community' information session in May 2016 to letters and a request to speak with the Minister, have met with no success, leaving us with the impression that while the specific details of the project may be open to some tinkering, the overall direction has been predetermined with commercial interests over-riding all others.

However C4 has continued to participate in good faith as a member of the Reference Group in the hope that some of the unnecessary damage to the area may be mitigated.



22/2/17

C4 cont.

Key concerns

- (i) The Perry Harvey Jetty should not have been excluded from the development proposal. Many of the claims made about its unsuitability are either untrue or misleading, stemming from the desire of a sector of the community for a marina to permanently berth their vessels.
 - (ii) As this Development Plan is completely different to the previous proposal, the whole public community should have adequate time to contribute their comments. Despite the efforts of members of the Reference Group, a large proportion of the community is not directly represented and is not aware of the Plan.
 - (iii) C4 believes good decisions should be based on evidence, so acknowledges the range of background studies and technical reports that have been referenced in this project. However we have identified many inconsistencies and gaps (as detailed in the response from Dr Helen Larson) e.g. species of corals, fish, seagrass which need to be identified for EPBC consideration.
 - (iv) A comprehensive cost-benefit analysis has not been completed to determine which features need to be included, resulting in many decisions being apparently based on anecdotal reports which are often flawed.
- This project shifts all marine operations to Clump Point, which will inevitably change the nature of Clump Point including the last road in Mission Beach with a complete tree canopy over it – a feature that all profess to want to retain. There will continue to be conflict between commercial and recreational users, particularly during the recognised high-usage periods. This was a key driver of the need to upgrade marine facilities. Barge usage of the boat ramps will further impact on other users. The recreational boaties who are so important to the economy of Mission Beach seem to be the greatest losers.
- No discussion of the impact of the construction phase has been included. From access to boat-ramps through to increased traffic (especially trucks), the effect will hit the whole community, including tourist operators and wildlife.

C4 likes:

- 30m gap
- Composting toilet
- Solar lighting
- Retention of overall amenity of access road
- Overtopping breakwater rather than conventional
- Shade trees in southern carpark
- Removal of existing breakwater return – reduction of siltation
- Raising of northern carpark (but not extension eastward)
- Widening of the existing boat ramp and inclusion of buffer adjacent to breakwater
- Upgrade to southern carpark but no further clearing of remnant forest
- Informal pull off bays along access road

27/2/17

MBC

The views of Mission Beach Cassowaries (a participant in the Cassowary Coast Alliance) comprise a collaboration of many conservation groups including local conservationists with legitimate interests in the natural values of Mission Beach and Boat Bay. Despite an early presentation to the Cassowary Coast Regional Council in March 2011, MBC/CCA has been unable to have all its relevant views on the Mission Beach Project properly noted and minuted through the processes carried out to date.

The repeated misuse of the word "safe", never defined, has caused ongoing difficulties during discussions, suggesting the outrageous idea that the state government builds facilities that are unsafe unless designated "safe". No matter what facilities were built, no passenger boat could legally take passengers out of shelter into high winds and seas, conditions which commonly occur during the wet season. Even in lighter weather, prevailing SE winds and afternoon (NE) seabreezes can reach 25 knots. When the sea is affected by continuing strong winds, a rock wall cannot stop a developed swell from causing difficulty in landing and loading behind its shelter.

Given the remarks by some Mission Beach boat operators, it would seem that some have poor seamanship skills; and that regulations relating to passenger safety are not being carried out. If a boat operator claims to be landing/loading passengers in an unsafe manner it raises serious questions as to their suitability to hold the authority by which they operate a passenger boat.

We note that the project for which the Commonwealth funding was granted included some relatively minor works on the Perry Harvey Jetty, works which are essential to the specified purpose of the project (local, mainly recreational, boating) and that the current project specifically excludes completing these jetty works.

State government personnel have repeated untrue rumours that the jetty is unusable, too short, dangerous and too shallow. We do not accept that the state government is so incompetent that it would waste \$5 millions of public money on a white elephant. We have been informed by CCRC representatives that the court case over the design and construction of the jetty is not about its safety, of which we are told there is no doubt. Nor is the jetty too short: there is no deeper water, as rumoured, within a few metres of the end of the jetty. These are easily verifiable facts, yet the government has failed to carry out its duty to inform the public and has instead accepted those untrue rumours and promoted them as fact.

We have been advised that there is no suggestion that the jetty will be removed or substantially altered as a result of the legal action. This being the case, the fact of the ongoing court case cannot be a real or genuine impediment to completing the works required in the original project.

The government has never published statistics showing the number of days and hours boating is not restricted due to weather conditions at Mission Beach. These are the only days relevant to use of the jetty. These are the only days when it is legally possible (wind) or profitable (rain) for commercial boat operators to load and unload passengers.

We can only conclude that the reason for leaving the jetty uncompleted in terms of its designated use is to ensure that it remains not used, so that local recreational boating enthusiasts will continue to feel deprived of the functions the jetty once performed and continue to desire to have those functions provided, even if at a different location.

27/2/17

MBC
cont

Excluding the jetty means loss of its use for facilities such as car parking ticket offices, fuel, water, toilets and commercial fishing activities. Barges can continue to go to the Huil River boat ramp.

An Information Session (IS) held in May 2016 was the first local community involvement in a new stakeholder input process. At this IS, the Facilitator allowed no discussion or comment of the original project. The new Perry Harvey Jetty was excluded, without rational explanation and without acknowledgement that the jetty was an essential element of the original project. The recorded outcomes of the session excluded CCA statements and views and queries on this topic. The Facilitator allowed comments only developing Clump Point Boat Ramp with the main purpose of creating calm water for vessel storage. MBC and CCA remains opposed to making this dramatic change to the natural environment of the GBRMP, GBRWHA and State Marine park, and to the ongoing environmental impacts of boat storage. MBC and CCA had looked favourably on the original project, that is for minor facilities ie fendering and staged landings at the Perry Harvey Jetty and additional boat ramp at Clump Point. The original project would still provide the 'desired features', an outcome satisfactory to the boat operators of Mission Beach, without causing unacceptable impacts on Clump Point and its well-documented and exceptional aesthetic, cultural and natural values.

Repeated requests to meet with the minister or to have any meaningful dialogue with him have been denied. Even to speak to his office staff it was necessary to appeal to the Premier's Office.

The biodiversity of marine life in particular megafauna is grossly understated in the reports. Local marine biologists and water quality experts have not been included in developing the reports.

MBC views have not been included or considered, nor have we received a satisfactory explanation for abandoning the Perry Harvey Jetty. Our view is that the original project, the project for which the Commonwealth grant was made, had merit. Bearing in mind Mission Beach is not a node for development (2031 Plan), the original project could have provided the desired functionality for the current local recreational and (limited) commercial needs. There is no rational reason not to finish the jetty with buffer pylons and staged landings, upgrade the boat ramp area including current parking proposals and explore designs that might allow an extra landing for commercial operators to use when conditions are not favourable at the jetty.

Clump Point is not an appropriate location for expansive commercial and recreational development. It has very limited capacity for existing infrastructure. The current development proposal will cause unacceptable impacts on the exceptional and unique natural values of the headland. The government must prevent a demand-infrastructure spiral with concomitant loss of natural and cultural values. Natural processes will be inhibited, including loss of the presence of the endangered cassowary.


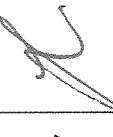
The development in its current form has not evidenced how it would resolve three of the four objectives set out for the project, namely points 2, 3 and 4 below;

- (1) provision of safe boating infrastructure
- (2) facilitation of local economic development
- (3) reduce conflict arising from joint commercial and recreational use
- (4) respect the rich natural environment and cultural heritage of Mission Beach.

With respect to (2): from the outset, it was made clear in the original project that (2) does not mean expansion or new economic development. The purported economic advantages to Mission Beach are only one element. The proposals have not been supported by studies evidencing the economic value to Mission Beach of building a marina, a harbour or a port north of Clump Point. Boat storage was not included in the original project. MBC remains opposed to such construction.






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Section no. and heading	Area for comment	Member org	Rationale	Suggested amendment (if applicable)
1.1 Para3	And has supported tourism in the region since its initial construction in the early 1900's	MBC 	Agreed	
1.1 Para 3	However, the jetty has no wave protection, and safe access to the jetty is significantly restricted during periods of adverse wave conditions	MBC 	Agreed	The jetty has no wave protection. It can be used for the majority of the year during weather conditions when tourists boats are legally allowed to carry passengers. Legal restrictions apply for much of the year due to strong winds. The government has access to relevant data but has not published it.


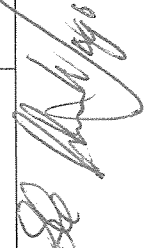
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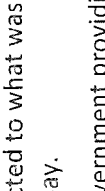
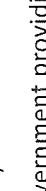
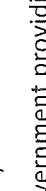
 

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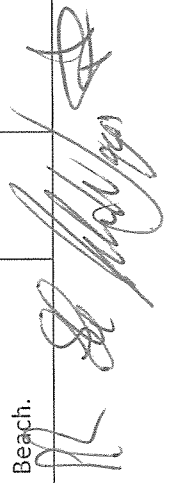
Section no. and heading	Area for comment	Member	Rationale	Suggested amendment (if applicable)
11 para 4	The Clump Point boat ramp has been used for both commercial and recreational boat access since it was constructed as it offers better wave protection during rougher weather. It has become the preferred access point for both recreational and commercial vessels.	MBC 	Agreed	The predominant use of The Clump Point Boat Ramp has been for recreational purposes. When a floating walkway and pontoon were added to the boat ramp in 2008, the Council failed to control larger commercial operations disrupting use at the boat ramp. Congestion and Conflict, not controlled by Council, was exacerbated when the jetty was damaged and genuinely unusable post cyclone Yasi. This failure of basic management resulted in the community demand for improved boating facilities. The CCRC established a policy for use at the boat ramp excluding boats more than xx metres. (CCRC policy)
1.1 para 4	Boats are moored in Boat Bay, protected somewhat by the boat ramp breakwater and Clump Point, but the protection is limited in some weather conditions. 	MBC 	Agreed	This statement is too vague. There should be no provision for moorings other than as permitted under the GBRMPA Arrangements.


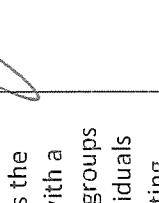

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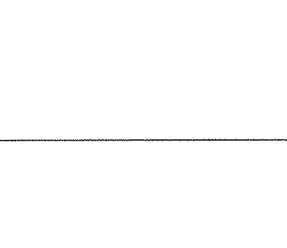



Section no. and heading	Area for comment	Member	Rationale	Suggested amendment (if applicable)
1.1 para 6	<p>Many stakeholders raised concerns about the limited wave protection to the Perry Harvey jetty that would be provided by the suggested overtopping breakwater. They strongly suggested that a better outcome could be achieved if the Project focused on the delivery of infrastructure at Clump Point, including the key aspects of the improvements to boat launching facilities in the previous proposal.</p>	<p>MBC</p> 	<p>WHO is a stakeholder? Never defined.</p>	<p>A rock wall had not previously been proposed for the jetty. MANY local people objected to what was in effect an artificial reef being built in Boat Bay.</p> <p>In the absence of the government providing the facts, SOME interested parties said the jetty was unsafe.</p> <p>A key element of the project was to provide additional functionality at the jetty.</p>
1.1 Para 9	<p>(4) respect the rich natural environment and cultural heritage of Mission Beach.</p> 	<p>MBC</p> 	<p>The 4th objective was changed from "protection" to "respect" without any community input.</p>	<p>(4) respect Protect the rich natural environment and cultural heritage of Mission Beach.</p>

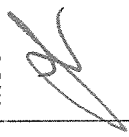
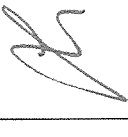
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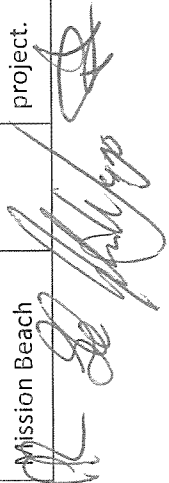
Section no. and heading	Area for comment	Member org	Rationale	Suggested amendment (if applicable)
1.1 para 9	A community information session was held on 18 May 2016 to discuss the Project with a range of groups and individuals representing commercial and recreational boating, community and environmental stakeholders.	MBC 	Unfair This is an inaccurate report of the Information Session. Conservation representatives repeatedly brought to the attention of the IS that the jetty was part of the original project as funded and could not rationally be excluded. A decision to exclude the jetty from consideration was made on a vote of the persons present at that meeting, without explaining by what authority such a group could do so. Conservationist comments were not discussed and were excluded from the minutes.	
1.1 Para 9	"DSD confirmed that, in response to the community feedback,..." 	MBC 	DSD did not respond to conservationist feedback. The Feedback reported was selected to support the DSD proposals.	"DSD confirmed that, in response to input from selected community members, excluding conservation representatives, "the Project would refocus..."




See page 10

22/2/17

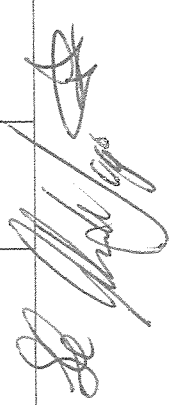
Section no. and heading	Area for comment	Member	Rationale	Suggested amendment (if applicable)
1.2 Land Tenure	Lot 540 on NR7350 – state reserve for 'Scenic and Recreation' purposes, administered by CCRC	MBC 	The scenic and recreational reserve with road access is for the whole of the community's and visitor's enjoyment. The lookout area is not accessible to the general public when it is congested and used for boat ramp users parking	This Reserve will be damaged by the roadworks and parking bays - the amenity (beauty) of the area is significant and remarked upon by locals and visitors.
1.3 1.3.1 Para3	The delegate from the MBC indicated they were representing the Cassowary Coast Alliance part way through the Reference Group process. DSD was provided with details of the membership and governance arrangements for the CCA, which is an alliance of several groups, many of whom are not from Mission Beach	MBC 	Unacceptable targeting of RG member . CCA has been a stakeholder in all negotiations re boating infrastructure since presenting to CCRC in 2011. CCA was invited to the Information Session and subsequent Reference Group. Despite requests at every meeting to amend the minutes accordingly, MBC was noted in the minutes. In acquiescing to the pressure from DSD our first feedback submission was lodged from MBC/CCA which was rejected and made conditional that feedback would only be accepted from MBC. MBC alone does not have the depth and breadth of experience or understanding of coastal development or legislation. For this reason we have been a stakeholder since the beginning of the MBSBI project as a CCA contributor. The only conclusion we reach for DSD continual demand that MBC only participate in this new process is that the Clump Point Boating Infrastructure project is a new development not associated with the MBSBI project.	Part way through the RG process the Facilitator challenged the MBC/CCA representative. The MBC/CCA representative holds the view that, as part of the GBRWHA and as important contributions to its natural (scientific and cultural) values, Boat Bay and Clump Point must be protected from adverse impacts. DSD does not wish to take this view into consideration.

29/2/19

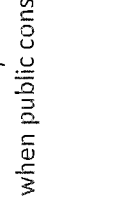
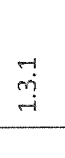


Section no. and heading	Area for comment	Member	Rationale	Suggested amendment (if applicable)
	<p>and represent much broader environmental interests. One of the member organisations are already represented on the Reference Group and did not want CCA to speak on their behalf.</p>		<p>The fate of Boat Bay is not a matter for some vested-interest parties and local business people alone to decide.</p> <p>Boat Bay/Clump Point is an important contributor to the natural (scientific and aesthetic) values of the GBRWHA. All Australians have a legitimate interest in what happens to Boat Bay. The state government has no right to restrict conservationist input or to determine who is a conservationist. If the government thought their proposals would stand up to scrutiny they would not be trying to keep their proposals secret, as has happened repeatedly. Major Queensland conservation groups have already commented on the unacceptable processes being undertaken by DSD for these proposals.</p>	
		MBC cont	<p>UNESCO has just spoken unfavourably about the Queensland Government's failure to carry out its rehabilitative proposals (2050 Plan). The Clump Point proposals will, if carried out, drive another nail into the GBRWHA coffin.</p>	

See above page



27/2/17



Section no. and heading	Area for comment	Member org	Rationale	Suggested amendment (if applicable)
1.3	DSD has indicated they wish to continue to work initially with the local Mission Beach stakeholders while developing the Project. Once the proposed form of the Project has been decided the wider community will have an opportunity to comment on the proposal as part of the Great Barrier Reef Marine Park Authority's (GBRMPA) assessment of the permit application to allow construction to proceed.	MBC	Why is the wider community being excluded from all the state processes? Why will there be no consultation on the proposals with respect to state legislation? Including the Marine Parks Act? DEFINE STAKEHOLDERS?	DSD has indicated they wish to consider input only from the local Mission Beach stakeholders until they submit the Proposal to the GBRMPA for assessment, when public consultation will be mandatory.
1.3.1				
Para 4				


27/2/17

Section no. and heading	Area for comment	Member org	Rationale	Suggested amendment (if applicable)
1.3.1 (par 3 & 4)		C4	Comments focus on one group but could apply to most. Discrimination should be avoided in a public document.	Should simply state that MBC was the RG member. CCA inclusion was considered problematic (no details) as per discussion on 21.02.17
1.3.2	The Djiru People were invited to join the Reference Group but preferred to be consulted separately to provide their advice	C4		Because Djiru not involved in public process, they didn't hear others' viewpoints nor could they contribute to discussion.
Sect.1.3.3.	Remark about Reference Group.	C4		The general public who will use this area are stakeholders. They are being excluded from the process so far. Must indicate when and how public consultation will occur.
1.4	Initial discussions	MBC	MBC does not accept the process. Effective input is denied by excluding the jetty, a predetermined point of discussion MBC was not included in. See opening statement.	
Sect.1.4.1.	Table 1-1.	C4		<p><i>Big Mama</i> is now at Magnetic Island. <i>Island Voyager</i> is not in survey. Water taxi is the Dunk Island ferry. The need for the big 150+ passenger vessels has not been identified, is only "desired" by some. Coast Guard have stated several times that they will not require permanent storage. Draught (m) - Are these depths all surveyed under-keel clearances? Some are suspected of being exaggerated.</p>




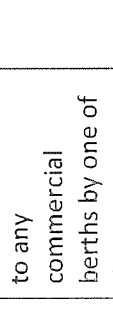


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27/2/17



Section no. and heading	Area for comment	Member org	Rationale	Suggested amendment (if applicable)
Sect.1.4.2.	Marine ecology.	C4		<p>Identification of threatened marine fauna within and adjacent to the Project area was not carried out - a serious oversight. Project appears to have forgotten that marine species are threatened also. Not just charismatic vertebrates such as turtles and whales, but fish and corals are threatened.</p> <p>Then under Terrestrial vegetation survey – threatened species and communities are acknowledged. So the draft acknowledges terrestrial threatened species/communities but ignores marine.</p>
1.6.2	Table 1-2	MBC 	Misreported, coerced.	
1.6.2 (Table 1.2) Also relevant for 2.5.15 & 2.5.18	 Combined numbers of berths and moorings	C4	The suggested number of 11 is not an approved number from GBRMPA. Break-up was generally arbitrary and not based on any solid information.	<p>Too late to change in Advice, but has serious implications in 2.5 Design Elements. When the overall size of the Project is dependent on the number and width of pen-berths, better data should be collected to demonstrate the need for these. If the case can't be justified for their inclusion, a more appropriately-sized project of a 70m breakwater with a 30m gap should be the project which would meet all requirements, but reduce impacts.</p>

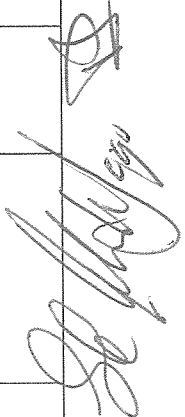


27/2/17

Section no. and heading	Area for comment	Member org	Rationale	Suggested amendment (if applicable)
2.1	The Reference Group advice had generally focussed on the provision of 5 or 6 commercial pens berths but with some opposition to any commercial berths by one of the environmental groups,	MBC 	Neither environmental groups agreed with permanent/commercial pen berths	Environmental concerns not considered
2.1	<input checked="" type="checkbox"/> those commercial operations will have strong and desirable economic benefits to the local economy, both through direct income and through increasing visitors to Mission Beach throughout the year	MBC 	Cannot be achieved due to weather constraints Why are extra activities being introduced when the lack of capacity for expansion of Clump Point is acknowledged. The facilities must be limited to recreational and commercial tourism activities.	Take out Take out
				

27/2/17

Section no. and heading	Area for comment	Member org	Rationale	Suggested amendment (if applicable)
	commercial fishing enterprises will increase opportunities to ensure they are undertaking sustainable practices, and support the local economy through employment and the supply of local fish			
2.1	DSD supports an appropriately sized limited development	MBC 	What is the definition of appropriate?	
	pontoons should be able to be removed or temporarily sunk to protect them during cyclonic conditions.	MBC 	Have these been proven to work? Where is funded plan for CCRC personnel to carry out this task? Who will manage them during cyclone events? Council current stance is that no one will do it, they'll be at home protecting their own properties. CCRC do not have resources for current infrastructure, pontoons are still in the Clump Point coastline from cyclone Yasi.	



29/2/17

Section no. and heading	Area for comment	Member org	Rationale	Suggested amendment (if applicable)
2.1	Project considerations. Second para.	C4		<p>When will a Cost-Benefit Analysis be carried out? CCRC rates will need to absorb costs – will rate-payers have to pay even more, for something of no benefit to many. What public consultation has been carried out?</p> <p>Dot point = “many visitors coming to Mission Beach may want a unique experience visiting the GBRMP directly from tropical rainforest with its own unique values.”</p> <p>How does the Project know that visitors may want a reef trip out from Mission Beach? Most MB visitors want to go to Dunk Island, visit walking tracks through forest, enjoy the beach and most want to see a cassowary above anything else. They go to Cairns for the reef trips, using the large choice of boats and costs available. 150+ passenger boats do not give the boutique experience that IMB provides and what tourists want when they come here.</p> <p>Dot point = “support for a limited number of local commercial fishing enterprises will increase opportunities to ensure they are undertaking sustainable practices” Now that is a fascinating take on increasing the fishing pressure in a National Park. How does increasing fishing ensure sustainability? How will these ‘increased opportunities’ be determined?</p> <p>Last sentence on p.18; sinking pontoon. Who is going to be responsible for this as the cyclone approaches? This needs to be worked out early in the piece because the whole plan depends upon the pontoons staying intact and not trashing the shore and mangroves as they did in TC Yasi.</p>

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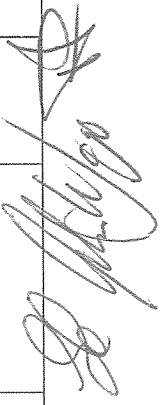

27/2/17

Section no. and heading	Area for comment	Member org	Rationale	Suggested amendment (if applicable)
Sect.2.1		C4	<p>Second last para on p.19, "There is some potential for a 20m gap to dry completely during extreme low tides, so a gap of approximately 25m (crest to crest) will be included and will create a mid-gap lower level of approximately -2m AHD which is 0.2m below LAT."</p>	<p>The GBRMPA structures document (Bugler 1994) states that reclamation (which is what a large rock structure such as this breakwater is) must not cover Mean Low Water - the natural boundary of the Marine Park. But the MLW may be broken or bridged. MLW is mentioned only once, in table 3-1. All the diagrams show the rock wall in contact with the mainland (the existing rock wall). There is no gap between the structure and mainland. This breakwater enters the Park.</p>
Sect.2.2.	<p>Proposed design does not include jetty The whole of the entrance road is shown for passing bays. Needs to show specific bays the design looks like the whole road could be included i e widening.</p>	MBC	<p>The canopy rainforest entrance to Clump Point scenic and recreational reserve leading to the lookout is a revered natural feature of Mission Beach and unique Clump Point.</p> <p>Design needs to be more specific and not allow for ambiguity or misinterpretation. Any widening of the entrance road is unacceptable. Incremental loss of the natural environment has resulted in a severely fragmented landscape at Mission Beach compromising the World Heritage values and placing the cassowary under even more threat than ever before.</p> <p>There has already been recent clearing of high value rainforest for a boat trailer car park.</p>	
2.3	<p>Proposed project is the maximum outcome of discussions during the process.</p>	MBC	<p>Environmental group inputs have not been considered in regard to scale.</p> <p>Why is the smaller option not being considered or presented when a much shorter rock wall is shown in the modelling as the lowest impact still providing shelter for safe loading and landing of passengers?</p>	



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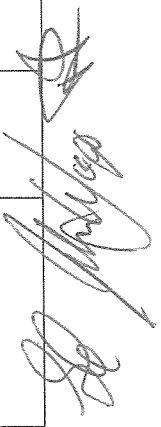
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27/2/17

Section no. and heading	Area for comment	Member org	Rationale	Suggested amendment (if applicable)
Figure 2-2	Upgraded boat launching facility.	MBC 	<p>The Reference Group agreed Barge activities were not essential.</p> <p>Upgrading the boat ramp to cater for barge activities would result in:</p> <ul style="list-style-type: none"> ◦ disruption or halting of all recreational activities other than loading or unloading of barge. ◦ Mission Beach being used as a port for island developers' convenience including transfer of waste, fuel, gas etc creating safety issues, increasing the financial burden of management, maintenance and demand for additional features at a location that has no capacity for expansion. ◦ introducing industrial use, will increase conflict and congestion, be incompatible with commercial and recreational activities Cannot achieve objective (3) of the project i.e. <i>reduce conflict arising from joint commercial and recreational use</i> <p>Increase heavy vehicle traffic through the already congested access road to the ramp, through the Mission Beach village and through cassowary habitat on all access roads. Cassowary road death is the biggest threat to the endangered cassowary after habitat loss.</p>	
				

27/2/17

Section no. and heading	Area for comment	Member	Rationale	Suggested amendment (if applicable)
Figure 2-2	Upgraded lower carpark.	MBC 	The lower carpark has already resulted in destruction of high value critically endangered rainforest/essential cassowary habitat. A rehabilitation plan for Clump Point must be included as part of the project. A vegetation screen of species endemic to the location to be used where the traffic island at the southern carpark is currently shown on plan.	
Figure 2-2	Upgraded boat launching facility.	MBC 	Upgrading boat launching facility to three lanes and floating walkways is supported	Still cannot see any gap - the breakwater is attached to the land. Any reclamation must not cover MLW. MLW is not mentioned anywhere in the text of this document (other than table 3-1). Why are distinct real gaps shown in the modelling report (e.g. p.16) but not in the drawings in the draft plan? Would help our understanding if drawings were congruent. As drawn in this Plan, the structure extends out from the mainland into the GBRMP. So glad to find out that the small blip on the west is an artefact and not an overwater toilet. The large protrusion into the east for parking is new. It destroys the recovering mangroves and littoral forest in this area. I do not recall this being discussed or agreed to.
RL	Proposed concept.	C4		Pullover lanes now intrude into the forest. Precisely what you were asked not to do. Diagram or description needs to be more specific.

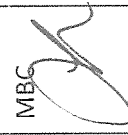


27/2/17

Section no. and heading	Area for comment	Member org	Rationale
Fig. 2-3.	Proposed design. Detached breakwater	C4	<p>it would help if a sentence or two could be added to explain why the breakwater has to be so long? 140 m long breakwater was not modelled according to the appendix. 70 m, 120 m and 200 m long breakwaters were modelled, with different gap widths. Where is the rationale for 140m? Does it include the length of the return? The number and width of pen-berths seems a major determinant.</p> <p>The 70 m breakwater situation (Fig. 4-23) is not dissimilar to the 200 m breakwater (Fig. 4-17). Why not use a 70 m breakwater, save heaps of dollars and reduce the aesthetic, environmental and social impact this development will have?</p> <p>Second last para on p.23 (construction cost). Please give an indication of what the initial cost might be. Also what will be the procedure in the event of a major storm or cyclone (bearing in mind that cyclones do not always occur during "cyclone season")?</p> <p>Last sentence. Must acknowledge the road damage and damage to tourism that will occur if trucks have to go through town.</p> <p>This was not discussed and therefore not agreed to. It destroys recovering mangrove forest.</p>
Sect.2.4.	Upgraded lower carpark.	C4	<p>"it is proposed to expand the lower carpark east as indicated in figure 2-2".</p>
AR	Upgraded boat launching facility.	C4	<p>Note that barge loading is not roll on/roll off, load has to be loaded onto trucks. Trucks not welcome at a boat ramp.</p> <p>The third (westward) ramp needs only to cater for trailer and boat loads to 8t. Making it barge-suitable means that it will become used more frequently irrespective of initial intentions. Barge operations will severely impact on recreational boats at best and more likely even tourist operators as the loading/unloading area has serious safety issues, especially if fuel or gas containers are being handled. Industrial operations are not appropriate for this area.</p>



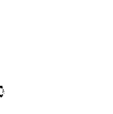


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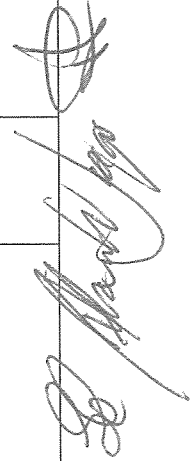
Section no. and heading	Area for comment	Member org	Rationale	Suggested amendment (if applicable)
Sect.2.4.	DDA berthing pontoon. Reticulated water.	C4		Has this sinking pontoon system actually been successfully used elsewhere? Plus need to state what organisation is responsible for doing this and retrieving it later.
	DDA berthing pontoon. Reticulated water. An independent estimate comparing barge and truck-based breakwater construction methods indicates that barge-based construction will be about 163% of equivalent truck-based construction methods	C4		If the pontoon cannot take seawater then what good is it? Aluminium boats can take seawater so why not the insides of a pontoon? Proper maintenance should minimise problems - it is going to be sunk maybe once or twice in its useful life. I notice that the draft plan does not refer to Kapitze et al 2002 which has very useful information about (large) pontoons, cyclones etc.
		MBC 	How is this being costed. The reference group agreed on best practice in regard to rock transport even if it costs more. The cost to the community and tourism amenity,(disruption) the environment and the roads need to be considered in the decision. Heavy vehicles will need to travel through cassowary habitat. Road kill is the number one threat to the endangered cassowary.	More estimates need to be carried out and more funds allocated for best practice .






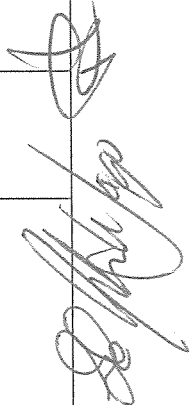
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Section no. and heading	Area for comment	Member org	Rationale	Suggested amendment (if applicable)
Sect 2.4	Subject to funding, the additional boat ramp lane is proposed to be 6m wide and designed as a heavy-duty ramp. This will allow infrequent small/medium barge access and larger commercial vessel launching.	MBC 	The majority of the RG agreed provision for barge access was not desirable. Increased activities, demand and congestion of Clump Point. Inappropriate industrial use of a recreational and tourism facility. Clump Point should not be seen as a place of expansion, for a marina or a port to cater for island developers wants.	Remove barge access as option.
	The jetty structure is, at a minimum, to provide pedestrian and goods trolley access 	MBC 	Any infrastructure upgrade should be approached as minimal impact. Trolley access only, not vehicles.	Take out Subject to funding, the jetty will be designed to provide vehicle access.





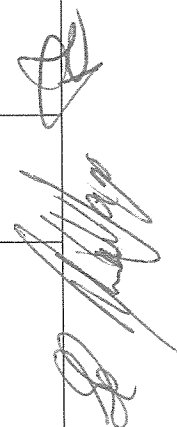
27/2/17

Section no. and heading	Area for comment	Member org	Rationale	Suggested amendment (if applicable)
Sect 2.5 - Rating of proposed elements	Item 1- Breakwater	MBBA	NOTE: From the time the Perry Harvey Jetty was being promoted, attention was drawn to the lack of protection from Northerly winds for any structure that was proposed for the PH Jetty. Since it could not provide protection the PH jetty solution was rejected. The Clump Point infrastructure can protect vessels from adverse conditions in the sectors South through East to North. This was a positive in favour of developing Clump Point. The breakwater not only needs to protect vessels and infrastructure along the breakwater but also needs to protect any moored vessels. Without this protection the danger of vessels being blown onto the Narragon Beach rocks will still exist.	To achieve protection against Northerly weather it may be desirable to review the final design configuration of the breakwater and its return. Refer to the "Exmouth Harbour" arrangements for vessel berthing. This harbour was built for approximately \$4 million by a contractor who barged everything from Townsville around the top of Australia. Some boats are in Pens. Captain Danny Dade, a local sea captain, marine and engineering consultant was employed in that operation and in the construction of the harbour and could provide first hand info on this design.
Sect 2.5 - Rating of proposed elements	Item 1- Breakwater	CCSBA	Provision of staging area for access to the boat ramp lanes in busy times will ensure much safer access for all users	
Sect 2.5 - Rating of proposed elements	Item 1- Breakwater	MBC 	Length is being determined by the number of calm water berths it can provide. This was not part of any proposal MBC/CCA had opportunity to have input to. Predetermined before RG meeting	Include options of different lengths considering what function the jetty can provide.



27/2/17

Section no. and heading	Area for comment	Member org	Rationale	Suggested amendment (if applicable)
Sect 2.5 - Rating of proposed elements	Item 2 - Access Jetty	MBC 	Perry Harvey Jetty to be included in considerations for providing upgrade to marine facilities within the Boating reserve	Essential
		MBC 	Upgrade of boat ramp to incorporate extra boat lane and landing pontoon to provide for landing for commercial and recreational use when conditions unfavourable at the jetty	Essential
		MBCA	The preliminary design calculations indicating a structure of 140m in length are supported. Our request is that any refinement of design does not reduce that length and will allow for the accommodation of preferably 6 pen moorings and two 30m pontoons as offered. There is some concern that the proposed pen moorings may be under-protected as a result of bringing the breakwater round to a more northerly direction. It is acknowledged that this altered direction does increase access to deeper water which is strongly supported. If further testing indicates that an increase in the area of protected waters is desirable, could an extended breakwater return be considered if it justifies the additional cost?	
		MBBA	Access to vessels from a ladder.	Ladders can only be climbed by agile people using two hands. Provisioning, loading tools and gear, passengers, and operators is not possible from a ladder. Fresh water wash down and filling water tanks at the end of day is difficult. Consider a modified means of access to vessels in pens.


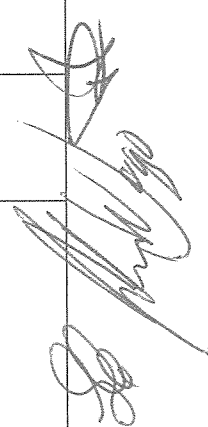



27/2/17

Section no. and heading	Area for comment	Member org	Rationale	Suggested amendment (if applicable)
2.5 Rating of proposed elements	Item 2 – Access Jetty	MBCA	<p>We support DSD's option of designing the jetty to provide access for service vehicles, thus it should be 5m in width.</p> <p>Fixed fuelling infrastructure has been rejected by DSD and some RG members, so vehicle access to the pontoon/s appears to be best way to ensure that fuelling can be done safely, minimising the risk of accidental spillage.</p> <p>While having a full length, 5m wide jetty would have its advantages, it is recognised that DSD must work within the confines of a fixed budget. A viable option would be to provide vehicular access to the first, or southern pontoon only and the balance of the jetty can be reduced to 3m to allow pedestrian and trolley access. There would be sufficient depth at almost any tide for the deepest draft vessels considered in this design, to be able to refuel at the first or nearest pontoon.</p> <p>Depending on the jetty design adopted it is recognised that the kink in the jetty will be rationalised.</p>	
2.5 Rating of proposed elements	Item 3 – DDA – Access sinkable pontoon	MBCA	<p>Minimise size of access jetty to cater for smallest scale as shown in modelling</p> <p>Pontoon 30 m x 5 m providing 2 alongside berthing faces.</p> <p>Sinkable pontoon appropriate to scale of rock wall extension. Must be proven to work and resources to manage unlike floating pontoons that still litter the Clump Point shoreline.</p>	<p>No change to pontoon. Bay allowance on pen side would be more versatile if it were increased slightly to 13 meters.</p> <p>The pontoon could accommodate a second 24 meter catamaran tourist ferry 24 m x 11 m with 2 m wide side space.</p>

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27/2/17

Section no. and heading	Area for comment	Member	Rationale	Suggested amendment (if applicable)
2.5 Rating of proposed elements	item 4 - Existing breakwater return	MBBA	Removal of rock return structure is desirable and will reduce the siltation, and is considered adequate to avoid removing the bommies that lie west of the current channel	There will be high levels of vessel movements in very close proximity to the access channel and these bommies are in line with the third launching ramp. It is considered highly desirable that while heavy machinery is on site, the bommies that cause the danger be removed.
		CCSBA	Happy with decision to remove the head of the current breakwater – will provide safer movement for recreational boats	
		MBC 	Remove the existing breakwater return, raise breakwater height. No vehicle access. Removal of the return will provide a wider boat ramp access clear of navigational hazards and intended to avoid having to remove existing high conservation value bommies that currently impact on navigation.	
		MBCA	This upgrade proposal is strongly supported. It is recognized that our original preference to have some of the bommies relocated may prove impractical, especially in regard to cost.	
		C4 	Agree that removal of breakwater return facilitates safer navigation for ramp users and avoids the need to remove the bommies. Also reduces sediment build-up around ramps.	



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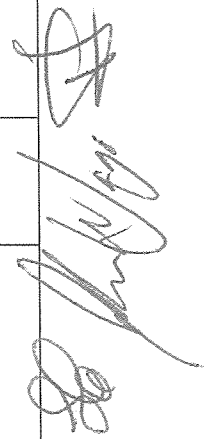
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Section no. and heading	Area for comment	Member org	Rationale	Suggested amendment (if applicable)
2.5 Rating of proposed elements	Item 5 - Lower (northern) carpark raising 0.5m	MBCA	Supported. The number of carparking spaces at the upper or southern carpark should be maximised, utilising all the available space within the road reserve.	
2.5 Rating of proposed elements	Item 6 – Lower (northern) carpark expansion	C4	Agree that turning-circles are necessary, but this eastward extension needs to be kept as small as possible to reduce clearing of mangroves. Prior to extension, some basalt boulders should be collected from here for use in later landscaping.	Item 6 is not essential; intrudes onto recovering vegetation.
		C4		
		MBC	The upgrade to the boating facilities at Clump Point will follow the already three incremental stages that has resulted in the destruction of a live fringing reef and created siltation. The scale and purpose of this fourth stage is unacceptable. Any increase in parking should be kept to a minimum to cater for recreational use only and should not require the removal of any more vegetation on Clump Point. There has already been unacceptable destruction of high value critically endangered rainforest/ essential cassowary habitat to provide for the southern carpark.	
		MBCA	Supported. The number of carparking spaces at the upper or southern carpark should be maximised, utilising all the available space within the road reserve.	

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27/2/17

Section no. and heading	Area for comment	Member org	Rationale	Suggested amendment (if applicable)
2.5 Rating of proposed elements	Item 7 – Boat ramp upgrade	CCSBA	Happy that all boat ramp lanes will be accessible from floating walkways which will provide much safer arrangements for boat launching and recovery	
2.5 Rating of proposed elements	Item 7 – Boat ramp upgrade	MBCA	Supported. The needs of all potential users appear to be completely satisfied.	
	Barge Access	MBC 	Specifically no barge activities to be considered. This is not a port or convenience for island developers. It seems there is every intention to maximise features in this large scale development. All consultation was for an upgrade to existing facilities including the jetty.	Upgrade to third boat ramp to cater to legal trailer able vessels.
		CCSBA	Barge ramp should be considered as a safe access point for a barge.	






27/2/17

Section no. and heading	Area for comment	Member org	Rationale	Suggested amendment (if applicable)
2.5 Rating of proposed elements	Item 8 – Southern Carpark	MBBA	There is a large area provided to accommodate 22 trailer/car parking bays.	A slight increase in width of the circulation space may be negotiable then the carpark could accommodate double the number of trailer/car parking bays up to a total of 44 with the additional row along the nature strip.
		CCSBA	Happy that the car parking needs for recreational boats have been addressed within the constraints of the site. Happy with widening of the carpark area and provision of turnaround area for safety of ramp access.	
		MBC	Would like to explore all available options for permeable carpark surfaces to reduce need for drainage.	
		MBCA	Supported. The number of carparking spaces at the upper or southern carpark should be maximised, utilising all the available space within the road reserve.	
2.5 Rating of proposed elements	Item 9 – Composting toilet	CCSBA	Would like a sewerer toilet not a composting toilet	Would prefer a sewerer toilet to make the area more attractive for tourist operators. Understand the decision for a composting toilet.
		MBC	Composting toilet is appropriate to needs	
		MBCA	Seems to be the most affordable option.	



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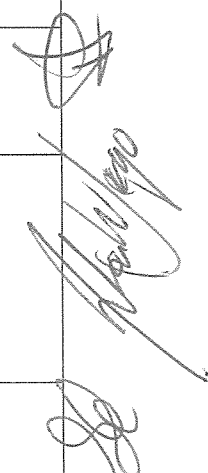
23/2/17

Section no. and heading	Area for comment	Member org	Rationale	Suggested amendment (if applicable)
2.5 Rating of proposed elements	Item 11 – Solar carpark, jetty and pontoon lighting	MBC 	Solar power is appropriate to location, needs and is sustainable.	
		MBBA	Navigation lighting as required by Regional Harbour Master.	Power to the pontoons and jetty is highly desirable but low priority. Solar generation and battery storage for lighting is an acceptable compromise initially.
2.5 Rating of proposed elements	Item 12 – Access road improvements	MBCA	Main Roads have indicated their respect for the existing canopied access road and their design is in accordance with the discussions conducted by RG members and others during their organised walk-around at Clump Point.	
		MBC 	No formalising of pull over bays. Informal only. The canopy drive is a crucial part of the scenic and recreational reserve access to the lookout and should be formally protected under local bylaw ie no future widening or expansion.	Item 12. "Maintaining remnant rainforest". The diagrams show parking entering forest and mangroves; hardly maintaining habitat.
		C4		



27/2/19

Section no. and heading	Area for comment	Member org	Rationale	Suggested amendment (if applicable)
2.5 Rating of proposed elements	Item 13 – Reticulated water	MBBA	Reticulated town water supply for all commercial vessels for wash down/cleaning, filling tanks and firefighting, for pontoon sinking system and as a convenience for recreational vessels.	Elevate the priority of water supply to the pontoons and the pens to "ESSENTIAL". Mains water would also be connected to the Toilet block
		MBBA	Commercial vessels need town water reticulated to their berths.	No change necessary rating is ESSENTIAL as stated. This would service fire hydrants for Fire Brigade and small bore hose reels at all berths.
		MBCA	Commercial operators have often remarked that the most important issue to them is having convenient and safe access to mains water and fuel, under all sea conditions. Supplying water is not expensive.	Essential
		MBC 	There is adequate access to reticulated water at various locations along our foreshore nature areas including for specific marine activities at the jetty. Any development at Clump Point must be to provide for essential current recreational needs not to encourage further expansion or demands. Clump Point is special because of its wilderness amenity. Providing regular services will detract from the experience visitors are currently attracted to.	Fresh water is not essential including for sinking pontoons.
		C4 		Item 13. Reticulated water. No it is Not required for the sinking pontoon. If it is not built to marine standards it is not worth spending money on. The sea is full of water. I failed to find any reference to a "sinking pontoon" being successfully used anywhere. MB does not need an experiment to be carried out on it. Convenience is not highly desirable.



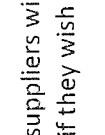
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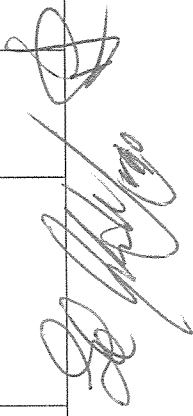
Section no. and heading	Area for comment	Member org	Rationale	Suggested amendment (if applicable)
2.5 Rating of proposed	item 14 – Facility design allows for fuelling	MBBA	Detailed design is to consider fuelling via a fuel truck/vehicle to stop at the breakwater head and refuel vessels via its own pipe system under its own approvals.(no fixed infrastructure).	<p>RATING – ESSENTIAL</p> <p>At the Detailed Design Stage we understand that a suitable system will be determined to fuel large Catamaran and Tourist boats at the pontoons. Tourist boats cannot establish their business here without safe fuelling.</p>
		MBBA	<p>NOTE: Fuelling facilities are high priority so that environmental damage can be avoided.</p> <p>Leaving this process to be decided by each commercial operator independent of all others will not result in a safe efficient system.</p>	<p>It is desirable for the design to stipulate a system that meets all the various operators needs and satisfies all pertaining regulations and all interested Authorities. Commercial operators must be brought together and with expert advice present, work out an efficient system that will serve every ones needs. This is necessary to avoid Rafferty's rules prevailing.</p> <p>Large vessels need to have direct access to a small tanker daily to take on 1000 litres. Alternatively weekly to take on 7000/8000 litres.</p> <p>Sailing vessels carry only 300 to 500 litres and refuel every second or third day depending on weather.</p> <p>Small powered catamarans use 300 to 400 litres per day and some have tanks up to 1500 litres.</p> <p>Small vessels could refuel from a fuelling pontoon as is done in every Marina along the coast. All fuelling services should be leased to one contractor.</p>
		MBCA	<p>Commercial operators often remark that the two most important items to them are easy access to water and fuel</p> <p>There is doubt about the safety of having long hoses connecting a fuel delivery vehicle to a vessel. Refer to No 2 and No 17, Access jetty, for a better alternative.</p>	

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Section no. and heading	Area for comment	Member org	Rationale	Suggested amendment (if applicable)
2.5 Rating of proposed	Item 14 – Facility design allows for fuelling	MBC 	MBC is strongly opposed to any refuelling at Clump Point. Any spills would be contained within the calm water and spread into the bay. Refuelling at the boat ramp would increase heavy traffic onto Clump Point. Controlled provision of fuel is available at the Perry Harvey jetty. Further area for bunding will be required.	include; Refuelling arrangements authorised by CCRIC and GBRMPA are available at the jetty Take out:commercial fuel suppliers will be responsible for gaining the required permits if they wish to refuel vessels at the new facility.
RL		C4	Refuelling is fraught with danger and will restrict users. Prefer no refuelling at Clump Point	There are design restrictions and C4 intends to make further comment at a later stage



27/2/17

Section no. and heading	Area for comment	Member	Rationale	Suggested amendment (if applicable)
2.5 Rating of proposed elements	Item 15 – Pen Berths	MBDA	<p>Ladder access is considered.</p> <p>Configuration is for 1 large catamaran berth for a vessel up to 11 m beam, 1 vessel up to 8 m beam, and 3 vessels up to 6 m beam.</p>	<p>As access for goods, provisions, tools, water and passengers occurs daily this method of access needs modifying.</p> <p>Passengers could not be expected to access the vessel by ladder.</p> <p>There would be a gap between the face of the jetty on which the ladders is mounted and the bow of the vessel (two for Catamarans widely spaced). It is difficult to perceive how this exercise could be performed.</p> <p>Spacing of pens needs to be checked to accommodate the vessels most likely to be using these facilities.</p> <p>As vessels are prone to wind, their precision to track at slow speed, is compromised. Drift has to be allowed for, to avoid damage to adjacent vessels.</p> <p>Spacing of Pens.</p> <ol style="list-style-type: none"> 1. The smallest charter catamaran is 40 feet (12 m) long by 23 feet (7m) wide. 2. The preferred charter catamarans now are 45/47 feet (14/15 m) long, by 25/27 feet (8.5 m) wide. <p>To enter a pen there needs to be an access lane at least 2 meters wider than these vessels.</p> <p>When vessels are moored to pontoons there is very little sideways movement, but when the vessels are tethered with fore and aft mooring lines, there is considerable sideways movement.</p> <p>Allow 2 meters between vessels.</p>

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27/2/17

Section no. and heading	Area for comment	Member org	Rationale	Suggested amendment (if applicable)
2.5 Rating of proposed elements	Item 15 – Pen Berths	CCSBA	<p>Pen berths – number is adequate. Combination of pen berths and commercial buoy moorings cover current operators and allows for competition and growth of a suitable size for Mission Beach. No more are needed.</p> <p>Happy with use of pen berths over finger berths – they are safe and supporting advice was given from potential users</p>	
		MBC	<p>Permanent Pen berths or any other structure to provide for permanent/long term berthing is unacceptable.</p> <p>if there was provision of a landing to cater for passenger embarkation and disembarkation it could also provide for limited overnight stay for commercial and recreational users. There has been no opportunity in the current process to have input to influence the design to provide for the needs of current marine demand based on what features could be provided by the Perry Harvey Jetty. Permanent berths were not part of the original project scope and MBC were not included in discussions that led to the new development that excluded completely the Perry Harvey Jetty. In this regard MBC does not accept this current process as being a valid public consultation.</p>	

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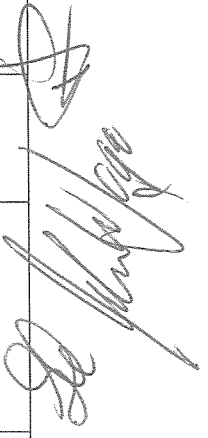
Section no. and heading	Area for comment	Member org	Rationale	Suggested amendment (if applicable)
2.5 Rating of proposed elements	Item 15 – Pen Berths	MBCA	<p>Despite opposition from the conservation groups who are opposed to providing any safe, permanent moorings for commercial operators at Clump Point, without it Mission Beach will not be able to establish a viable marine tourism industry.</p> <p>Potential operators will not be prepared to endure what others have had to put up with in the past. If their vessel is not safely secured at rest, and is not completely safe from an unexpected blow, and if they can't sleep at night if the wind gets up, then new operators will not be attracted to Mission Beach.</p> <p>It has never been satisfactorily explained at our meetings why anyone would not consider it fair and reasonable that a limited number of commercial operators should be provided with protected moorings.</p>	

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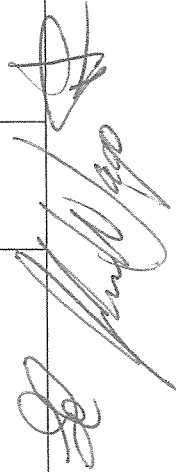
Section no. and heading	Area for comment	Member org	Rationale	Suggested amendment (if applicable)
2.5 Rating of proposed elements	Item 16 - Second sinkable pontoon	MBDA	A second sinkable pontoon 30 m x 5 m providing 2 berthing faces, will facilitate separation between users	<p>This pontoon is highly desirable as it is the only location to service all vessels needs including fuelling. How will all these functions be achieved for many boats?</p> <p>The Coast Guard vessel needs a berth during daytime on weekends and holidays and is garaged at night.</p> <p>Concern is raised as to how evacuation of vessels will be achieved to enable pontoons to be sunk.</p>
		MBS 	Only one pontoon should be considered and included if proven needed when jetty is unable to be accessed.	
		MBCA	<p>Both pontoons should be considered essential and slated for inclusion in the initial construction stage. They are both important in allowing the provision of safe fuelling and they provide the opportunity to separate most commercial and recreational operations. Two pontoons also provide flexibility in regard to accommodating the Coast Guard from time to time and being able to ensure space is available to passing vessels to berth for provisioning purposes.</p> <p>To have an immediate impact on the Cassowary Coast economy, one of the primary objectives of the MBSBI project, Clump Point infrastructure needs to be as complete as possible by its opening date. Having a partially completed project reduces the "bang" and it may not provide the confidence needed for new marine tourism operators to begin a new venture.</p>	<p>Elevate the provision of both 30m pontoons to the Essential rating</p>



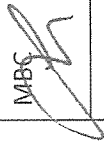
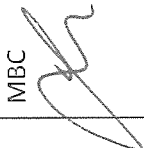
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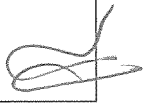
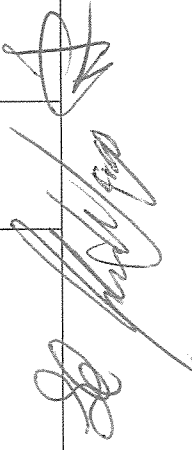
Section no. and heading	Area for comment	Member	Rationale	Suggested amendment (if applicable)
2.5 Rating of proposed elements	Item 17 – Access jetty – vehicle access	MBDA	Design the jetty for vehicle access.	<p>RATING - ESSENTIAL</p> <p>For emergencies, ambulance vehicle access is needed to the northern pontoon.</p> <p>This will facilitate other functions such as maintenance, fuelling and provisioning.</p> <p>Jetty angle presents a difficulty for vehicles reversing so the angle needs to soften to a curve.</p>
		MBBA	Design the jetty for vehicle access	Refer section 2.6, Item - 2
		MBC 	No vehicle access. Pontoon for needs and not multi purposed to provide marina or port services.	
		C4		Vehicle access to jetty is Desirable, not Highly Desirable.
		MBCA	<p>We support DSD's option of designing the jetty to provide service vehicle access. Fixed fuelling infrastructure has been rejected so vehicle access to pontoon/s appears to be the only way to ensure that fuelling can be done safely, minimising the risk of accidental spillage.</p> <p>The kink in the jetty should be straightened as much as possible to allow safe reversing of vehicles</p>	<p>Elevate "vehicle access" to Essential rating</p>

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27/2/19

Section no. and heading	Area for comment	Member org	Rationale	Suggested amendment (if applicable)
2.5 Rating of proposed elements	Item 18 – Screw moorings behind breakwater	MBBA	Seagrass friendly screw moorings in accordance with Harbour Master's advice, likely 5 or 6 moorings.	Circles of 50 meters for the larger vessels and 30 meters smaller vessel. It is not obvious where this real estate can be allocated that is protected by the breakwater and is in sufficient depth of water and does not encroaching on the marshalling area of the recreational boats. Local and visiting vessels will drop anchor in the lee of the breakwater. There is no restriction on private vessels anchoring as they choose to shelter from moderately adverse weather. This needs consideration. Moorings/ safe anchorages are essential so Mission Beach can attract travelling yachts to stop and spend money in the local businesses.
		MBC 	GBRMIPA moorings need to be formally established to regulations	
2.5 Rating of proposed elements	Item 19 – Mains power	C4	Support screw mooring however there should also be designated no anchoring areas to protect corals and sea grasses	
		MBCA	MBCA will support the most appropriate mooring system designed to accommodate at least 5 or 6 vessels. Allowance needs to be made for dinghy storage.	
		MBCA	It is accepted that solar power is probably the best option.	
		MBC 	Mains power is not desirable. The limited capacity of unique Clump Point means any development needs to be kept low key so as not to encourage further expansion or demands for convenience.	Mains power is not essential and will not be considered in this development or in the future.

29/2/17


Section no. and heading	Area for comment	Member org	Rationale	Suggested amendment (if applicable)
2.5 Rating of proposed elements	Item 21 - Formalisation of a wash-down area at existing toilet site outside Clump Point on Porter Promenade	MBCA	An off-site wash-down area is preferred	

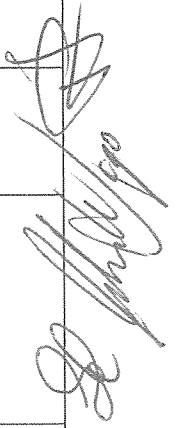
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Section no. and heading	Area for comment	Member org	Rationale	Suggested amendment (if applicable)
2.6 Operational Management Plan	Item 2. In Table 2-2 : Management of Marine Infrastructure	MBDA		<p>The following issues should be considered to be important for discussion before design is finalized:</p> <ol style="list-style-type: none"> 1. It is desirable to have restricted access to protect Commercial vessels. Some form of security surveillance of jetty and pontoons would be desirable. 2. Method and Criteria for determining the most suitable commercial operators that are to be accommodated in the development. 3. Fuelling method must be such that all vessels use the same system to avoid Rafferty's rules prevailing 4. Safe access from jetty for all commercial vessels. 5. Dinghy storage/ access for any vessels that are on moorings and at anchor.
		MBC	<p>CCRC do not have the resources to maintain or manage current marine infrastructure i.e Perry Harvey Jetty. Cassowary Coast residents would be very concerned if a large marine facility that benefited a few became an extra cost burden through rate rises.</p>	
		C4	<p>Council management arrangements are essential to the whole project, but are not yet determined.</p>	<p>As soon as possible, these plans should be made available as they need to be considered in conjunction with the design to assess the likelihood of effectiveness (success) of the project and its ongoing costs.</p> <p>For example, the suggestion that CCRC would provide unmetered water to all commercial and recreational users of the facility would outrage most rate-payers, who would then lobby for NO reticulated water or meters for each commercial user.</p> <p>If this situation exists in other parts of the region, rate-payers would be very interested, especially when compared to some CCRC facilities where it is difficult to wash your hands, much less your boat.</p>





27/2/17

Section no. and heading	Area for comment	Member org	Rationale	Suggested amendment (if applicable)
2.6 Operational Management Plan	item 6 –Use of pontoon berthing facility And section 2.5.13	C4 MBC	There may be a need for a pontoon for berthing when variable weather change conditions at the Perry Harvey Jetty and are less favourable for loading and unloading passengers. Such a facility could be of an advantage to reduce conflict during peak recreational boating needs.	Table 2-2. Item 6. Only one short-term berth for recreational users. The emphasis for berths seems to have shifted to support commercial users.

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Section no. and heading	Area for comment	Member	Rationale	Suggested amendment (if applicable)
2.6 Operational Management Plan	Item 4 – Lease arrangements for pens, berths and moorings Vessels on Moorings	MBDA	Lease bidding process to be defined based on contribution to Mission Beach economy.	<p>What is the method and criteria for determining contribution to the local economy? This is a process that is not precise and therefore prone to corruption.</p> <p>Contribution from the Large vessels is easily demonstrated. Most of the other commercial operators have small boats carrying between 6 and 10 passengers. Commercial Operators need long term leases without which no charter business could exist and no reliable service would be available for tourists. These facilities are being built to services both recreational as well as the commercial vessels and therefore arrangements need to be set out from the start.</p> <p>Lease cost must be in line with other commercial facilities along the Queensland coast.</p>
		MBC	<p>A nightmare for management. Again a burden on ratepayers. The whole demand for an upgrade of facilities was a result of larger commercial tourism operator dominating the recreational boat ramp pontoon and usage not enforced. The reason the jetty was so poorly maintained was the failure of local government to collect jetty fees. No business can guarantee an outcome if not already established. Current claims by existing business owners that the jetty is too short, too shallow too dangerous and unable to refuel at, have all been refuted by the local council engineer and TMR.</p> <p>It is important to note a very successful reef tourism industry operated from the previous jetty and that the current jetty is usable for the majority of the time and we do not have the studies to show alternative need. Weather conditions at the jetty are favourable for most of the time.</p>	

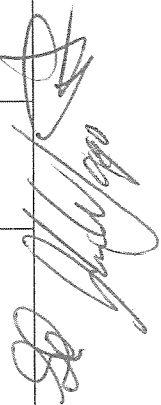
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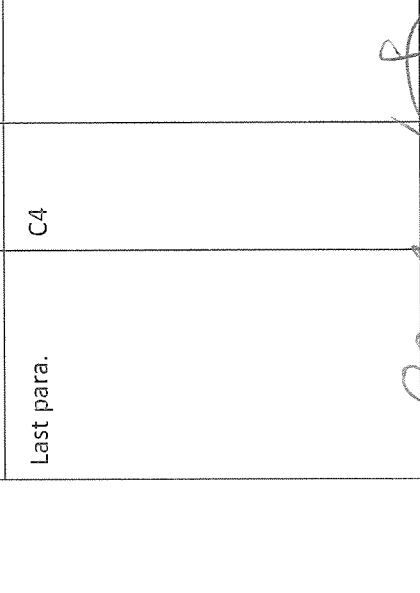
Section no. and heading	Area for comment	Member Org	Rationale	Suggested amendment (if applicable)
		MBDA	Requires a dinghy to land at the facility	What accommodation is being considered to facilitate access for vessels on screw moorings and at anchor to get to the land and security for dinghies?
	Protected species	MBBA	Weed management will be undertaken during construction.	In this fragile headland, use of herbicide for weed control should be avoided. Contaminated soil is very difficult and extremely expensive to rehabilitate.
Page 58	Coastal environment.	C4		<p>P.36. "the siltation predicted behind the structure was very low for all options investigated". Fig. 3-2 disagrees with these statements. Shows an increase from 26 m3/yr to 58-173 m3/yr. Table 3-2 shows a fair difference in siltation, not reflected in the text. Additionally - need to add statement about the actual sediment deposition over the whole bay - 1cm/yr or whatever it was, as mentioned by TMR in our 21 Feb morning meeting. The m3/yr numbers look alarming; please reassure the reader that seagrass will not be smothered.</p> <p>Fig. 3-2. Modelled wave conditions. These figure legends and labels need improving. What do they all actually mean? We assume that Developed - Base mean the difference between the Base and Developed (D minus B)? Please help the reader understand what is going on. And what is the gap width in these figures?</p> <p>Fig. 3-3. Siltation trends. These illustrations show a wide gap. Is the modelling done using above-water-level only? In which case modelling is severely flawed. Will the slope of the breakwater sides change with each length of breakwater - 70 vs 200 m? Has this been taken into account?</p> <p>Clarify please in legends and text so that the reader does not have to wade through technical appendices.</p> <p>That said, the large "minus siltation" is very encouraging (and unexpected!). We hope that additional modelling will improve and confirm this effect. It will help clear the bay of the mud that settled after the building of the original rock wall in 1999. Very good for corals and fish etc as well as mangroves.</p>

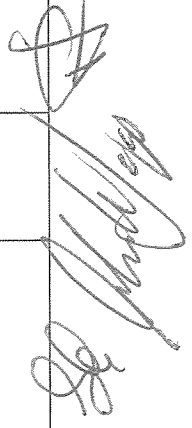
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Section no. and heading	Area for comment	Member	Rationale	Suggested amendment (if applicable)
Sect.3.1.	Table 3-2.	C4		Please add a column indicating depths that are estimated to be covered per year (or whatever is possible). Will help allay fears of smothering seagrass and corals
Section 3.1, Table 3-2	3 rd paragraph	C4	Top of page 39: "There is limited site-specific water and sediment quality data".	Then why on Earth did you not gather some!? Especially as Aurecon's samples were contaminated or damaged! This is not acceptable in such a project.
Section 3.2	limited site-specific water and sediment quality data	MBC 	Studies incomplete. Sediment being trapped in the bay is a major concern exacerbated by the existing rock wall which required destruction of live fringing coral reef and subsequent smothering of the western section within the bay through siltation.	
	Second para.	C4		There is NO saltmarsh anywhere in the project area. Delete.
Section 3.3.1		C4		There are two other species in the bay as well RIGHT NOW: <i>Halophila ovalis</i> and <i>Halophila spinulosa</i> . And please italicise all scientific genus and species names throughout the document.
3.3.2. Seagrass		C4		This mud in Boat Bay has largely existed only since 1999, when the present rock wall was built. It was a shallow reef flat full of corals previously. Any mud naturally occurring may have been restricted to the mangrove line. Modelling report refers to approx. 650 m3 of siltation dumped since 1999 - scary. The description of the fauna is just repetition of existing (mostly old) publications. WHAT DID YOUR OWN SURVEYS SEE? You can walk around on the mud flat at low tide and see many things not mentioned in your appendix - see http://www.missionbeachcassowaries.com/blog/a-reef-walk-in-boat-bay .


27/2/17

Section no. and heading	Area for comment	Member orig	Rationale	Suggested amendment (if applicable)
3.3.3. Soft sediments.	1 st paragraph	C4		<p>First para: Both these brown algal beds mentioned are seasonal in their cover as per usual; you should state this. <i>Euphyllia ancora</i> is IUCN Red-listed as Vulnerable. Other corals such as <i>Turbinaria</i>, <i>Acropora</i> and <i>Favia</i> are variously listed as Vulnerable or Near Threatened by the Red List but we need to know species names for these in Boat Bay, so that we can check their threatened status. There is no discussion or even mention of threatened marine fauna (apart from a token mention of the charismatic few vertebrates). Also note that most species of <i>Goniastrea</i> are Red-Listed as Vulnerable or Near Threatened.</p>
Section 3.3.4 – Reefs and rocky shores	Reefs and rocky shores Last para page 46.	C4		<p>Okay - so where are all the fish? No fish mentioned here. They didn't exist in the study area at all, according to Aurecon (2014). Eventually after reading the Marine Ecology appendix, we discover that there are fish in the bay, and then only a few fish with only six of them identified to species. There are at least 280 species in the general area (based on Queensland Museum records). No threatened fish are mentioned here at all. How does the reader know that there are no threatened species in Boat Bay or adjacent areas or not (there are)? Additionally, we would very much like to see the images so that we can identify the fishes of Boat Bay - here is a chance to get some real data as to what lives there.</p>
	Last para.	C4		<p>No fauna? Just flora? No birds, crustaceans, molluscs, fish, sponges, etc etc? Those mangroves are full of critters. Couldn't you at least mention they exist?</p>



22/2/17

Section no. and heading	Area for comment	Member	Rationale	Suggested amendment (if applicable)
Section 3.3.5 – Mangroves, Saltmarsh and Saltpan		C4		<p>“Other threatened marine megafauna, such as dwarf sawfish (<i>Pristis clavata</i>), green sawfish (<i>Pristis zijsron</i>), dugong (<i>Dugong dugon</i>) and humpback whale (<i>Megaptera novaeangliae</i>) are less likely to occur in the area.” yes but they do – Dugong and Humpback whale have been observed in and around the bay. Dugong are REGULARLY observed in Boat Bay, right now a cow and calf as well as single large individual in last 6-12 months.</p> <p>There are at least 3 species of threatened grouper in the area – these are big and mobile. <i>Epinephelus lanceolatus</i> (Queenland grouper, regularly seen in Boat Bay), <i>Epinephelus coioides</i> (Orange-spotted grouper) and <i>Epinephelus malabaricus</i> (Malabar grouper).</p>
3.4. Threatened marine species		C4	<p>“Water-based noise activities (e.g. pile driving, underwater excavation) will be commenced gradually to provide warning to nearby marine megafauna”.</p>	<p>Fish can be killed outright by pile-driving sound and most will not leave the area. There is plenty of literature on this (mostly from northern hemisphere).</p>
N/A		MBC	<p>Tens of thousands of truckloads of rock carted by heavy vehicles through cassowary habitat not to mention the long list of other marine and terrestrial species outlined in the reports which we believe have been understated.</p>	<p>Any rock associated with the development to be barged to location.</p>

