Government of **Western Australia**
Development Assessment Panels

Form 1 – Responsible Authority Report

(Regulation 12)

Property Location:	Lot 150 on Plan 223083 Lot 4556 on Plan 220689 (seabed) Wanliss Street and Rockingham Beach Road road reserves
Development Description:	Marina
DAP Name:	Metro South-West JDAP
Applicant:	Element
Owner:	State of WA
Value of Development:	$35,000,000
LG Reference:	DD020.2018.42.1
Responsible Authority:	City of Rockingham
Authorising Officer:	R M Jeans, Director Planning and Development Services
DAP File No:	DAP/18/01382
Report Due Date:	29th August 2018
Application Received Date:	26th February 20018
Application Process Days:	90 Days
Attachment(s):	1. DA report and all attachments inlcuding: - Planning Report (Element) - Architectural Drawings - Traffic Impact Assessment (Riley Consulting) - Bushfire Management Plan and Emergency Evacuation Plan (Bushfire Smart) - Coastal Adaptation Plan (MP Rogers and Associates) - Foreshore Management Plan (Strategen) - Marina Waterways Monitoring and Management Plan (Strategen) - Draft Construction Management Plan (Stuart McNaughten) - Waste Management Plan (Encycle Consulting) 2. Public submission schedule 3. Schedule of State Government / Agency Responses 4. Design Review Panel Meeting Note 5. Minister of Environment Approval

Officer Recommendation:

That the Metro South-West JDAP resolves to:

1. **Accept** that the DAP Application reference DAP/18/01382 is appropriate for consideration as a "Marina" land use and compatible with the objectives of the zoning table in accordance with the Town Planning Scheme of the City of Rockingham.

2. **Approve** DAP Application reference DAP/18/01382 as detailed on the DAP Form 1 dated 15 February 2018 and accompanying plans:

   - Site Plan SK01, dated June 2018;
   - Site Plan Part 2 SK02, dated June 2018;
   - Ground Floor Plan SK03, dated June 2018;
   - First Floor Plan SK04, dated June 2018;
   - Ground Floor Plan Part 1 SK05, dated June 2018;
   - Ground Floor Plan Part 2 SK06, dated June 2018;
   - First Floor Plan Part 1 SK07, dated June 2018;
   - First Floor Plan Part 2 SK08, dated June 2018;
   - Landscape and Carpark Plan SK09, dated June 2018;
   - Ground Levels Plan SK10, dated June 2018;
   - Elevations Plan SK11, dated June 2018;
   - Elevations Plan SK12, dated June 2018;

   in accordance with Clause 68 of the *Planning and Development (Local Planning Schemes) Regulations 2015* and the provisions of 68(2)(c) of the deemed provisions of the City of Rockingham Town Planning Scheme No. 2, for the proposed Marina at Lot 150 on Plan 223083, Lot 4556 on Plan 220689 (seabed) and the Wanliss Street and Rockingham Beach Road road reserves, subject to the following conditions:

   Conditions

   1. This decision constitutes planning approval only and is valid for a period of 2 years from the date of approval. If the subject development is not substantially commenced within the 2 year period, the approval shall lapse and be of no further effect.

   2. The breakwater carpark must:
      (a) Provide a minimum of 135 car parking spaces;
      (b) Be designed in accordance with Australian/New Zealand Standard AS/NZS 2890.1:2004, Parking facilities, Part 1: Off-street car parking unless otherwise specified by this approval, prior to applying for a Building Permit;
      (c) Be constructed, sealed, kerbed, drained and marked prior to the development being occupied; and
      (d) Include lighting, prior to the occupation of the development.

   3. A cash contribution being provided for 368 car parking spaces in accordance with clause 4.15.2.1 of Town Planning Scheme No.2, with the calculation of the cash contribution being in accordance with clause

4.15.6.2 of Town Planning Scheme No.2, must be provided to the City, prior to applying for a Building Permit.

As an alternative, the City is prepared to accept the Proponent entering into an Agreement with the City to build a parking facility of equivalent capacity on land managed by the City, to the specifications and satisfaction of the City, with construction to be completed prior to occupation of the Marina.

4. The Wanliss Street Carpark must:

   (a) Be upgraded to provide a minimum of 193 car parking spaces (an additional 110 to the existing 83 car parking spaces);

   (b) Be designed in accordance with Australian/New Zealand Standard AS/NZS 2890.1:2004, Parking facilities, Part 1: Off-street car parking unless otherwise specified by this approval, prior to applying for a Building Permit;

   (c) Include four car parking spaces dedicated to people with disabilities designed in accordance with Australian/New Zealand Standard AS/NZS 2890.6:2009, Parking facilities, Part 6: Off-street parking for people with disabilities, linked to the main entrance of the development by a continuous accessible path of travel designed in accordance with Australian Standard AS 1428.1—2009, Design for access and mobility, Part 1: General Requirements for access—New building work;

   (d) Be constructed, sealed, kerbed, drained and marked prior to the development being occupied;

   (e) Include lighting, prior to the occupation of the development;

   (f) Any modifications proposed as part of the final design of the Wanliss Street carpark must be designed to have due regard to this infrastructure, and any damage caused as a result of the development shall be repaired by the Proponent at its expense; and

   (g) The existing Atlantis drainage cells sited beneath the Wanliss Street carpark are to be retained. Any modifications that impact on the drainage must be designed in accordance with specifications submitted to and approved by the City of Rockingham.

5. Prior to applying for a Building Permit a Stormwater Management Plan must be prepared by a suitably qualified engineer showing how stormwater will be contained on-site and those plans must be submitted to the City of Rockingham for its approval.

6. Prior to applying for a Building Permit, a revised Waste Management Plan must be prepared in accordance with the following requirements:

   (a) The location and screening of bin storage and bin collection areas;

   (b) The number, volume and type of bins, and the type of waste to be placed in the bins;

(c) Management of the bins and the bin storage areas, including cleaning, rotation and moving bins to and from the bin collection areas; and

(d) Frequency of bin collections.

All works must be carried out in accordance with the Waste Management Plan, for the duration of development.

7. Prior to applying for a Building Permit, a Landscaping Plan must be prepared to the satisfaction of the City of Rockingham, which includes the following detail:

(i) the location, number and type of existing and proposed trees and shrubs, including calculations for the landscaping area;

(ii) any lawns to be established and areas to be mulched;

(iii) any natural landscape areas to be retained;

(iv) those areas to be reticulated or irrigated; and

(v) proposed upgrading to landscaping, paving and reticulation of the street setback area and all verge areas.

The landscaping, paving and reticulation must be completed prior to the occupation of the development, and must be maintained at all times to the satisfaction of the City of Rockingham for the duration of the development.

8. A schedule of coastal pallet colours and coastal durable materials proposed for the breakwater and jetty structure and buildings being approved by the City of Rockingham. In this regard:

(a) The Proponent must not construct the breakwater with soft limestone rock and must use durable materials that pose less risk of limestone shards washing onto Rockingham Beach.

(b) The breakwater and Jetty must be constructed with a red oxidise road base or pavement consistent with the Waterfront Village.

9. Prior to applying for a Building Permit, a Sign Strategy must be prepared (which must include the information required by Planning Policy 3.3.1, Control of Advertisements) to the satisfaction of the City of Rockingham. The approved Sign Strategy must thereafter be implemented for the duration of the development.

10. Exhaust facilities associated with the proposed development must be provided in accordance with Australian Standard AS 1668.2—2002, *The use of ventilation and air conditioning in buildings, Part 2: Ventilation design for indoor air containment control (excluding requirements for the health aspects of tobacco smoke exposure)* and be fitted with "state of the art" filtration and odour suppression devices to the satisfaction of the City prior to the occupation of the development, and must be maintained at all times.

11. Prior to applying for a Building Permit, an Operational Noise Management Plan (ONMP) must be submitted to and approved by the

City of Rockingham. The ONMP shall include an Acoustic Report which demonstrates that all mechanical services associated with the proposed development and any other noise source, including noise emanating from Licensed Premises, will comply with the *Environmental Protection (Noise) Regulations 1997*.

12. Prior to the occupation of the development, a Final Acoustic Assessment must be prepared and provided to the City of Rockingham which demonstrates to City's satisfaction, that the completed development complies with the *Environmental Protection (Noise) Regulations 1997*.

    The Final Acoustic Assessment must include the following information:

    (a) noise sources compared with the assigned noise levels as stated in the *Environmental Protection (Noise) Regulations 1997*, when the noise is received at the nearest "noise sensitive premises" and surrounding residential area;

    (b) tonality, modulation and impulsiveness of noise sources; and

    (c) confirmation of the implementation of noise attenuation measures.

    Any further works must be carried out in accordance with the Acoustic Report and implemented as such for the duration of the development.

13. Prior to applying for a Building Permit a revised Coastal Adaptation Plan must be submitted to and approved by the City of Rockingham. The plan is to address the following:

    (a) In the absence of an acceptable managed retreat strategy, the construction of a seawall south of the marina to connect with the existing buried sea wall to manage the risk of erosion between by-passing sessions;

    (b) A Sand Bypassing Management Plan, including:

        - By-passing methodology, including proposed equipment and route;
        - Triggers for undertaking sand by passing;
        - Expected volume, frequency and locations of sand by-passing;
        - Beach monitoring (to inform sand by passing requirements, including beach profiles at a minimum of 6 monthly intervals);
        - Management measures to ensure impacts to beach users and beach amenity is minimised;
        - Safety management measures;
        - Traffic management measures;
        - Noise management measures;

    (c) Run-up and overtopping;

    (d) Wave climate within the marina;

    (e) Dredging (proposed management to minimise amenity impacts).

14. The Marina Management Entity shall maintain responsibility, in perpetuity, for the sand by-passing associated with this development.

15. To facilitate unimpeded public access along the beach beneath the jetty, the design of the jetty shall ensure that a 2.5m (ie 2.0 AHD) minimum height clearance is maintained above the beach, as measured at the high water mark.

16. Prior to applying for a Building Permit a revised Foreshore Management Plan must be must be submitted to and approved by City of Rockingham. The plan is to address the following:

    (a) Revegetation works proposed on the Rockingham Beach Foreshore as indicated on the approved landscape plan required in Condition 7.

    (b) All revegetation works are to be maintained by the Proponent for a period of at least two summers following the completed of the development.

    (c) Measures to manage any foreshore impacts associated with the sand bypassing methodology (including beach access paths for vehicles).

    (d) Measures to ensure that any rock material (shards) washed up on Rockingham Beach as a result of the development is removed at the applicant's cost.

17. Prior to applying for a Building Permit a Construction Environmental Management Plan must be submitted to and approved by the City of Rockingham, which shall include the following information:

    (a) Construction methodology and techniques with full engineering specifications;

    (b) A schedule of the volume/quantity of materials proposed to be used as part of Civil Works;

    (c) A civil works programme indicating events, tasks and associated timeframes;

    (d) Construction drawings for the design of the sand bund needed during the construction phase and breakwater design. The sand used in the bund must be certified as suitable for use for beach renourishment;

    (e) Construction monitoring triggers and contingency actions;

    (f) An emergency spill response procedure;

    (g) A Fauna Relocation and Management Plan;

    (h) Management of construction waste;

    (i) A Construction Traffic Management Plan (vehicle haulage routes);

    (j) A revised Construction Noise Management Plan;

    (k) A Dust Management Plan prepared in accordance with the Department of Environment and Conservation's Draft - *A Guideline for the Development and Implementation of a Dust*

Management Program, to the satisfaction of the City, prior to the commencement of any work.

(l) Water carts to be available, at all times during the earthworks operation and until the site has been stabilised. As an alternative to water carts, the use of fixed sprinklers may be considered by the City.

(m) The Proponent is to provide a 24 hour telephone enquiry service to deal with complaints associated with dust nuisance being generated during the development and that the telephone number of the enquiry line be displayed in a prominent location on the site and a notice advertising the line be distributed to all adjacent residents.

(n) Trucks are not to arrive any earlier than 15 minutes prior to operations commencing, for time construction timeframes prescribed by the *Environmental Noise Protections Regulations (1997)* and are not to park or stand along surrounding roads.

(o) The Proponent is to offer Dilapidation Surveys to all owners of existing buildings potentially affected by construction activity.

(p) Wind fencing being provided along the boundary of the site where existing buildings are within 500 metres of the site and no natural barrier exists.

18. If any rock material is found on Rockingham Beach as a result of the development the Proponent must make good (at its cost) Rockingham Beach to its condition prior to development.

19. Installation of CCTV, to provide coverage of all public areas, linked to the City's security camera surveillance system, to provide surveillance of the proposed facility and public areas adjacent to the development.

20. Prior to applying for a Building Permit, all service areas and service related hardware, including antennae, satellite dishes and air-conditioning units, must be designed to be located away from public view and/or screened, and this design must be provided to, and approved by, the City of Rockingham.

21. The proposed marina structures shall be certified by a maritime engineer as conforming to Australian Standard AS 3962- 2001 'Guidelines for the Design of Marinas' and AS 4997- 2005 'Guidelines for the Design of Maritime Structures' the satisfaction of the Western Australian Planning Commission on the advice of the Department of Transport.

22. All Boating Activities are prohibited between the shoreline and the marina.

Advice Notes

1. The development must comply with the Health (Public Building) Regulations 1992.

2. The development must comply with the *Food Act 2008*, the *Food Safety Standards* and Chapter 3 of the *Australian New Zealand Food Standards Code (Australia Only)*.

3. The disposal of wastewater into the Water Corporation's sewerage system must be with approval of the Water Corporation; the applicant and owner should liaise with the Water Corporation in this regard.

4. Moorings, buoys and makers must be provided to secure all floating equipment and provide safe navigation around the site.

5. As an alternative to paying cash-in-lieu, Condition 3 may be satisfied by the Proponent entering into an Agreement with the City to fund and manage the construction of a decked public parking facility (for an equivalent capacity) on public land, to the specifications and satisfaction of the City.

6. In regards to condition 6, public rubbish bin facilities must be provided adjacent to the shop frontage so as to be convenient to pedestrians, but positioned so as not to obstruct pedestrian movements, to the satisfaction of the City of Rockingham. Public rubbish bin facilities must be emptied daily, continuously maintained in good condition and the surrounding area kept free of litter thereafter for the duration of the development.

7. A Sign Permit must be obtained for any advertising associated with the development, including signage painted on the building; the applicant should liaise with the City's Building Services in this regard.

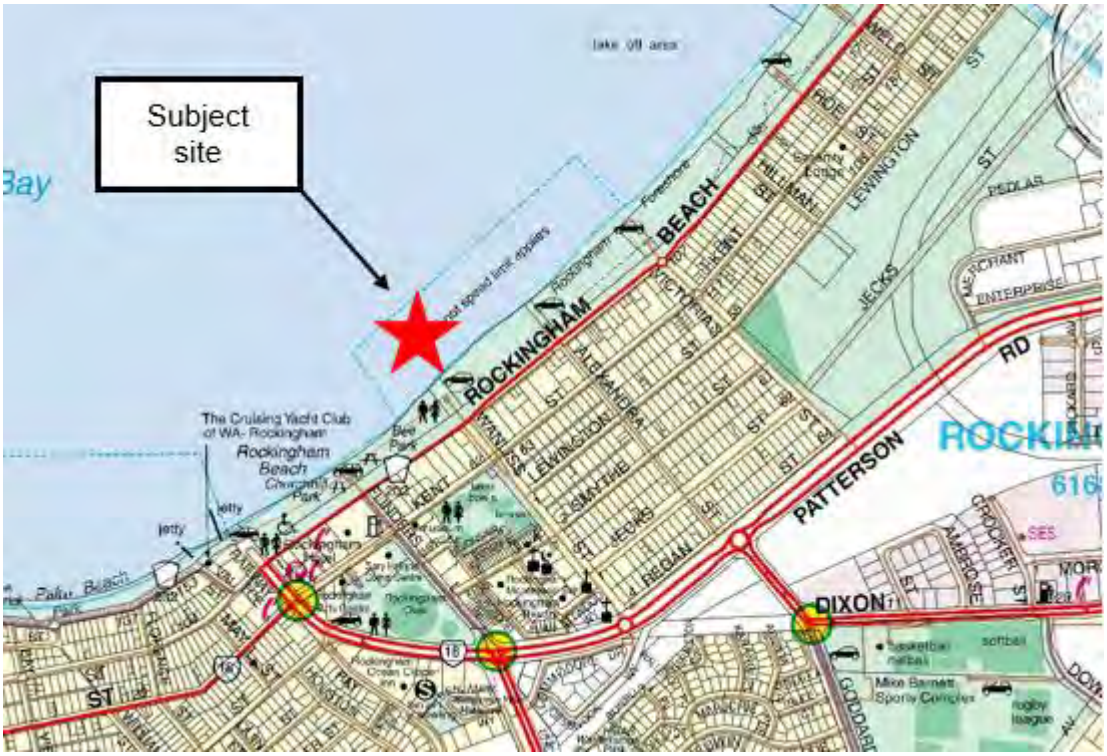
8. With respect to the landscaping plan, the applicant and owner should liaise with the City of Rockingham's Land Development and Infrastructure Services to confirm requirements for landscaping plans.

9. With respect to condition 17, earthworks over the site associated with the development must be stabilised to prevent sand or dust blowing off the site, and appropriate measures must be implemented within the time and in the manner directed by the City of Rockingham in the event that sand or dust is blown from the site.

Details: outline of development application

Insert Zoning	MRS:	Waterways Reservation, Parks and Recreation Reservation, Urban Zone
	TPS:	Waterways Reservation, Parks and Recreation Reservation, Local Roads Reservation
Insert Use Class:		N/A
Insert Strategy Policy:		Rockingham Strategic Regional Centre: Centre Plan Local Planning Policy 3.2.5 – Development Policy Plan Waterfront Village Sector City of Rockingham Community Plan Strategy - Rockingham Strategic Metropolitan Centre

	Public Parking Rockingham Beach Foreshore Master Plan (2015) Local Planning Policy 7.4 Design Review Panel State Planning Policy 2.6 State Coastal Planning Policy State Planning Policy 3.7 Planning in Bushfire Prone Areas State Development Control Policy 1.8 - Canal Estates and Other Artificial Waterway Developments.
Insert Development Scheme:	City of Rockingham Town Planning Scheme No.2
Insert Lot Size:	N/A
Insert Existing Land Use:	Vacant



1. Location Plan

On 26 February 2018, the City received a development application for the proposed Port Rockingham Marina ("the Marina"). The application includes the following elements:

- An open pile pier extending from the end of the Wanliss Street carpark approximately 200m into Mangles Bay, connecting to the breakwater;
- A 770m long marina breakwater/ groyne encompassing 497 boat pens;
- Two public jetties;
- Refuelling, sullage and water supply facilities for boats;
- 13 ground floor commercial tenancies (inclusive of a hotel restaurant) with a total nett lettable area of 3,166m² plus al fresco;

- 91 short stay accommodation units on a second level;
- Extension of the existing 83 bays within the Wanliss Street car park to provide a total of 216 bays;
- 135 car bays on the marina breakwater to provide parking for the boat pens and for hotel staff;
- 217 additional on-street parking bays proposed within the Wanliss Street road reserve between Kent Street and Patterson Road;
- 231 on-street car parking bays proposed within the Rockingham Beach Road reserve between Wanliss Street and Victoria Street.

In addition to the development application report, the following supporting technical reports were received:

- Traffic Impact Assessment;
- Bushfire Management Plan and Emergency Evacuation Plan;
- Coastal Adaptation Plan;
- Foreshore Management Plan;
- Marina Waterways Monitoring and Management Plan;
- Draft Construction Management Plan; and
- Waste Management Plan.

Subsequent to public advertising, and in response to a request for additional information, the applicant submitted an amended development application, which was received by the City and forwarded to the WAPC and DAP Secretariat on 18 June 2018.

The modifications to the original plans include:

- Two public fishing platforms were added;
- A reduction in the number of commercial tenancies to 12, with a total net lettable area of 2,689m² plus alfresco;
- Two additional short stay accommodation units included, increasing the total to 93 short stay accommodation units proposed on the second level;
- 6 drop off car parking bays added near the hotel entry on the pier;
- Amended plans to show the proposed extension of the existing 83 bays within the Wanliss Street car park to provide 115 additional bays (198 bays in total);
- Amended plans to show 195 additional on-street parking bays proposed within the Wanliss Street road reserve, between Kent Street and Patterson Road;
- Amended plans to show 179 additional on-street car parking bays proposed within the Rockingham Beach Road reserve between Wanliss Street and Victoria Street.
- Provision for Commercial charter boat mooring on the western side of the breakwater is no longer proposed.

2. Site Plan (Part 1)

3. Site Plan (Part 2)

4. Ground Floor Plan

5. First Floor Plan

6. Landscape Concept Plan

Construction

The construction methodology for the proposed marina is outlined in the Proponent's draft Construction Management Plan (CMP). Construction is expected to take up to 24 months from commencement until completion of the pens and buildings, services and road works.

The proposed construction methodology involves:

- Site preparation;
- Construction of a sand bund and the rock breakwater;
- Pile driving and pier construction;
- Removal of the sand bund and reinstatement of beach access; and
- Construction of the proposed parking, building and services.

Key aspects of the construction phase include:

- The driving of approximately 550 piles for the pier structure and boat pens, which is expected to take several months; and
- The haulage of sand and rock by dump trucks for construction of a sand bund and the marina breakwater over a 30 week timeframe.

The CMP outlines various measures proposed to mitigate potential adverse impacts on flora and fauna (terrestrial and benthic) and addresses environmental risk management.

The CMP is supported by a Construction Noise Management Plan (CNMP), which evaluates noise associated with truck movements and pile driving. The CNMP notes predicted construction noise levels are in the range that some community reaction could be expected. The CNMP recommends various measures to manage construction noise to minimise local impacts.

Condition No's 7 and 8 of the Ministerial Approval require the Proponent to prepare a Construction Environmental Monitoring Plan and an Adaptive Management Strategy.

The Construction Environmental Monitoring Plan requires various measures to mitigate the ecological impact to fauna and marine processes. The Adaptive Management Strategy seeks to ensure the development does not cause changes to the shoreline, width of the beach and beach profile.

The Proponent has advised that construction of the Marina will commence as soon as the necessary approvals are obtained.

The construction site area is shown in Figure 7 below: -

7. Construction Site Area

Access and Car Parking

Access to the Marina is proposed via a 6m wide one-way entry road through the existing Wanliss Street car park, west of Rockingham Beach Road at the intersection with Wanliss Street. Marina access will be required for cars parking on the breakwater, busses serving the hotel, and service vehicles including private waste and fuel delivery vehicles.

Traffic entering the marina access road is proposed to circulate through the adjoining upgraded car parking area, to exit back onto Rockingham Beach Road via a two-way crossover further along the road to the north-east.

Vehicle access onto the pier and breakwater will be restricted by Marina management by way of remote controlled bollards located between the turn-around/drop off zone and the pier.

Overall 624 new car parking bays are proposed, of which 489 bays are proposed as public car parking and 135 bays as allocated car parking for boat pen users. Car parking is proposed to be accommodated in the following locations: -

- 179 new bays within Rockingham Beach Road (road reserve) north-east of the marina entry on both sides of the road;
- 115 new bays in the Wanliss Street carpark;
- 195 new car parking bays in Wanliss Street road reserve, between Kent Street and Patterson Road;
- 135 on-site car parking bays on the Marina breakwater. As mentioned, these bays will be allocated for use by the boat pen holders, hotel staff and will include some universal parking for people with disabilities.

The proponent contends that the parking provided on public land will be available for use as public parking, and will not be restricted parking only for the Marina users, tenants or visitors.

Pedestrian access onto the pier and breakwater is proposed via a 2.5m (minimum) wide weather protected pedestrian walkway, adjacent to the 6m wide marina access roadway.

Marina Management

The Marina is proposed as a privately operated venture, with a management entity to be established for this purpose. The Proponent has advised that the City will not be responsible for any aspects regarding the future management and operation of the Marina.

Background:

The concept of a jetty development, extending from Wanliss Street, originated almost 30 years ago. In 1989, the Council granted development approval for the Wanliss Street jetty, which comprised a pier extending from the public carpark at Wanliss Street and a range of tourist related uses, but did not include a marina. The development approval was renewed in 1991 and subsequently lapsed.

In 1998, the Council revived the Wanliss Street jetty project by seeking expressions of interest from private developers to establish a facility.

In February 1999, the Council resolved to endorse the selection of the Rockingham Beach Unit Trust (Trust) as the developer for the Wanliss Street Jetty project. A Memorandum of Understanding (MOU) was executed by the Trust and the City, which committed the Trust to achieving approval and development timeframes, however, in the period since the MOU was executed, the Trust did not satisfy the terms of the MOU.

In 2003, the current proponent subsequently entered into a seabed lease for an area of 5,000m² with the Department for Planning and Infrastructure (now Department of Transport), to secure land tenure for a proposed marina. This seabed lease is for a term of 21 years with an option to extend for a further 21 years. The proposed marina has a much larger marine footprint (approximately 90,000m²) than the 5,000m² approved seabed lease.

In 2008, the proponent sought an extension of time for development milestones contained within the lease agreement. In addition, the proponent sought to extend the area of seabed lease from 5,000m² to an area commensurate with the proposed development. The Department of Transport is yet to formally include the additional area in the seabed lease.

Environmental Approval

On 18 February 2010, the Minister for Environment issued a statement that the marina proposal may be implemented (Ministerial Approval) pursuant to the provisions of the *Environmental Protection Act 1986*, subject to various conditions. This was valid for a period of five years, expiring in February 2016.

In 2016, at the request of the proponent, the Minister for Environment extended the Environmental Approval until February 2020. The Ministerial approvals are contained in an Attachment to this report.

Development Approval

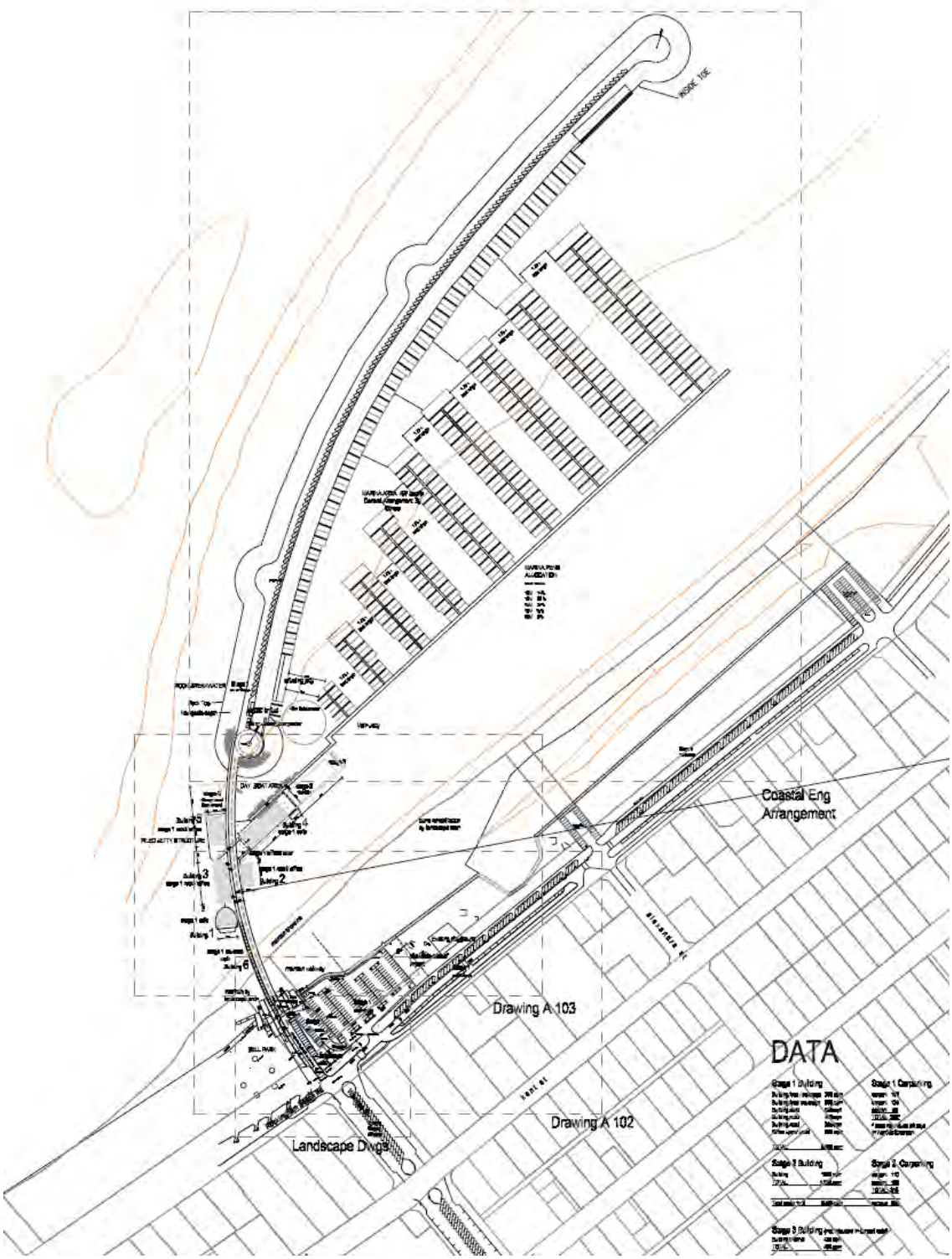
On 13 December 2010, the City received an application seeking Development Approval for a proposed marina.

In September 2011, Council resolved to advise the Western Australian Planning Commission (WAPC) of its support the proposed marina that included:

- An open pile pier extending from the end of the Wanliss Street carpark into Mangles Bay and a 770m long breakwater extending north east, parallel to the shoreline;
- Approximately 500 boat pens;
- Commercial and temporary boat mooring facilities;
- 4,000m² of commercial floorspace; and
- 600 car parking bays, which includes an extension of the Wanliss Street carpark, on street car bays and car parking provided on the breakwater.

In February 2012, the WAPC granted development approval to the marina. The development approval lapsed in February 2015.

The primary difference between the 2012 approved plans and 2018 application plans relates to the hotel/short stay accommodation component included in the current application, replacing the second floor commercial office floor space that formed part of the previous approval.



8. Previously Approved Development Approval

Legislation and Policy:

Legislation

Land Tenure

The proposed Marina involves the following land tenure elements:

Lot on Plan	Title	Area	Tenure	Landowner	Management Body
Wanliss Street and Rockingham Beach Road reserves	N/A	N/A	Road Reserve	State of WA	City of Rockingham
Lot 150 on Plan 223083	LR3154-418	2.855ha	A Class Reserve 22568 for 'Park and Recreation'	State of WA	City of Rockingham
Portion of Lot 4556 on Plan 220689	LR3166-806	16.07ha	C Class Reserve 50180 for 'Harbour Purposes'	State of WA	Department of Transport

The application proposes to upgrade the Wanliss Street carpark, which is currently located on Wanliss Street Road Reserve, and extend it onto Lot 150 Rockingham Beach Road.

Lot 150 Rockingham Beach Road is an A Class reserve, with management authority vested in the City.

Advice from the Lands division of the Department of Planning Lands and Heritage (DPLH) indicates the use of Lot 150 for public car parking is ancillary to the reserve purpose of "Parks and Recreation" and therefore acceptable, on the basis that the car parking must always be for the use of the general public. This is discussed further in the Consultation section of this report.

Planning and Development (Local Planning Scheme) Regulations 2015 (The Regulations)

Clause 67 of the Regulations provides the matters which the local government is to have due regard to in the assessment of development applications. Where relevant, there are discussed throughout the report.

Metropolitan Region Scheme

Predominantly located outside of the municipal boundary of the City, the proposed Marina elements comprising of the breakwater, jetties/ boat pens and main pier are located within the Waterways Reservation under the Metropolitan Region Scheme (MRS).

Land based elements, including part of the pier platform, the Marina access road and car parking (proposed on Wanliss Street road reserve west of Rockingham Beach Road and on Lot 150 Rockingham Beach Road), are situated on land reserved as Parks and Recreation under the MRS.

City of Rockingham Town Planning Scheme No.2 (TPS2)

Town Planning Scheme No.2 (TPS2) does not apply to land Reserved under the MRS.

As such, the only aspect of the proposed marina development within the planning jurisdiction of TPS2 is the on-street parking proposed to be developed in Wanliss Street and Rockingham Beach Road.

Public roads are reserved as "Local Roads" within TPS2.
The use of road reserve for car parking is consistent with the purpose of dedicated road reserve.

Clause 3.2 Zoning Table

Given the commercial nature of the Marina and its close proximity to the Primary Centre Waterfront Village Zone (PCWVZ), if the development was to be approved, the City would propose an amendment to the TPS2 boundary to include the Marina within the PCWVZ. It is therefore considered appropriate to assess the proposal in accordance with the provisions of the PCWVZ.

To this extent, the Zoning Table provides useful guidance regarding the appropriateness of the landuses proposed within the Marina buildings.

The need for flexibility for the proponent to interchange land uses over time is acknowledged, and considered appropriate in this instance. In this regard, it is noted that the indicative land uses outlined in the development application are Discretionary ('D') uses within the PCWVZ, as follows:

- Hotel – D use
- Restaurant – D use
- Amusement parlour – D use
- Fast food outlet/ lunch bar – D use
- Reception centre – D use
- Shop – D use
- Tavern – D use
- Office – D use.

Clause 4.3B1 – Objectives of the Zone

The proposal is considered generally compatible with the objectives of the PCWVZ, which include *"To promote contemporary waterfront residential and accommodation, commercial, tourism and recreational activities, which serves local residents and visitors alike, in accordance [with] the Development Policy Plan for the Waterfront Village Sector".*

Clause 4.15 Carparking

In terms of car parking provision, clause 4.15.2 of TPS2 requires the minimum number of car bays to be provided within the PCWVZ on the following basis:

- For development other than residential development or short stay accommodation, *not less than 60% of the minimum number in the form of cash in lieu*;
- For residential development and short stay accommodation, the visitor allocation as per the R-Codes must be provided in the form of cash in lieu; and
- The number of parking spaces provided onsite shall be reduced by the number of parking spaces provided through cash in lieu contribution.

The required parking for the Marina has been assessed as satisfying the minimum requirements for car parking as indicated in Table 1 below.

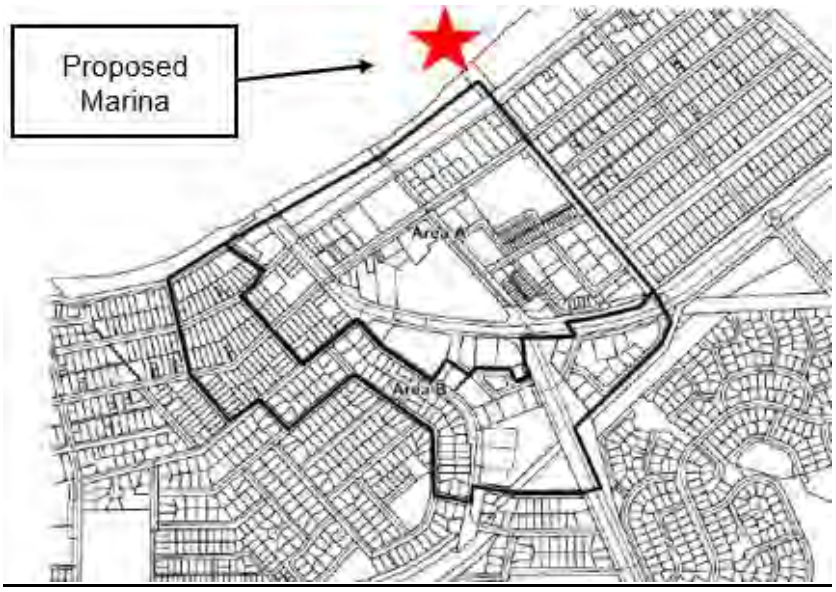
TABLE 1 - CAR PARKING ASSESSMENT			
	Proposed	**Statutory Requirement**	**Car parking Required**
Boat Pens	497 pens	0.6 car parking bays per boat pen as required under Australian Standard 3962 Guidelines for the design of Marinas (AS3962) for 497 pens	298.2 bays
Hotel	93 units 280m² of restaurant and bar area	1 bay per bedroom 1 bay for every 6.2m² of bar and public areas including lounges, beer gardens and restaurants	93 bays 45 bays* *(Applies if the hotel/ restaurant is open to the general public, not being limited to users of the short term accommodation)
Restaurant / Cafe	1,343m² floor area (1,074m² dining area)	1 bays/ 8 patrons *(Assumes 8 persons = 10m² dining area)	107.4 bays
Office	208m²	1 bays/ 40m² NLA	5.2 bays
Shop	555m²	1 bay/22m² NLA	25.2 bays
Tavern	303m² (240m² public area)	1 bay for every 6.2m² of bar and public areas including lounges, beer gardens and restaurants	38.7 bays
TOTAL			**612.7 (613) bays**
PROPOSED CAR PARKING			
Location		**Existing Bays (not included in calculation)**	**Proposed Bays**
Breakwater		N/A	135 bays
Wanliss Street Carpark		83 bays	115 bays
Wanliss Street		51 bays	195 bays

Rockingham Beach Road		179 bays
Port Cohere drop off area		4
TOTAL	134 bays	**628 bays**

Of the 489 additional car parking bays proposed on public land, it is evident that the number of bays shown on the proposed plans is somewhat 'aspirational' due to existing constraints and design requirements that would apply at the detailed engineering design stage.

Clause 4.15.6.2 applies to development within the PCWVZ, and requires that in the case of development of land identified within "Area A", "*the cash in lieu payment shall not be less than the estimated cost to the owner or developer of providing and constructing the parking bays in the form of a decked structure (including full civil works, lighting, signage, line marking and landscaping), for that area of land which would have been occupied by the parking spaces and manoeuvring area as estimated by a qualified civil engineer approved by the local government*".

The clause specifies that payments of 'cash-in-lieu' made shall be paid into a parking fund to be used for the provision of public car parking facilities within Area A of the Primary Centre Waterfront Village Zone.



9. "Area A" in the Primary Centre Waterfront Village Zone

In considering the current development application, notwithstanding the similarity with the previous application, the City considers that car parking for the Marina should be delivered in accordance with the above scheme provisions, being predominantly in the form of 'cash-in-lieu'. This is due to the outcomes contained in the Council adopted CPS, discussed later in this report.

Clause 6.1 - Design Review Panel (DRP)

Pursuant to Clause 6.1 of TPS2 the Council has appointed a DRP and developed a Local Planning Policy to outline matters on which the DRP will be consulted.

Pursuant to Clause 6.1.3, the planning decision maker is required to have due regard to any recommendations made by the Design Review Panel.

The matter was reported to the City's DRP, the outcome of which is discussed in the Policy Section of this report.

State Government Policies

State Planning Policy 2.6 - State Coastal Planning Policy (Coastal Policy)

SPP2.6 was gazetted in June 2003 and updated in 2013 to guide coastal development.

Coastal setbacks normally apply to new development along the coast, but the Coastal Policy does not apply coastal setbacks to marinas and commercial development, given the dependency on a foreshore location.

In accordance with SPP2.6, the following plans and strategies have been prepared which were submitted with the development application:

- Foreshore Management Plan (FMP);
- Coastal Adaption Plan (CAP); and
- In conjunction with the FMP a Marina Waterways Monitoring and Management Plan was submitted (MWMMP). The MWMMP is also a requirement of the EPA approval conditions.

The City, upon reviewing the above documents and additional information provided from the proponent, has some concerns regarding the level of detail provided to inform decision making at this stage in the process. For example, issues regarding sand by-passing, maintenance dredging, and the adequacy of the coastal hazard planning measures proposed are unresolved.

The application does not identify suitable alternative locations for the Wanliss Street car park under the managed retreat adaptation planning strategy proposed.

In order to ensure these concerns are addressed in the event that approval is granted, conditions of Development Approval are recommended requiring preparation of the following documents prior to detailed engineering design, to the satisfaction of the City:

- An Updated Coastal Adaptation Plan; and
- An Updated Foreshore Management Plan.

On this basis, and in consideration of the EPA approval for the Marina, the proposal could be considered to be consistent with SPP2.6.

State Planning Policy 3.7 - Planning in Bushfire Prone Areas (SPP3.7)

While the proposed Marina is not located on bushfire prone land, it is in proximity to classified bushfire prone vegetation along the Rockingham Beach foreshore. In accordance with the SPP3.7, the proposed hotel is regarded as a "Vulnerable" land use. As such, the proponent was required to submit a Bushfire Management Plan and Emergency Evacuation Plan and demonstrate compliance with SPP3.7.

The purpose of SPP3.7 is to guide the implementation of effective risk-based land use planning and development to preserve life and reduce the impact of bushfire on property and infrastructure. The accompanying "*Guidelines for Planning in Bushfire Prone Areas*" (Guidelines) provide supporting information to assist in the interpretation of the objectives and policy measures.

The proponent submitted a draft Bushfire Management Plan and Emergency Evacuation Plan, which requires updating once the final floor plans have been determined.

Both the City and the Department of Fire and Emergency Services have assessed the draft Bushfire Management Plan and Emergency Evacuation Plan and consider it compliant with SPP3.7 and the Guidelines.

Development Control Policy 1.8 - Canal Estates and Other Artificial Waterway Developments (Policy 1.8)

Policy 1.8 was developed by the WAPC to guide the process for canal residential estates, but it also provides guidance on the assessment of Marinas and Harbours, where a breakwater structure is proposed within a natural body of water.

The Marina was assessed against the criteria of Policy 1.8, as follows:

(i) Artificial Waterway Dimensions

The Marina satisfies the required dimensions to accommodate boats entering and exiting the Marina. The Department of Transport is responsible for the final approval of the marina layout, designed in accordance with the relevant Australian Standards.

(ii) Shore Stability

Coastal processes were assessed by the EPA in its Report and Recommendations to the Minister for Environment, as part of the Public Environmental Review (PER). The proposal is designed to resist damaging erosion by wind and wave action. The PER documents refer to an open pile jetty structure that allows natural sand drift processes to continue along the coast with limited impact to the current beach profile.

(iii) Navigational Safety

Consideration of navigation safety aspects will be determined by the Department of Transport.

(iv) Moorings, Jetties and Launching Ramps

The Marina does not include any boat launching facilities and instead relies upon the existing boat ramps at Rockingham – Point Peron and the Rockingham – Palm Beach and other regional boat ramps, including Port Kennedy Boat Ramp and Woodman Point Boat Ramp.

(v) Maintenance Dredging

It is expected there may be requirement for maintenance dredging every 10 years, and that volumes are expected to be reasonably low. The marina management entity will be responsible for any maintenance dredging.

(vi) Public Open Space

There is no requirement to provide 10% Public Open Space. The Marina proposes to provide public access along the breakwater and jetty. The proponent has demonstrated that access along the beach may be possible, however, the extent to which access can be gained beneath the pier will remain unknown until the detailed design stage of the project.

(vii) Water Quality Guidelines

Water Quality was one of the key environmental factors evaluated by the EPA. The Ministerial Approval includes the requirement for the proponent to prepare a Marina Waterways Monitoring and Management Plan and achieve environmental water quality objectives and levels of ecological protection.

Local Planning Policies

Rockingham Strategic Regional Centre: Centre Plan

The proposed marina extends from the northern edge of the Waterfront Village Sector, which forms part of the Rockingham Strategic Metropolitan Centre.

In September 2009, the Council adopted the Activity Centre Plan for the Rockingham Strategic Metropolitan Centre (Centre Plan); it was endorsed by the Western Australian Planning Commission in November 2009 as an appropriate Centre Plan to guide future planning and development. The scope of the Centre Plan covers an area of almost 600 hectares between the Rockingham Train Station and Rockingham Beach. The Centre Plan is guided by the following vision:

"*The vision is for a modern, distinctly coastal centre offering a wide range of mixed uses including retail, commercial, office, civic, residential, education and recreation within an accessible and highly inter-connected, urban-scaled townscape, comprising a major activity centre and related urban villages based on 'Main Street' principles*."

The proposed marina development is considered to be consistent with the intent of the Centre Plan.

Planning Policy 3.2.5 – Development Policy Plan Waterfront Village Sector (PP3.2.5)

The Waterfront Village Sector is one of 11 Sectors within the Centre Plan. PP3.2.5 has been established to guide development within the Sector.

Within the Waterfront Village Sector there are seven precincts. For each of the precincts, PP3.2.5 identifies a desired future character, preferred land uses and required elements for development proposals. The proposed marina is located in close proximity to the 'Foreshore Precinct' as indicated below.

10. Precinct Boundaries

The Waterfront Village Indicative Development Plan (WVIDP) adopted as part of PP3.2.5, illustrates a more detailed interpretation of the framework described in the Centre Plan. The IDP anticipates development of a proposed marina at the end of Wanliss Street.

The proposed development is consistent with the desired future character for the 'Foreshore Precinct', having a mix of uses that generate interest and pedestrian activity within the public domain.

1 Village Green
2 Village Square, Gary Holland Community Centre
3 Building infill to frame & activities
4 Arts Centre &/or residential over public car park
5 Possible Wanliss Street marina development
6 "Main street" mixed use development
7 Landmark mixed use redevelopment of hotel site
8 High density mixed use development
9 High density residential apartments
10 Medium to high density residential apartments
11 Terrace style medium density residential
12 Medium density residential with narrow terraces option
13 Residential apartments over public car park
14 Bowls club with possible residential apartments
15 Tennis club with possible residential apartments
16 Possible future redevelopment to apartments
17 Possible future infill development to frame street block
18 Staged redevelopment of Challenger Lodge sites
19 Yacht club with possible future apartments above
20 Reconfigured and enhanced public park
21 Install median and kerbside car parking
22 Major streetscape enhancement
23 Rockingham City Centre Transit System terminal

11. Waterfront Village Indicative Development Plan

The following provides an assessment of the development against the relevant elements of the Foreshore Precinct:

Policy Requirements	Planning Comments	Compliant
Preferred uses: • Retail • Entertainment • Eating and drinking places • Short stay accommodation • Offices and commercial	The proposal includes land uses consistent with the preferred uses for the area.	Yes
The Precinct is to be developed as a quality mixed use area conforming to an urban townscape discipline.	The proposed development provides for a mix of active commercial uses including significant short stay accommodation.	Yes
Buildings are to be located, configured and activated to frame and address street frontages and laneways in a way that is consistent with the Precinct Concept Plan, relevant 'Frontage Types' as indicated in Section 3.7. <u>Frontage 1 – High Level of Activation, Nil Setback</u> A high level of frontage activation with retail and small scale commercial uses at ground level and a 2 to 3 storey, continuous faced at the street boundary. At the ground level, buildings should address the street with a fine grain tenancy pattern, and activated shopfronts that are transparent for at least 75% of the area of the façade.	The development generally adequately frames and addresses the marina access street frontage, as well as external veranda frontages. Activation is achieved through the provision of commercial ground floor tenancies with transparent façades. The commercial façades provide generous transparency fronting the central marina access road as well as to the external verandas.	Yes
Building heights are to present a minimum of 2 storey or equivalent parapet height to the street	The proposed buildings on the pier are two storeys in height.	Yes
Car parking is to be provided	The proposed development	The parking

Policy Requirements	Planning Comments	Compliant
in accordance with Table 4 of Town Planning Scheme No.2.	provides sufficient parking overall, however, is not delivered in the form consistent with the City's CPS parking strategy or TPS2.	proposed is not in a form consistent with the City's CPS parking strategy. A condition of approval is recommended that requires car parking to be delivered in accordance with the requirements of TPS2, being predominantly in the form of 'cash-in-lieu'. This is due to the outcomes contained in the Council recommendation, discussed later in this report.
Car parking is not permitted between the road reserve boundary and building frontages.	Car parking is proposed within the Rockingham Beach Road reserve and in the Wanliss Street car park.	No, however, a condition of approval is recommended that requires car parking to be delivered in accordance with the requirements of TPS2, being predominantly in the form of 'cash-in-lieu'. This is due to the outcomes contained in the Council recommendation, discussed later in this report.
The massing, articulation and façade treatments will be required to adhere to quality, urban Waterfront aesthetic. Basic building finishes should favour materials which complement the colours and	The application describes the architecture as "a contemporary reinterpretation of the dock side sheds using high quality materials such as matt aluminium, colourbond wall cladding and roofing,	Yes

Policy Requirements	Planning Comments	Compliant
textures of the Rockingham coastline.	coreten steel, marine grade stainless steel, double glazing, aluminium and timber highlight features".	

The intent of the Marina use is consistent with the Objectives of the Waterfront Policy. The Marina proposes commercial activities to compliment Rockingham Beach and the Foreshore Parks, and also recognises the locality's traditional identity as a beachfront town.

Planning Policy 7.4 Design Review Panel (PP7.4)

The City operates a design review process involving a panel of independent experts in the fields of architecture, urban design, sustainability and landscape architecture to facilitate an improvement in urban design and built form outcomes on new projects.

PP7.4 outlines the terms of reference intended to guide the Design Review Panel (DRP) when reviewing planning proposals, which are based on a number of key principles.

The Marina application was presented to the DRP on 27 March 2018. The DRP conducted a "Design Quality Evaluation" of the proposal, the outcome of which is recorded in the DRP Meeting Note which is attached to this report.

The DRP noted many positive aspects of the proposal, acknowledging the suitability of the scale of the development, aesthetic and overall built form. In addition, a number of design issues and concerns were highlighted, which the proponent was encouraged to address by way of providing further information and amended plans.

Issued noted by the DRP included:

- Concerns with the functionality of the public realm (poor pedestrian circulation, al fresco dominates the outer edges of the buildings);
- Concerns regarding building design and orientation, as well as location of services and infrastructure;
- Concerns that vehicle access and circulation through the marina and Wanliss Street car parking area was unresolved;
- Concern regarding beach node amenity, in that the interface with the foreshore and existing infrastructure was resolved;
- Unfettered pedestrian access under the pier was recommended;
- Concerns regarding the impact of sand by passing on beach amenity;
- Concerns regarding the functionality and configuration of the marina design;
- Waste removal from the commercial tenancies and boat pen users was highlighted as a concern.

The proponent responded to the DRP feedback by way of implementing the following plan amendments:

- Extended the covered pedestrian walkway to provide a grander entry statement and arrival to the Marina development.
- Added drop off bays near the bus parking and added an access ramp from the drop off bays to the boat jetty to increase accessibility to boat pens and separate boat owner foot traffic from alfresco dining areas.
- Removed utilities from the ends of the hotel; added a family suite layout and added a window to corridor ends.
- Changed the seating layouts on the ground floor walkways external to the commercial tenancies, allowing for both alfresco and a pedestrian pathway. The boardwalks are now a minimum 3m wide to allow for both alfresco seating and pedestrian through traffic.
- Relocated plant rooms to improve commercial frontage to the internal marina access street (Commercial 2).
- Added the two fishing platforms.
- Added bicycle parking for up to 40 bikes adjacent hotel lobby, kitchen and restaurant to improve accessibility and cater for cyclists.
- A landscape concept plan was provided showing indicative treatment of the foreshore 'beach node' in the vicinity of the Wanliss Street car park.

While the proponent responded to a number of issues raised by the DRP, other issues remain unresolved, including:

- Waste management measures: including provision for fish cleaning waste and convenient bin locations for the benefit of the commercial uses and boat pen users. To address this, a condition of Development Approval can be imposed to require approval of a Waste Management Plan.
- The functionality of the marina design. The applicant responded that the marina configuration will comply with the relevant Australian Standards.

Community Plan Strategy - Rockingham Strategic Metropolitan Centre Public Parking

This item addresses the Community's Vision for the future and specifically the following Aspiration and Strategic Objective contained in the Community Plan 2015-2025:

Aspiration C:	*Quality Leadership*
Strategic Objective:	*Infrastructure – Civic buildings, sporting facilities, public place and transport infrastructure planned, designed, constructed and maintained using best practice principles and life cycle cost analysis, and implemented in line with informed population growth analysis.*

In December 2017, the Council adopted the Community Plan Strategy- Rockingham Strategic Metropolitan Centre Public Parking (CPS), which contains outcomes applicable to the Marina development.

Community Plan Strategies are developed for each strategic objective as set out in the Council's *Strategic Community Plan 2015 – 2025*, with the aim of turning the

community's aspirations into a reality. The City actively implements the aspirations through each of these strategies.

The purpose of the CPS is to ensure the provision of public parking in the City Centre and Waterfront Village is well planned, suitably located and sufficient to cater for current and future needs.

The CPS provides guidance for the manner in which public parking is managed and delivered, in response to a range of broader strategic objectives and to meet demand. The CPS notes that the Waterfront Village is one of two areas recognised within the City where parking management is most acute. The CPS notes that the Waterfront Village is a very dynamic area, and the underlying influences of parking can change quickly, with for example, development of the Marina.

The CPS recognises that the approach applied to parking with the previous Marina approval caused inequity, compared to other commercial developments within the Waterfront Village. The CPS, therefore, requires that the proposed Marina should be subject to the same cash-in-lieu requirements as other Waterfront Village proposals with the funds being directed to the construction of a decked parking station within the walkable catchment (location to be determined).

The CPS effectively pre-empts the Marina footprint being brought into the Scheme Area, and being subject to the Waterfront Village statutory requirements, in the event that it is approved and built.

An outcome of the CPS requires, for consistency, that the proposed marina in proximity to Wanliss Street be subject to the same cash-in-lieu parking requirements that apply to other commercial developments within the Waterfront Village and that parking to satisfy the parking requirement not be supported in the public domain. The CPS recognises that the adopted *Rockingham Beach Foreshore Master Plan* does not envisage significant portions of the foreshore being dedicated to parking (this is discussed further in the subsequent section).

The marina proponent, in its submission on the draft CPS, noted that the proposal to expand the Wanliss Street carpark in conjunction with the marina development is consistent with the *Rockingham Beach Foreshore Master Plan* (The Master Plan). The City responded that the *Master Plan* does not draw a connection between the marina and the expansion of the carpark, and there is no basis to link the two matters. In essence, the *Master Plan* shows a potential public parking resource that could be built by the City on land under its control when demand warrants.

Rockingham Beach Foreshore Master Plan (2015)

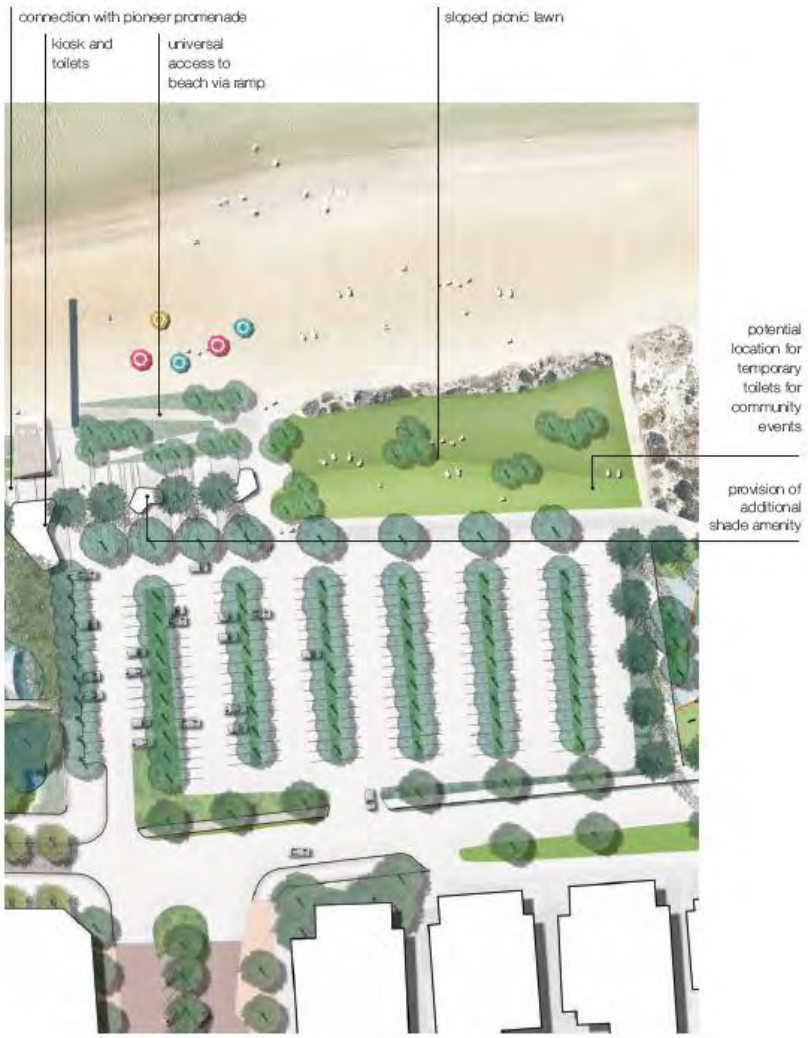
The Master Plan outlines the City's vision for the Rockingham Beach foreshore, and provides a framework to guide future decision making for improvements within the foreshore area.

The Master Plan addresses parking in the light of its intent to rationalise much of the public parking within the foreshore reserve and street parking within Railway Terrace and Rockingham Beach Road.

The Master Plan provides for the future duplication of the existing carpark at the end of Wanliss Street along the foreshore, and proposes additional parking via decking

over existing car parking at the “Village Green Carpark” and the “Museum carpark”. The Museum carpark is located approximately 400m from the proposed marina.

The Wanliss Street carpark duplication, intended as part of the implementation works of the Master Plan, was recommended to offset the loss of existing public car bays bays being removed throughout the Waterfront Village as part of the first stage of works (commencing in August 2018). It was, however, decided to not proceed with the construction of the carpark when it was revealed that the Marina application was being prepared.



12. Rockingham Beach Foreshore Master Plan

Consultation:

Public Consultation

In accordance with Clause 64 of the deemed provisions of *Town Planning Scheme No.2* (TPS2), the application was advertised for public comment over a period of 28 days, commencing on 16 March 2018 and concluding on 13 April 2018.

Advertising was carried out in the following manner:

- The application was advertised by letter sent to 2,280 individual owners and occupiers in the locality of the development, as shown in Figure 13 below;
- The proponent erected two advertising signs in prominent locations on site;
- The City placed a notice in the Weekend Courier on the 16 March and again on the 30 March 2018; and
- Copies of technical documents and plans of the proposal were made available for inspection at the City's Administration Offices and placed on the City's website.

13. Advertising Area

281 submissions were received at the close of the advertising period. A further 8 late submissions were received following the close of the advertising period.

Of the total 289 submissions received, three submissions included no indication for support or objection to the proposal.

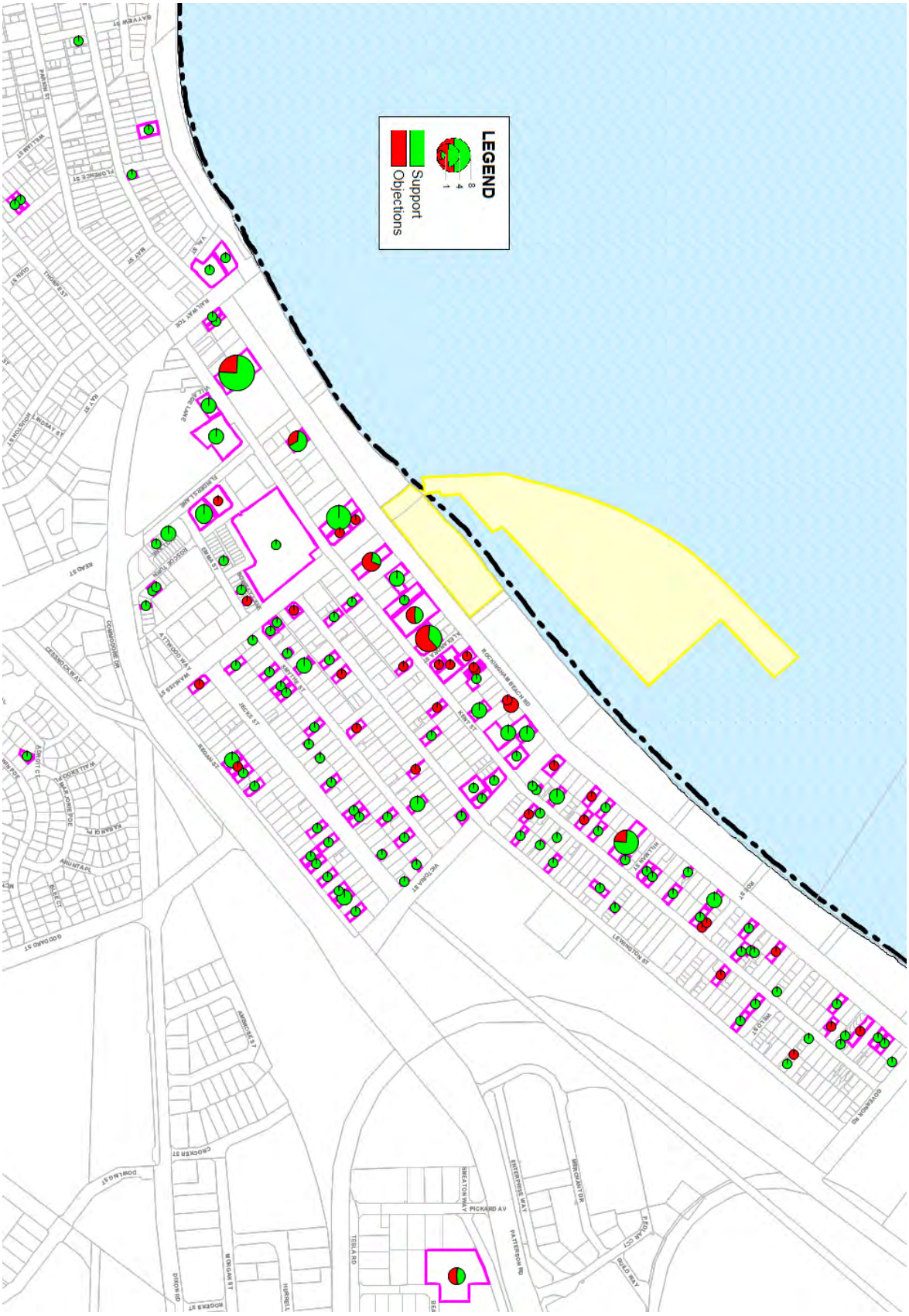
Of the 286 submissions received:-

- 235 or 82% of submissions supported the proposal.
- 51 or 18% submissions objected to the proposal.

The location and distribution of submissions received from the immediate area both supporting and objecting to the proposal are shown in Figure 14 below. This represents 63% of all submissions received.

A further 32 submissions were received from submitters within the City of Rockingham, but outside of the area shown in Figure 14 below. Due to the wide spread distribution, the location of these submissions are not shown on the consultation plan.

Approximately 17% (49) of submissions were received from outside of the City of Rockingham.



14: Location of Submissions

The general view expressed by supporters was that the Marina will encourage further tourism, investment, improve property values, boost employment, enhance recreational opportunities and improve Rockingham's community profile.

The main issues identified by submitters objecting to the proposal include:

- Impacts on Rockingham Beach;
- Environmental Impacts;
- Traffic Impacts;
- Construction impacts;
- Operational noise impact;
- Inappropriate design; and
- Future cost to community.

Concerns raised by Submissions in Objection

The main issues identified by submissions objecting to the proposal are summarised as follows. In preparing this report the proponent provided comments in response to issues raised, however, these comments have not been included due to their detailed nature. Instead a broader level summary is provided below:

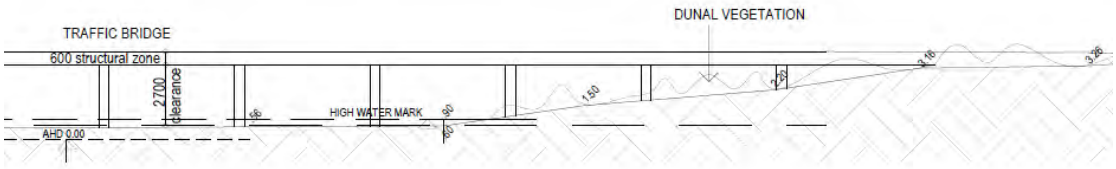
Rockingham Beach Impacts
Submission: The Marina (with 500 boats) will reduce public health and safety and ruin the use of the beach for people.
Officer Comment: It is acknowledged that Rockingham Beach is a community asset which is highly valued. The EPA Report (Sept 2009) acknowledged that construction of the Marina is likely to have some direct localised and temporary impacts on marine water quality within the spatially defined 'zone of effect' during the construction period. These potential impacts will be managed by the Construction Environmental Monitoring and Management Plan. The 'zone of effect' is shown in Attachment No.5 - Minister for Environment Approval. The EPA, as part of the Ministerial Approval, considered that the project design reduces the potential for deterioration of the water quality within the confines of proposed Marina. The EPA noted large openings at both ends will generally allow the water body to flush completely within one to two days. It is an expectation of the EPA that post construction, water quality within the Marina will be the same as that outside the Marina. In this regard, it is anticipated the water quality post construction will be unaffected for beach users. Boating areas are restricted by the Metropolitan Waters section of the Department of Transport, where no boats will be permitted access between the Marina and the foreshore.
Submission: Concern about the impact of the proposed jetty structure on the Rockingham

Beach, and whether or not this would impact upon its use and the existing facilities within Bell Park and Churchill Park.

Officer Comment:

Access along the beach will still be possible as the public can still move under the jetty structure as shown below.

The extent of clearance between the beach and Marina pier as shown on the plan below is 2.7m between AHD0.00 and the bottom of the pier structural zone, which will reduce at high tide. There is potential this clearance may be reduced further if services infrastructure is situated beneath the pier structural zone. The actual beach clearance cannot be determined until the detailed design stage.



Beach use in the vicinity of the proposed Marina will be restricted during the construction phase.

In the longer term, a 10 metre wide portion of the beach will be impacted as a result of the jetty structure.

The landscape concept plan submitted by the proponent indicates how the marina development will integrate with the adjoining Bell Park and the foreshore reserve.

The existing established Norfolk Pine trees situated at the end of the Wanliss Street car park will be relocated.

No existing facilities in Churchill Park or Bell Park will be impacted by the proposal.

Submission:

Concern was raised about the proposed sand bypassing, in terms of safety and the amenity impacts this may have for beach users.

Officer Comment:

Sand bypassing is a necessary requirement to manage sand movement due to the breakwater construction. The bypassing involves removing sand which is expected to accrete on the beach behind the breakwater, and placing it south of the jetty where erosion is expected to occur. The proponent predicts that there will be a need to conduct bypassing of approximately 5,000-6,000m³ of sand per year for the Marina, a process generally taking 1-2 weeks, depending on conditions.

The proponent indicates that sand bypassing can be completed in a number of ways, using different plant, equipment and methods, and seeks flexibility to determine the exact method at a later stage.

The proponent states that while some plant and equipment can gain access beneath the jetty for sand bypassing, other equipment cannot and will need to obtain access around the jetty via beach access tracks in the foreshore reserve. The landscape concept plan submitted does not clearly indicate how this is to be achieved.

It is proposed that the individual operations and selected plant will determine

whether the Contractor passes under the jetty or around. In any event, the works will require completion in accordance with appropriate management plans to the satisfaction of the City.

15. Proposed Sand Bypassing

Submission:

Concerns were expressed that the development will benefit few to the detriment of many, and deprive people of a beach regarded as one of the community's greatest assets.

Officer Comment:

In regards to public benefit, it is noted the development of the Marina will likely bring significant social and economic benefit to the community and will activate the foreshore in the Waterfront Village.

The following public equity is included in the proposal:

The commercial component and breakwater will be open for public use at all times, which is effectively an extension of the existing public domain;

The commercial component will provide passive recreation through café, tavern, restaurant and shops, which could become a focal point of community interaction;

A hotel will cater for visitor accommodation to Rockingham;

The pier platform will be a promenade for visitors to appreciate Cockburn Sound;

500 approx boat pens provide a safe harbourage which presently does not exist in Rockingham;

Refuelling, water and sullage facilities are included; and

Employment opportunities will arise.

It is noted also that the marina proposal has been previously approved, and the current proposal has received the broad community support.

Environmental Impacts
Submission: Dune bushland will be destroyed.
Officer Comment: Clearing of approximately 0.2ha of foreshore vegetation rated as being in degraded-good condition is proposed. The removal of this vegetation was included in the Ministerial Approval.
Submission: Water Pollution from boats resulting in oil slicks, rubbish and offensive material being discharged into the water.
Officer Comment: The EPA, in its report to the Minister, identified two potential impacts on water quality as a result of the Marina Construction: Increased turbility resulting from rock dumping for the sand bund and Breakwater; and Increased potential for fuel, sullage and other pollution events within the Marina. The proponent has committed to developing a Marina Waterways Management and Monitoring Plan (MWMMP) which will include an ongoing water quality monitoring program to demonstrate the ecological levels for the life of the project. The Ministerial Approval includes conditions that manage construction impacts. The condition defines the zone of effect impacted by construction activities. It is an expectation of the EPA that post construction, water quality within the Marina will be the same as that outside the Marina, thus, meeting the criteria for ecological protection.
Submission: Negative impact on fish breeding and seagrass in Cockburn Sound
Officer Comment: A Benthic Primary Producer Habitat (BPPH) is made up of seagrasses, seaweeds, turfing algae and hard corals with varying ecological value. The EPA accepted that the proposal is located on a sand sheet that currently does not support seagrass (from 1996). The EPA acknowledged the loss of 0.3% of potential seagrass habitat is partially offset by the gain of 1.6ha of structure (the breakwater) that will stimulate primary production in the first year when the breakwater is established. The identification of fish breading impacts was considered by the EPA as a secondary issue to the BPPH and was not believed to be a key environmental factor. The nearest seagrass communities to the proposed Marina are approximately 1.5km to the west at Mangles Bay and 2.5km to the north-west on the eastern shores of Garden Island.
Submission: Concerns the beach will deteriorate as a result of the development.

Officer Comment:

The EPA noted the open pier component will allow natural processes to continue once the structure has been completed. The pier across the near shore zone and large openings at either end will minimise hindrance of longshore currents and sand transport. The impacts to the shoreline are relatively minor in comparison with the possible impacts of a conventional Marina design, which only has one seaward opening and may require extensive sand bypassing.

The EPA recognised the proponent's commitment to an Adaptive Management Strategy to be developed with the Department of Planning and the City for the Rockingham Beach area, which is to ensure that the impact of all coastal structures is accounted for and coastal processes are managed efficiently. This involves: -

Beach profiling to measure shore line movements;

(b) Shoreline surveys twice annually;

(c) Identify accretion or erosion; and

(d) Excavation of sand from accretion required for relocation.

The shoreline change modelling for the completed Marina generally predicts increased accretion of sand on the protected shoreline behind the breakwater. The quantities involved are considered to be relatively small, however, the proponent predicts that there will be a need to conduct bypassing of approximately 5,000-6,000m³ per year of sand for the Marina.

To address seasonal changes, the Adaptive Management Strategy is proposed. Sand bypassing may interrupt recreational activities, either annually or biannually for a 1 to 2 week period. Such works would be timed to avoid peak use periods, such as the summer period and weekends.

Traffic Impacts

Submission:

Concerns that traffic from the Marina would adversely affect the road network.

Officer Comment:

The development application proposes the same marina access and egress arrangements as indicated on the 2012 Development Approval.

The updated Transport Impact Assessment (TIA) prepared by Riley Consulting (June 2018) submitted with the current application indicates:

2,579 vehicle movements per day are forecast to use the marina facilities, equating to a 30% reduction in traffic compared to the 2011 traffic report, due to changes in proposed land uses;

The peak period of traffic demand is expected to occur on Sundays, between 12pm and 1pm, based on boating activity;

Intersection analysis indicates the main marina entry intersection is expected to have an acceptable level of operation; and

The proposal is indicated to have no material traffic impact on the surrounding road network.

The City's engineers reviewed the TIA and identified concerns which were conveyed to the proponent, including:

Disagreement with the adopted trip generation rates in the revised TIA. The City considers the revised proposal will generate only slightly less traffic than the

previous approval (indicated in the 2011 TIA at 3,642 vehicle trips per day), rather than 30% less as indicated in the revised TIA.

The lack of swept path analysis provided to demonstrate the functional design of the marina access and egress arrangements, in particular in relation to accessibility for service vehicles;

The lack of intersection analysis provided for key intersections beyond the main marina entry location.

Notwithstanding the above, the City accepts that the current proposal is unlikely to generate any more traffic than the traffic volume expected from the 2012 approval. As such, the City's position remains unchanged from the assessment of the 2010 application, which is that while the proposed development would increase traffic, the general capacity of the road hierarchy can operate with an acceptable level of service.

Submission:

Concern was raised that the proposed parking for the marina is inconsistent with the Council's adopted Parking Strategy and that the developer should provide parking on their own land, not on public land.

Officer Comment:

While the current application proposes car parking in a manner identical to the plans in the 2012 approval, the City's position regarding the delivery of car parking for the Marina has since changed.

The City's current position is reflected in the Council's adopted Community Plan Strategy - Rockingham Strategic Metropolitan Centre Public Parking (CPS), which was adopted by Council in December 2017.

The City's CPS seeks 'cash-in-lieu' for parking to contribute to the development of a decked car parking facility on public land in the Waterfront Village. The CPS identifies the 'Museum Carpark' in Kent Street as one potential location for a decked carpark, though notes other options exist which require further investigation. Through the provisions of TPS2, the City has been receiving cash-in-lieu funds through conditions of development approval for commercial buildings at the Waterfront Village, to assist in the delivery of decked public car parking.

The proponent's plans rely on providing parking on public land that could otherwise be provided by the City to address public parking demand, with or without a marina.

The CPS notes that the Waterfront Village sector is a very dynamic area and the underlying influences of parking can change very quickly e.g. the development of the marina will significantly alter parking demand.

Given that the City will amend its TPS2 boundary to include the Marina within the 'Primary Centre Waterfront Village' (PCWV) Zone, it is considered both logical and equitable that the Marina development be subject to the same cash-in-lieu provisions as other developments within the PCWV Zone.

A condition of approval is recommended that requires car parking to be delivered in accordance with the requirements of TPS2, being predominantly in the form of 'cash-in-lieu'. This is due to the outcomes contained in the Council recommendation, discussed later in this report.

Submission:

Concerns about the adequacy of car parking to service the Marina, and that

parking during peak periods on weekends and over summer months would be insufficient to cater for demand.

Officer Comment:

The Marina was assessed against the car parking requirements of TPS2, as demonstrated in the Legislation section of this report.

Overall, there is a requirement for 613 bays to service the development. The proposal includes 628 new car parking bays, which exceeds the statutory requirement.

On the basis of the number of car bays proposed, sufficient car parking is provided for the marina development.

Of the 628 car parking bays proposed, 135 new car parking bays are for the use of boat pen owners on the breakwater.

Submission:

Objections were received regarding the design of car parking on Rockingham Beach Road and the proposed parking along Wanliss Street, and implications this may have for existing access to properties.

Officer Comment:

In accordance with the CPS referred to above, it is the City's position not to support the provision of car parking for the marina in the local road reserves.

The City has concerns about the parking proposed to be constructed in the Rockingham Beach Road and Wanliss Street road reserves, including:

Safety concerns given the close proximity of some of the parking proposed in Wanliss Street to Patterson Road which has a 60kph speed limit;

The need to remove several established street trees to accommodate road widening and car parking in Wanliss Street;

Safety concerns regarding the provision of car parking bays in the central median. Central median car parking bays are only suitable in streets with little through traffic where vehicles move slowly; and

Many bays are located some distance from the marina (>400m) and are unlikely to be used.

In regards to the car parking indicated on the application plans, the City considers that the number of bays that could be delivered in the road reserves would likely be somewhat less than the number of bays on the plans, in order for the parking design to comply with the relevant Australian Standards.

Nevertheless, should approval be granted, further consideration will be required at the detailed engineering stage to ensure any safety concerns are addressed, and that appropriate access is maintained to existing properties.

Construction Impacts

Submission:

Concern about the potential impacts of Marina construction activities upon nearby residents over the anticipated 24 month construction timeframe. Concerns include:

- Noise impacts from haulage trucks and pile driving activities;
- Construction impact to existing houses; and

- Dust impacts impacting the health of nearby residents.

Officer Comment:

The construction management framework submitted in the application indicates that truck movements for the marina ground works are anticipated to involve 238 truck movements per day over a 29 week timeframe, with a maximum of 22 truck movements an hour (potentially 1 truck per 3 minutes). Trucks propose to access the Marina via Wanliss Street and Patterson Road. The application notes that the carting operations will occur during the day when the majority of local residents will be at work.

As a part of the framework a Construction Noise Management Plan (CNMP) was submitted to the City, which examines construction methods, impacts and management arrangements. Construction will be limited to between 7am - 7pm Monday to Saturday, in accordance with the requirements under the *Environmental Protection (Noise) Regulations 1997* (Noise Regs).

The noise associated with pile driving is likely to have the most impact on nearby residents and will be restricted to 7am - 5pm Monday to Saturday. The CNMP notes the predicted noise levels could be expected to generate community reaction.

The CNMP outlines recommended procedures to mitigate the noise impact, including utilising the quietest reasonably available equipment, keeping the community notified of the construction program and providing a complaints procedure.

In order to adequately address construction related issues, a Construction Environmental Management Plan (CEMP) is recommended as a condition in the event that approval is granted. The CEMP will need to address the impacts of construction noise, dust mitigation and vehicle haulage routes to the satisfaction of the City.

A condition of Development Approval could require a dilapidation survey of existing houses that may be affected by construction activity, to determine the pre-existing condition of properties, prior to works. Beyond this measure, it will be the legal responsibility of the Marina contractors to ensure that appropriate measures are in place, including insurance, if required, to rectify any building damage caused. This is not a Council responsibility.

Operational Noise Impacts

Submission:

Concern regarding the operational noise from the Marina following construction impacting nearby residential properties.

Officer Comment:

Possible noise sources include recreational and commercial boats, noise from boat rigging, and air conditioning and exhaust units on the commercial tenancies.

Marina noise generated by power boats is legally outside of the City's jurisdiction to control. Likewise, patron noise is also exempt under the Noise Regs.

It is recommended that in the event approval is granted, that a condition be imposed to require an Operational Noise Management Plan to ensure noise emanating from the Marina must comply with at all times with the Noise Regs.

Inappropriate Design, Location

Submission:

The marina will dominate the foreshore and remove the focus away from the centre of town.

Officer Comment:

The City has assessed the impact of the building bulk and given the proposed development is two storey, the scale of the commercial buildings is not considered obtrusive to the landscape.

The City's Waterfront Village Policy promotes the creation of active commercial spaces appropriate within an urban waterfront setting, including outdoor cafes and restaurants, festive retailing, markets, and other uses that contribute to an enlivened environment. The proposed Marina is considered to be appropriate to its urban waterfront setting and will contribute to an enlivened environment for the Waterfront Village.

In light of the above, the provision of commercial floorspace is considered appropriate to its location and function for the public benefit.

Submission:

The design of the development is aesthetically bland.

Officer Comment:

The architectural design statement provided indicates the design is based on a "*contemporary reinterpretation of the dock side sheds, using high quality materials such as matt aluminium colourbond wall cladding and roofing, coreten steel, marine grade stainless steel, double glazing, aluminium timber highlight features"*.

The application was considered by the City's DRP, which concluded that the built form was well considered; of appropriate scale and aesthetic, with an appropriate contemporary nautical feel.

Submission:

The Marina will impact on the Rockingham Dive Trail.

Officer Comment:

The Rockingham Dive Trail is understood to be located in Mangles Bay off the end of Flinders Lane, approximately 200m south west of the proposed marina breakwater.

The location of the dive trail does not appear to conflict with the proposed Marina, however, as indicated by the proponent's consultants, a turbidity plume associated with some of the breakwater construction work may impact on the dive trail from time to time. The turbidity is expected to be short term, associated with rock tipping operations to form the breakwater.

It is noted that none of the sunken features that comprise the dive trail are registered in the City's Municipal Heritage Inventory, and therefore have no statutory protection.

15. Indicative Turbidity Area

Submission:

Concern about the Marina potentially impacting the use of the beach and nearby waters, including access to views over Mangles Bay and Cockburn Sound.

Officer Comment:

The proposed Marina includes additional car parking, streetscape works, building platform, breakwater and 497 boats, directly adjacent to 28 residential lots on Rockingham Beach Road between Wanliss Street and Victoria Street. The Spinnaker Apartments and Sails Apartments are the closest apartment developments, being at the intersection of Wanliss Street and Rockingham Beach Road.

Ocean views from properties overlooking to Mangles Bay and Cockburn Sound will be directly affected by the proposed development, which includes the Spinnaker and Sails Apartments.

The proposed Marina buildings are similar in scale and identical in location compared to the former Marina proposal. To this extent the proposal is considered acceptable.

Cost to community

Submission:

Concern about future cost to the community if the developer fails to complete the project.

Officer Comment:

It is understood that the Department of Transport (DoT) intends to require security from the developer sufficient to ensure the completion of the project in the event that the proponent is unable to complete works due to insolvency. This is a matter being addressed between the proponent and DoT in relation to the seabed lease,

and is not considered a relevant planning consideration.

The City has no expectation of taking over any management responsibility for the marina. The proposed marina management framework is a private matter for the developer.

Consultation with other Agencies or Consultants

The following government departments and service agencies were consulted:

- Western Australian Planning Commission (WAPC);
- Department of Planning Lands and Heritage (DPLH);
- Department of Transport (DoT);
- Department of Water and Environment Regulation (DWER);
- Environmental Protection Authority (EPA);
- Water Corporation (WC);
- Department of Biodiversity Conservation and Attractions (DBCA);
- Department of Jobs Tourism Science and Innovation (DJTSI);
- Department of Mines Industry Regulation and Safety;
- Department of Fire and Emergency Services (DFES).

A summary of comments received are as follows:

Department of Water and Environmental Regulation EPA Branch (DWER)
Submission: Thank you for your correspondence dated 2 March 2018 seeking comment from the Environmental Protection Authority (EPA) regarding the proposed development application for the Marina described as, Lot 150 Rockingham Beach Road, Wanliss Street Road reserve and portion of Lot 4556 (sea bed), Rockingham. Please note that the EPA does not generally provide comment on development applications but may where the local government has specific concerns about potential significant impacts on the environment. However, for this development the EPA Environmental Planning Branch of the Department of Water and Environmental Regulation advises the EPA assessed the Marina, detailed in EPA Report 1339, and Ministerial Statement 826 and Ministerial Statement 1041. Development will need to be consistent with the conditions related to Ministerial Statement 826 and 1041.
City's Comment: Noted.
Department of Water and Environmental Regulation (DWER) – Water Advice Only
Submission: Thank you for referring the proposed development application at Lot 150 on Deposited Plan 223083, Wanliss Street Road Reserve and Portion of Seabed being Lot 4556 on Deposited Plan 220689, Rockingham received 2 March 2018.

The Department of Water and Environmental Regulation (DWER) has reviewed the application and wishes to advise it has the following advice.

Groundwater Licence

The project area is located within the Rockingham Groundwater Area, which is proclaimed under the Rights in Water and Irrigation Act 1914. Therefore any dewatering to be conducted as part of the onshore component of the proposal or the irrigation of public open space is required to obtain a 5C licence to take groundwater under the aforementioned legislation. The proponent is advised to contact the allocation section of the business support unit on 1800 508 885 for more detailed information on licencing.

Stormwater Management

It is recommended that the design and construction of the carpark and associated infrastructure incorporates water sensitive urban design principles in accordance with DWER's Stormwater Management Manual for Western Australia (DWER, 2004-2016).

Water Resource Advice Only

The Department of Water has recently merged with the Department of Environment Regulation and Office of the Environmental Protection Authority to create the new agency Department of Water and Environmental Regulation.

The former agencies are in the process of amalgamating their functions. Until this fully occurs, please note that the advice in this correspondence pertains only to water resource matters previously dealt with by the Department of Water.

City's Comment:

The submission is noted.

Department of Fire and Emergency Services

Submission

I refer to your email dated 19 June 2018 regarding the submission of a revised Bushfire Management Plan (BMP) (Version 3), prepared by Bushfire Smart and dated 11 June 2018, for the above development application.

DFES provide the following comments with regard to *State Planning Policy 3.7 Planning in Bushfire Prone Areas* (SPP 3.7) and the *Guidelines for Planning in Bushfire Prone Areas* (Guidelines).

Recommendation – supported compliant application

DFES advises that the BMP has adequately identified issues arising from the bushfire risk assessment and considered how compliance with the bushfire protection criteria can be achieved for the development.

City's Comment:

The submission is noted.

Department of Biodiversity Conservation and Attraction

Submission:

As the Environmental Protection Authority (EPA) has assessed the proposal in 2010, and the subsequent amendment in 2016, with the project being approved in Ministerial Statement's 826 and Ministerial Statement 1041 (1041 to change the implementation conditions), the Department of Biodiversity Conservation and

Attractions has no comments on the proposed development.

City's Comment:

The submission is noted.

Department of Planning, Lands and Heritage

Submission:

The Lands division of the Department of Planning, Lands and Heritage has no objections and provides its conditional consent to the proposed Marina over portion of Lot 150 on DP 223083, portion of Wanliss Street road reserve and a portion of seabed being Lot 4556 on DP 220689.

It is acknowledged that the proposal includes the following land tenure elements as set out below.

Lot on Plan	Title	Area	Tenure	Landowner	Management Body
Wanliss Street and Rockingham Beach Road reserves	N/A	N/A	Road Reserve	State of WA	City of Rockingham
Lot 150 on Plan 223083	LR3154-418	2.855ha	A Class Reserve 22568 for 'Park and Recreation'	State of WA	City of Rockingham
Portion of Lot 4556 on Plan 220689	LR3166-806	16.07ha	C Class Reserve 50180 for 'Harbour Purposes'	State of WA	Department of Transport

It is noted that the proposed use of the subject portion of Wanliss Street and Rockingham Beach road reserves for additional public car parking and access is permitted within dedicated road reserve.

The proposed use of A Class Reserve 22568 for additional public car parking is acceptable as this is considered ancillary to the reserve purpose of 'Park and Recreation', however, the car parking within Reserve 22568 must always be for the use of the general public and not only for tenants or visitors to the Marina. The clearing of remnant vegetation within Reserve 22568 must be minimised as much as possible to protect the integrity of the foreshore environment and preserve the amenity of the A Class Reserve.

It is noted that a 16.07ha portion of Reserve 50180 is anticipated to become the subject of a seabed lease between the Minister for Transport and the proponent. The Lands division of DPLH makes no comment in this regard given the proposed tenure arrangement falls within the ambit of the Department of Transport.

City's Comment:

The submission is noted.

The applicant has confirmed that the proposed car parking in Reserve 22568 (Lot 150 Rockingham Road) is intended to be used by the public, and will not be restricted to users of the Marina.

The applicant's response is noted, however, it does not address the fact that the private Marina development will generate a parking demand that is proposed to be absorbed by public car parking bays. As discussed earlier, the Rockingham Beach Foreshore Master Plan identifies this land for public car parking.

The Water Corporation

Submission:

Thank you for your letter dated 14 March 2018. Water Corporation offers the following comments in regard to this proposal.

Water

Reticulated water is currently available to the subject area. All water main extensions, if required for the development site, must be laid within the existing and proposed road reserves, on the correct alignment and in accordance with the Utility Providers Code of Practice.

Due to the proposed development, upgrading of the current system may be required to prevent existing customers being affected by it. The proposed demands of the development need to be provided so that the Water Corporation can undertake a review of our water system.

Wastewater

Reticulated sewerage is currently available to the subject area. All sewer main extensions, if required for the development site, should be laid within the existing and proposed road reserves, on the correct alignment and in accordance with the Utility Providers Code of Practice.

Due to the proposed development, upgrading of the current system may be required to prevent existing customers being affected by it. The proposed demands of the development need to be provided so that the Water Corporation can undertake a review of our wastewater system.

General Comments

The principle followed by the Water Corporation for the funding of subdivision or development is one of user pays. The developer is expected to provide all water and sewerage reticulation if required. A contribution for Water and Sewerage headwork's may also be required. In addition the developer may be required to fund new works or the upgrading of existing works and protection of all works.

The information provided above is subject to review and may change. If the proposal has not proceeded within the next 6 months, the Water Corporation should be contacted to confirm if the information is still valid.

Please provide the above comments to the land owner, developer and/or their representative.

We look forward to receiving the proposed demands from the development so that our reviews can take place.

City's Comment:

The submission is noted.

Department of Transport

Submission:

Following a review of the documentation supplied, the Department of Transport, Maritime Planning (DoT MP) has no in principle objection to the proposal proceeding subject to the following:

The wave climate within the proposed marina shall be determined by the proponent and shall meet the criteria for good wave climate in small craft harbours in accordance with AS 3962-2001, Guidelines for the Design of Marinas, and approved by DoT MP.

All marine structures to be designed by an experienced maritime engineer, with the design criteria and the subsequent drawings and specifications to be approved by DoT MP prior to construction.

The layout of the marine boating facilities to be in accordance with AS 3962- 2001, Guidelines for the Design of Marinas, and approved by DoT MP prior to construction.

Navigation aids or signage made necessary with the facility to be approved by DoT MP prior to installation.

Upon completion of the marine works the proponent is to supply a set of signed as constructed drawings reflecting the approved works.

Condition 8 *Coastal Processes* of the EPA Report and Recommendations specifies a small amount of sand bypassing could be required on an annual basis once the Marina has been constructed. An adequate coastal/beach monitoring program will be required to determine the volume and frequency of such action.

Suitable space and access must also be provided within the overall design to accommodate regular survey and sand bypassing.

The local coastal manager (City of Rockingham) and the Proponent must accept the ongoing responsibility for coastal management works including, but not limited to, sand bypassing if required.

Please note:

The proponent is advised to liaise with DoT MP in relation to the above points 1, 2, 3 and 4; and

The State Government cannot be relied upon to fund future coastal protection through grants or otherwise.

The proponent is advised that no permanent residential component will be permitted within the seabed lease.

City's Comment:

Three rounds of comments were received from the DoT which are contained in the Schedule of Submissions. Due to the detail involved, they are not repeated here. Many of the issues relate to marina design, which the DoT is responsible for administering. Other issues relate to coastal processes and can be addressed by way of condition in the event approval is granted.

In regards to condition 8 above, while the City has management authority over the coastal foreshore, it has no expectation to take any responsibility for coastal management works attributable to the Marina which is a private development.

Department of Mines Industry Regulation and Safety

Submission:

Thank you for your letter dated 9 March 2018 inviting comment on the above proposal.

The Department of Mines, Industry Regulation and Safety has assessed this proposal with respect to mineral and petroleum resources, geothermal energy, and basic raw materials. We have no comment to make other than bring to your attention that the GSWA assisted the Department of Transport in producing the publication titled "Coastal Sediment Cells between Cape Naturaliste and the Moore River, Western Australia" in June 2012.

Sediment cells provide a framework for coastal management by defining 'natural' management units that link the marine and terrestrial environments. They provide a platform that supports interpretation of historic trends, understanding of contemporary processes and most importantly the projection of future coastal change. This report is available online at: http://www.transport.wa.gov.au/mediaFiles/marine/MAC_R_CoastalSedimentCellsReport.pdf.
City's Comment: The submission is noted.
Department of Jobs Tourism Science and Innovation
Submission: Thank you for providing Department of Jobs, Tourism, Science and Innovation the opportunity to review and comment on the proposed Marina. Tourism Western Australia is supportive of the planned Rockingham Marina which proposes to include 497 boat pens, restaurant, retail and 91 accommodation rooms. It is worth noting that there is a large new supply of accommodation rooms, both recently built and planned for Perth. Rockingham, although within the Greater Perth precinct has its own recognised tourism attractions and activities (Penguin Island and swimming with dolphins) and currently a different visitor profile to that of Perth City. The uniqueness of this proposed development along with the fact that there is limited accommodation available within Rockingham should assist the developments viability. Tourism Western Australia supports the City's ambition to attract an internationally recognised brand operator to the accommodation, which has a similar location to 'Be Fremantle', an operation that has proven very popular especially with the Asian visitors to the City.
City's Comment: The submission is noted.

Planning Assessment:

While the current development application plans are largely similar to the plans supported by the City and approved by the WAPC in 2012, the following changes in the decision making framework have occurred since approval of the previous application:

- The Joint Development Assessment Panel (JDAP) process was introduced in 2011. As the current proposal has an estimated value of $35 million, it is to be determined by the JDAP. As such, both the WAPC and the City are required to provide the JDAP with an RAR on the application.
- In July 2015, Council adopted the "*Rockingham Beach Foreshore Master Plan"* ('Master Plan') to provide guidance and direction to how the foreshore will evolve over coming years. The Master Plan contains a number of recommendations, a major focus of which is to maintain the existing character

of the area while creating a destination where pedestrians have priority, and public spaces enhanced.

- In December 2017, Council adopted the "*Community Plan – Rockingham Strategic Centre Public Parking*" (CPS). As mentioned earlier, the intent of the CPS is to provide a strategic approach to the management and provision of public parking within the City Centre, and Waterfront Village Sectors of the Rockingham Strategic Metropolitan Centre.

The adoption of the City's CPS, however, represents a significant change in the decision making framework since the Marina was previously approved in 2012. The CPS seeks to achieve equity in terms of responding to the parking demand attributable to commercial developments in the Waterfront Village Sector by requiring the provision of cash-in-lieu of on-site parking to fund construction of a decked public car parking facility.

The current application is therefore in direct conflict with the City's adopted CPS.

In terms of determining this application, Clause 67 of the Regulations outlines the matters which the local government (decision maker) is to have due regard to in the assessment of development applications, including:

> *"(m) the compatibility of the development within its setting including the relationship of the development to the development on adjoining land or on other land in the locality including, but not limited to, the likely effect of the height, bulk, scale, orientation and appearance of the development;*
>
> *(n) the amenity of the locality including the following:*
>
> *(i) environmental impacts of the locality;*
>
> *(ii) the character of the locality;*
>
> *(i) social impacts of the development.*
>
> *(zb any other planning considerations the local government considers appropriate."*

Having due regard to the above provisions, in particular clause (zb) "*any other planning considerations the local government* (decision maker) *considers appropriate"*, the following points are noted:

- Given the nature of the proposed Marina development and relationship to, and its ultimate inclusion within, the PCWV zone, it is appropriate to assess the Development Application in context with the provisions of the PCWV zone;
- The Marina is considered to significantly increase demand for public car parking within the Waterfront Village zone;
- The application conflicts with the City's CPS as it relies on providing car parking on public land in locations that could otherwise be provided by the City to address public parking demand with or without a marina;
- The City will amend the TPS2 boundary to include the Marina site within the PCWV zone once constructed. It is therefore logical and equitable that the Marina development be subject to the same cash-in-lieu provisions as other developments within the PCWV zone.

For these reasons, notwithstanding the considerable merit of the proposal, the current Development Application plans are not supported.

It is noted that although the proponent is aware of the City's positon regarding the delivery of car parking for the Marina, it has declined to amend the proposal accordingly.

As such, having due regard to the adopted CPS, the *Rockingham Beach Foreshore Master Plan* and the relevant Clauses of the Regulations, the City's recommendation is that the application should not be approved in its current form, with car parking predominately provided on public land.

Council Recommendation

In considering the application before it, the Council considered the following potential scenarios in formulating a position on car parking for the Marina:

Option A: Maximum cash–in-lieu

- 613 bays required;
- Nil car bays provided on public land;
- 135 car bays provided on site;
- 478 (78%) required in the form of cash-in-lieu.

Option B: Minimum cash-in-lieu

- 613 bays required;
- 368 (60%) required in the form of cash-in-lieu;
- 135 car bays provided on site;
- 110 new car bays in the Wanliss Street car park.

Option C: Nil cash-in-lieu

Accept car parking on public land in the manner proposed.

While Option B still conflicts with the CPS, as it results in some of the Marina parking being delivered on public land (Reserve 22568), Council considers it a more equitable outcome that is consistent with the manner in which cash-in-lieu is required from other developments in the Waterfront Village.

As such, the Council resolved at its Ordinary meeting held on 28 August 2018 to vary the CPS to the extent of recommending that parking for the Marina is to be delivered in the form of:

- Payment of a cash-in-lieu contribution equivalent to 368 bays, or as an alternative, the Proponent entering into an Agreement with the City to build a parking facility of equivalent capacity on land managed by the City, to the specifications and satisfaction of the City, with construction to be completed prior to occupation of the Marina;
- 110 additional car bays constructed in the Wanliss Street car park; and
- 135 car bays constructed on the breakwater.

Recommended condition 3 is intended to allow the proponent (subject to agreement with the City) the opportunity to construct a parking facility of equivalent capacity (368 bays) on City managed land, which is consistent with the Option D, as

presented to the Planning and Engineering Services Committee by a representative of the Proponent on 20 August 2018.

The adopted CPS identifies a number of City managed parcels within close proximity to the Marina that are suitable for a decked parking structure. The City has already made enquiries to the DPLH about the suitability of one of these sites for a decked public parking structure, at the request of the Marina proponent. DPLH has confirmed that the site can accommodate a public parking structure.

Conclusion:

The Development Application is considered generally consistent with the relevant policy framework, with the exception of the proposed car parking for the Marina which is largely off site on public land.

As such, having due regard to the adopted CPS, the Master Plan and the relevant Clauses of the Regulations, the recommendation of the Council is that the application be approved with conditions requiring the delivery of car parking in the following manner:

- Payment of a cash-in-lieu contribution equivalent to 368 bays, or as an alternative, the Proponent entering into an Agreement with the City to build a parking facility of equivalent capacity on land managed by the City, to the specifications and satisfaction of the City, with construction to be completed prior to occupation of the Marina;
- 110 additional car bays constructed in the Wanliss Street car park; and
- 135 car bays constructed on the breakwater.

LOT 150 ROCKINGHAM BEACH ROAD, MARINA DEVELOPMENT APPLICATION

June 2018

PORT ROCKINGHAM MARINA
DEVELOPMENT APPLICATION

element.
the art and science of place

Document Control

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1. Introduction

This report has been prepared by **element** (formerly TPG+Place Match) on behalf of Aureus Commercial Pty Ltd in support of the development application for the proposed Port Rockingham Marina (Rockingham Marina). Port Rockingham Marina is proposed to be developed over land and sea parcels including Wanliss Street road reserve, Lot 150 on Plan 223083, and portion of Cockburn Sound seabed, being Lot 4556 on Deposited Plan 220689 (the subject site). Additional car parking associated with the marina is proposed to be constructed within the Wanliss Street road reserve and Rockingham Beach Road road reserve in proximity to the proposed marina.

The proposed Marina represents a development opportunity that will provide a significant contribution to the local and wider community by providing a new tourism and recreation precinct in a premium location on the Rockingham Beach foreshore. There is a recognised shortage of recreational moorings and anchorages in Perth's southern Metropolitan waters, particularly in Cockburn Sound. The closest marinas to Rockingham are Mandurah Ocean Marina, approximately 27 km to the south, and the Fremantle Yacht Club / Challenger Marina, 20 km to the north. The Port Rockingham Marina development is proposed to address this strong demand for recreational boat pens in the area, as well as broader opportunities for activity.

Short stay accommodation will also form part of the proposal to support the functionality of Rockingham Marina. The proposed development consists of the following primary structures and land use components:

- Marina groyne encompassing a total of 497 boat pens;
- An extension to the existing 83 bays within the Wanliss Street public car park to provide a total of 198 bays;
- 12 ground floor commercial tenancy units (inclusive of hotel restaurant) with a total net lettable area floorspace of 2,689m^2 plus alfresco;
- 93 short stay accommodation units;
- Two public fishing platforms;
- A refuelling jetty;
- 135 car bays on the breakwater to provide parking access to the boat pens and for hotel staff;
- 195 additional on-street parking bays proposed within the Wanliss Street road reserve; and
- 179 additional on-street parking bays proposed within the Rockingham Road road reserve.

The proposed Marina development represents a major investment for the City and will include the construction of a hotel and associated leisure tourism commercial uses intended to be operated by a world class hotel chain, being Wyndham Hotels and Resorts. The City has identified the desire to see a major brand hotel operator establish within the Rockingham Beach locality as it will attract a greater level of tourism exposure and activity to the precinct. Specifically, this proposal will provide a major contribution to the local and wider community of Western Australia through the following:

- Port Rockingham Marina represents a significant asset for the enjoyment of the community, providing much needed boat pens, combined with a range of recreation, tourism, restaurants and retail. The marina will be a major draw that will attract additional visitation to further activate the Rockingham Beach Foreshore;
- Port Rockingham Marina will promote the growth, development and evolution of the Rockingham City Waterfront Village Precinct into a more dynamic tourism and commercial hub;
- The development will be an employment generator that will provide many new jobs for the local community; and
- Port Rockingham Marina will improve the amenity and vibrancy of this section of Rockingham Beach for the benefit of residents and the local community.

The section of Cockburn Sound is naturally able to accommodate a marina development. A new marina development at the end of Wanliss Street which provides 497 boat pens, will alleviate the need to construct the Mangles Bay Marina, which has more far reaching environmental impacts, including the proposal to clear approximately 40 hectares of Bush Forever vegetation at Point Peron. It is considered that the Port Rockingham Marina proposal is more appropriately located compared to the Mangles Bay Marina and will provide substantial benefits back to the community and would alleviate the need to clear Bush Forever bushland at Point Peron.

1.1 Background and History

The City of Rockingham invited Expressions of Interest back in October 1998 seeking interest from private developers for the development and construction of a jetty/pier structure extending off Wanliss Street into Cockburn Sound. Conditional approval for a pier structure had previously been granted by the Western Australian Planning Commission for the jetty/pier structure in 1987, however the approval was never acted upon and the facility was not constructed.

A submission was subsequently made by a group of local business proprietors, in the name of Rockingham Beach Unit Trust who were successfully appointed to manage the project through to completion. The entity obtained a seabed lease from the Department of Transport in July 2003 for a term of twenty-one years with a further twenty-one year option.

The proposal subsequently evolved into a 500 berth marina and associated commercial land uses.

The Environmental Protection Authority issued an assessment (1681) of the application for Public Environmental Review (PER) of the Port Rockingham Marina in February 2010, and a subsequent amendment (1041) in November 2016, with conditions on implementation. The Environmental Protection Authority Ministerial Statement (Statement 826) granting approval to the PER application requires the marina proposal to be substantially commenced prior to the 18 February 2020, after which the environmental statement would lapse.

The Western Australian Planning Commission also granted development approval to the Port Rockingham Marina development in 2013 which has subsequently expired on the 18 February 2015. This application seeks re-approval of the development by the WAPC (DAP).

1.2 Requirement for Planning Approval

This application seeks planning approval pursuant to the Metropolitan Region Scheme (MRS) and the City of Rockingham Local Planning Scheme No. 2 for the parking in the road reserves within the Rockingham municipal boundary.

As the Port Rockingham Marina development exceeds $10m in construction value, the development is deemed a mandatory application that is required to be determined by a Development Assessment Panel. This application therefore seeks development approval from the Metro South-West Joint Development Assessment Panel (DAP) with the Western Australian Planning Commission as the responsible authority for the marina and parking components in the MRS Parks and Recreation and Waterways Reserve and the City of Rockingham for the car parking on its local reserves.

The relevant development application process in this instance is stepped out below:

1. Development application lodged with the City of Rockingham;
2. City of Rockingham to forward development application to the Western Australian Planning Commission and Development Assessment Panel within 7 days of receipt;
3. City of Rockingham to provide its recommendation to WAPC within 42 days of receipt of application for the MRS Reserve components;
4. WAPC and City of Rockingham to provide their responsible authority report to the DAP within 50 days of lodgement of application;
5. DAP makes a determination within 60 days of lodgement of application, given the City's advice that re advertising of the marina is not considered to be warrented.

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2. Subject Site

2.1 Location

The Port Rockingham Marina is proposed to be located at the end of Wanliss Street and is generally bound by Rockingham Beach Road to the east, and Mangles Bay to the north, west and south. The proposed marina itself is located beyond the City of Rockingham local government boundary within Cockburn Sound.

Refer to Figure 1 – Location Plan

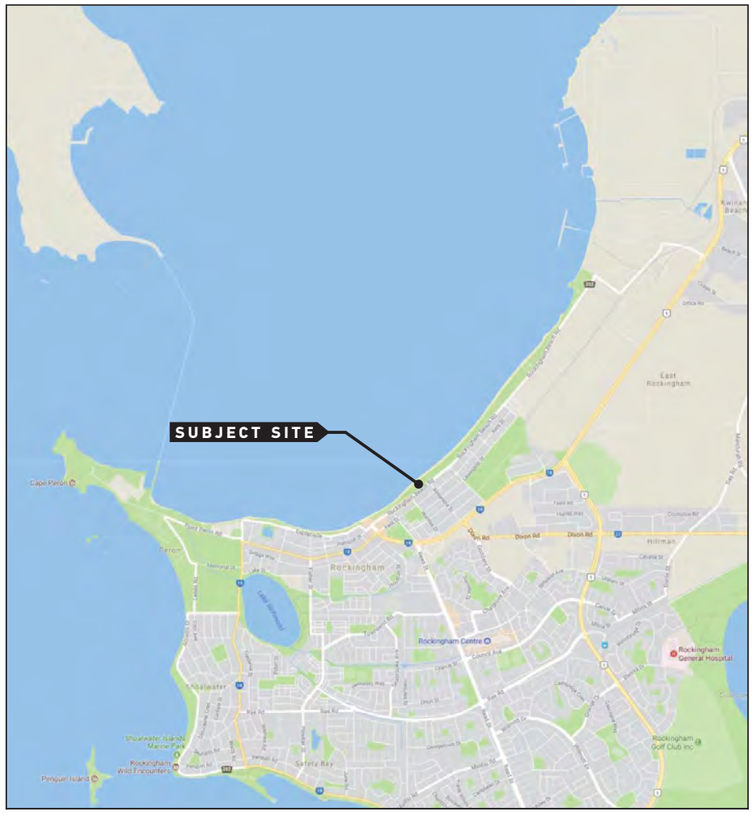

Figure 1 – Location Plan

2.2 Site Description

The subject site is described as including Wanliss Street road reserve, Lot 150 on Plan 223083, and part of Lot 4556 on Deposited Plan 220689 by way of Sea Bed Lease negotiated with the Department of Transport. The marina and foreshore parking site covers a total area of 19.141 ha. Additional on-street parking bays are also proposed within the Wanliss Street road reserve and Rockingham Beach Road road reserve. The particulars of the land parcels and Certificates of Title are summarised in the following table:

Lot No.	Plan	Vol / Folio	Area	Landowner	Management Authority
Wanliss Street and Rockingham Beach road reserves	Not applicable	Not applicable	N/A	State of WA	City of Rockingham
Lot 150	Plan 223083	LR3154-418	2.855 ha	State of WA	City of Rockingham
Lot 4556	Plan 220689	LR3116-806	16.07 ha Refer to Appendix A – Cockburn Sound Port Rockingham Marina Sea Bed Lease Site Plan Lot 1	State of WA Responsible agency – Department of Transport	Department of Transport Reserve 50180 for 'Harbour Purposes' Vested pursuant to section 9(1) of the Marine and Harbours Act 1981.

Refer to Appendix A – Certificates of Title

Refer to Figure 2 – Site Plan

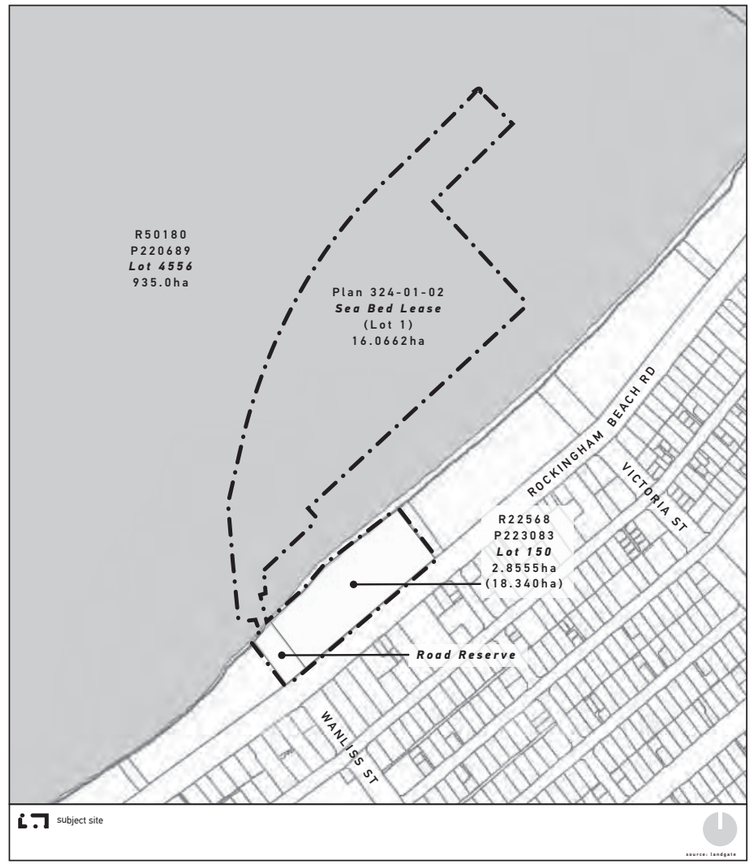

Figure 2 – Marina Site Plan

2.3 Site Context

The Port Rockingham Marina is proposed within the Cockburn Sound adjacent to the Rockingham foreshore north-west of the intersection of Wanliss Street and Rockingham Beach Road. Residential development is located immediately north-east of this intersection, consisting of a number of single detached dwellings. A number of bars, restaurants and short stay accommodation units are located to the south-west within the Rockingham Waterfront Village.

This section of the Rockingham foreshore is a popular tourist and recreation spot on WA's coastline, and includes many cafes and restaurants adjacent to the popular Bell and Churchill parks located immediately south of the proposed development. Further to the north of the subject site there are many large scale industrial developments including the CBH facility, which is located on Cockburn Sounds eastern shore.

Refer to Figure 3 – Aerial Plan

Figure 3 – Aerial Plan

2.4 Environmental Context

2.4.1 Aboriginal Heritage

A search of the Department of Aborigional Affairs (DAA) Aboriginal Heritage Inquiry System (DAA 2017) was conducted by Strategen (search conducted 9 June 2017) which identified that no Registered Sites are located within the subject site. The nearest registered site is Rotary Park, Rockingham (ID 3471) located approximately 1.4 km west of the subject site. No other Heritage Places were identified within the subject site.

2.4.2 European Heritage

There are no listed European heritage sites within the subject site. The nearest Heritage Place is 'Rockingham Cairn' (#18488) which is located north of the subject site near Governor Road, and 'Bell & Churchill Parks, Rockingham Beach' located south of the subject site.

2.4.3 Acid Sulphate Soils

Acid Sulphate Soils (ASS) are naturally occurring, iron-sulphide rich soils, sediments or organic substrates, formed under waterlogged conditions. If exposed to air, these sulphides can oxidise and release sulphuric acid and heavy metals. This process can occur due to drainage, dewatering or excavation.

A search of the Swan Coastal Plain ASS risk map (Landgate 2017) was undertaken by Strategen (search conducted 9 June 2017) which indicates that there is no mapped risk of ASS occurring within 3 m of natural soil surface in relation to the proposed works to be undertaken within Lot 150, being the foreshore reserve.

2.4.4 Contamination

A search of the Contaminated Sites Database was undertaken by **element** on the 6 November 2017. At the time of the search, no known contaminated, or potentially contaminated sites were identified within or immediately adjacent the subject site.

2.4.5 Flora and Fauna

The vegetation within the Project area is inferred to be Floristic Community Type (FCT) S14 – Spinifex longifolius grassland and low shrublands (RPS 2009). Bush Forever does not list this FCT as threatened (RPS 2009). No threatened or priority flora species were recorded in the Project area. There are also no Threatened Ecological Communities (TEC) or Priority Communities identified within the Project area (RPS 2009).

2.5 Past Applications and Approvals

2.5.1 Public Environmental Review

The Environmental Protection Authority (EPA) issued an assessment (1681) of the application for Public Environmental Review (PER) of the Port Rockingham Marina in February 2010, and a subsequent amendment (1041) in November 2016, with conditions on implementation. The Environmental Protection Authority Ministerial Statement (Statement 826) granting approval to the PER application requires the Marina proposal to be substantially commenced prior to the 18 February 2020, after which the environmental statement would lapse.

The three key requirements of the determination of the PER were that the proponent is to prepare and implement the following documents:

- Marina Waterways and Management Plan;
- Construction Environmental Monitoring Plan; and
- Adaptive Management Strategy (Coastal Hazard Risk Management and Adaptation Planning - CHRMAP).

The proponent has subsequently prepared the Marina Waterways and Management Plan and Adaptive Management Strategy (CHRMAP) and these are discussed later in this report. The Construction and Environmental Management Plan is proposed to be prepared subsequent to receiving a new planning approval and it is anticipated that a condition of planning approval will be imposed in this regard.

2.5.2 Development Approval

The Western Australian Planning Commission (WAPC) previously granted development approval (28-50143-1) for the proposed Marina development which expired on the 18 February 2015. The development approval related to a 497 berth offshore marina, which also incorporated a retail precinct of approximately 4,500m^2. The primary difference between the previous proposal and the proposal the subject of this current application, is that the current application now also proposes a hotel / short stay accommodation component which replaces the previous second level commercial office floorspace that formed part of the previous proposal.

The conditions of the previous development approval are provided below:

1. The development the subject of this approval shall be substantially commenced by 18 February 2015, otherwise the approval shall lapse and be of no further effect. Where an approval has so lapsed, no development shall be carried out without the further approval of the responsible authority having first been sought and obtained.

2. The design of the marina shall be modified to include the provision of two fishing jetties which are fully accessible to the public, to the satisfaction of the Western Australian Planning Commission and to the specification of the City of Rockingham and the Department of Transport.

3. The proposed marina structures shall be certified by a maritime engineer as conforming to Australian Standard AS 3962-2001 'Guidelines for the Design of Marinas', to the satisfaction of the Department of Transport.

4. All car parking and road upgrades to Wanliss Street car park, Wanliss Street and Rockingham Beach Road shall comply with the minimum standards of the applicable Australian Standard and the Building Code of Australia, to the satisfaction of the Western Australian Planning Commission and to the specification of the City of Rockingham.

5. Drainage systems shall be designed and constructed consistent with the Department of Water's Stormwater Management Manual for Western Australia.

6. Prior to commencement of works, landscaping details are to be prepared to the specification of and submitted to the City of Rockingham, to the satisfaction of the Western Australian Planning Commission. The landscaping shall be completed within 12 months of the completion of the building operations and shall be maintained to the specification of the City of Rockingham.

7. Prior to commencement of site works a modified construction management plan is to be prepared, to the satisfaction of the Western Australian Planning Commission on the advice of the City of Rockingham. The plan is to address aspects and impacts of the construction phase including staging, construction times, product storage, noise and dust mitigation, road condition survey, haulage routes, road reserve repair, waste management, haulage vehicles (parking, trailer covers) sand spillage, site stabilisation methods, construction signage, complaint resolution, wind fencing and water carts. The plan is to be implemented to the satisfaction of the Western Australian Planning Commission on the advice of the City of Rockingham and (the then) Department of Environment and Conservation.

2.5.3 Seabed lease

The proponent of Port Rockingham has previously obtained a lease from the Department of Transport (DoT) to establish a marina development over a portion of the seabed within the subject site. Following development approval, this seabed lease would be revisited and updated as required to accommodate the proposed development.

3. Planning Context

3.1 State Planning Context

3.1.1 Metropolitan Region Scheme

Pursuant to the Metropolitan Region Scheme (MRS) Lot 150 and portion of the Wanliss Street Road Reserve are reserved 'Parks and Recreation'. Areas reserved 'Parks and Recreation' provide land of regional significance for ecological, recreation or landscape purposes. Lot 4556 is reserved 'Waterways' under the MRS, which relates to the offshore component of the development located beyond the high water mark within Cockburn Sound. The proposed development is considered to be consistent with the intent of both of these reservations. The proposed on-street car parking is located within portions of road reserve zoned 'Central City Area' under the MRS.

Refer to Figure 4 – MRS Extract

3.1.2 Draft Perth and Peel at 3.5 Million

The *Draft Perth and Peel at 3.5 Million* is the most recent strategic planning framework for the Perth and Peel Region. Perth and Peel at 3.5 million builds on the vision and objectives *of Directions 2031 and beyond* and provides a link across the four sub-regional planning frameworks that define the spatial plan for the Perth and Peel regions for the next 35 to 40 years. Rockingham Marina is located within the *Draft South Metropolitan Peel Sub-Regional Framework* outlined below.

3.1.3 South Metropolitan Peel Sub-Regional Planning Framework

The South Metropolitan Peel planning sub-region covers an area of almost 5,000 square kilometres and comprises the cities of Armadale, Cockburn, Gosnells, Kwinana, Mandurah and Rockingham, as well as the shires of Murray, Serpentine–Jarrahdale and Waroona. The framework sets out a wide range of proposals, with principles relevant to the Port Rockingham Marina including the following:

- Protecting environmental attributes and managing water resources sustainably;
- Strengthen key activity centres;
- Facilitate the provision of service infrastructure, while maximising the use of existing infrastructure; and
- Encourage connectivity between areas of open space.

The *South Metropolitan Peel Sub-Regional Framework* identifies Rockingham as a Strategic Metropolitan Activity Centre, sharing City Centre and Urban land areas. A key identification is the opportunity to attract development and investment for future infrastructure to serve Rockingham and the wider catchment area.

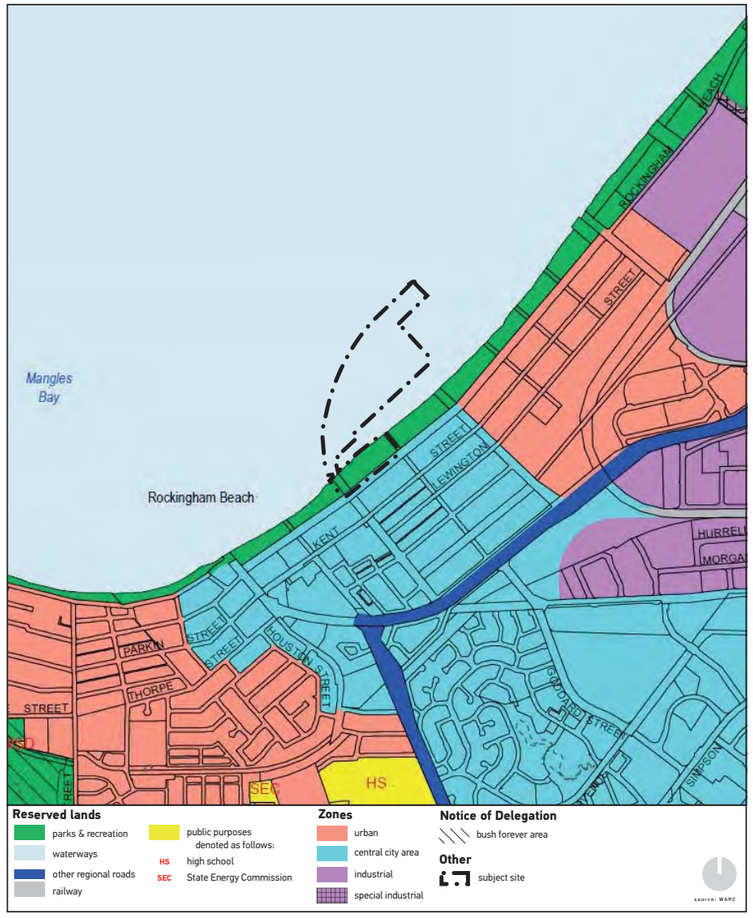

Figure 4 – MRS Extract

It is considered that the Port Rockingham Marina development is consistent with the framework as it will strengthen the existing Rockingham Waterfront Village and facilitate the attraction of further investment into the Rockingham Beach area, including the construction of a premium hotel facility that has long been identified as a need for this section of the coast.

3.1.4 State Planning Policy 2.6: State Coastal Planning Policy

State Planning Policy 2.6 – State Coastal Planning Policy (SPP2.6) provides guidance in relation to land use planning and development located within the coastal zone of Western Australia. Specifically, it requires development to have regard and respond to coastal hazards and risks associated with coastal erosion and storm surge.

Clause 5.2 (iii) of SPP2.6 requires consideration to be given to identifying strategic sites for coastal access and commercial development that is demonstrably dependent on foreshore locations, including ports, boat harbours and regional boat ramps.

SPP2.6 recognises a number of circumstances where it may be acceptable to locate development on land prone to coastal processes. This includes marinas and port facilities associated with recreational boating.

It is noted that a Coastal Hazard Risk Management Adaptation Plan (CHRMAP) has been prepared by the City for this section of the coastline in order to inform the preparation of a masterplan for the coastal foreshore reserve.

The proponent of the development has also prepared a Coastal Adaptation Plan which identifies appropriate adaptation responses to the identified risks of coastal erosion and storm surge on this section of the coast.

3.1.5 State Planning Policy 3.7: Planning in Bushfire Prone Areas

State Planning Policy 3.7 Planning in Bushfire Prone Areas (SPP 3.7) provides guidance in relation to land use planning and development to address bushfire risk management in Western Australia. It requires development in bushfire prone areas to adhere to objectives and policy measures with the objective to mitigate risk and vulnerability for people, property and infrastructure. SPP 3.7 also aims to achieve an appropriate balance between bushfire risk management measures, biodiversity conservation values, environmental protection and biodiversity management and landscape amenity.

Lot 150 on Plan 223083 and Wanliss Street road reserve sites reserved 'Parks and Recreation' under the MRS are both designated Bushfire Prone Areas. A Bushfire Management Plan has been prepared to respond to the relevant requirements of SPP 3.7. Whilst this is addressed later in the report, there is nothing precluding the development from being implemented, especially given the water separating the bush from the buildings and boats. It is also noted that this application seeks to clear degraded remnant bushland to make way for the Wanliss Street public car park extension, which will further reduce the threat of bushfire on the proposed development.

3.1.6 State Environmental (Cockburn Sound) Policy 2015

The Government of Western Australia has formally recognised and is conscious of the need to protect the intrinsic values of the Sound, including its ecological, social, economic, scientific, educational, cultural, recreational and aesthetic values. The overall objective of *State Environmental (Cockburn Sound) Policy 2015* (SECSP) is to ensure that water quality of the Sound is maintained and where possible improved so that there is no further net loss and preferably a net gain in seagrass areas, and that the other values and uses are maintained. The diversity and sometimes competing nature of activities in the Sound keeps it under ongoing environmental pressure.

SECSP allows for moderate ecological protection in areas within ports, harbours or marinas, allowing such infrastructure to continue to contribute to social, economic, cultural, and recreational values of the Sound. Relevant to the proposed Marina, the Cockburn Sound Management Council monitor water quality individually and the results will not be used to assess the status of broader Sound area.

The proponent has commissioned the preparation of a Marina Waterways Monitoring and Management Plan in line with the requirements of the Environmental Protection Authority approval to ensure water quality of the waters surrounding the marina is maintained to the relevant standards. The Marina Waterways Monitoring and Management Plan is discussed in further detail later on in this report.

3.1.7 Development Control Policy 5.3: Use of Land Reserved for Parks and Recreation and Regional Open Space

Development Control Policy 5.3 Use of Land Reserved for Parks and Recreation and Regional Open Space (DCP 5.3) establishes the Western Australian Planning Commission's (WAPC) position regarding the use and development of land reserved for Parks and Recreation in the Metropolitan Region Scheme (MRS). Relevant to the proposal, the WAPC accepts that there will be occasions when it may be appropriate to permit private business to locate on land reserved for Parks and Recreation or Regional Open Space. This is provided that:

(i) the nature and scale of the proposal is compatible with the use and zoning of surrounding land, the nature and purpose of the reserved land and the environmental character of the location;

(ii) there is a community need for the proposed facility in the proposed location;

(iii) the community and local government(s) support the proposal;

(iv) the proposal can be integrated with other planned facilities and sharing of facilities by more than one incorporated club, community group or private business; and

(v) the proposal is consistent with existing and/or proposed land use and management plans.

It is considered that the proposed Port Rockingham Marina is consistent with the intent of the regional reserves and complies with the above objectives in that:

i. the nature and scale of the Marina is compatible for its location in that it is located on a premium section of the Rockingham Beach Foreshore, is located adjacent to existing commercial and tourism uses and has previously received relevant environmental approvals which deem it compatible with its environmental context;

ii. previous community need has been identified for a marina and additional boat pens in this location;

iii. the City of Rockingham previously awarded this project to the developer to construct a jetty / pier. This project has evolved into a marina proposal which has previously received planning approval and has general support of the community and the City; and

iv. the proposal will augment and bolster the existing tourism, retail and recreation precinct along Rockingham Beach.

Through a Marina Waterways Monitoring and Management Plan, the Proponent will implement the proposal to satisfy the Environmental Quality Objectives (EQOs) and associated Levels of Ecological Protection (LEP), including their spatial allocation as specified in Schedule 2 of the State Environmental (Cockburn Sound) Policy 2015 (SEP, Version issued 2015) and its updates, such that the Environmental Values prescribed in Section 4 of the SEP are protected.

The Marina Waterways Monitoring and Management Plan is discussed in further detail later on in this report.

3.2 Local Planning Context

3.2.1 City of Rockingham Strategic Community Plan

The City's Strategic Community Plan 2015-2025 (SCP) provides corporate strategic direction for the growth and development of the City over a ten year period. The SCP identifies four areas of aspiration for the City, including Tourism Lifestyle, Strong Community, Quality Leadership and Sustainable Environment.

As foundations for developing a Tourism Lifestyle, the SCP recognises the need to focus effort on the Rockingham Beach Foreshore Precinct, Investment Attraction, Safety, Appearance and Cleanliness and Coastal Facilities. With respect to this, the SCP focusses on attracting major investment to the City, including leisure tourism and a major brand hotel and marina. The Port Rockingham Marina development directly responds to the City's desire to attract a greater level of investment around leisure tourism and hotel accommodation on the Rockingham Beach Foreshore.

The Port Rockingham Marina development directly responds and contributes to the City's vision for the Rockingham Beach Foreshore Precinct which is:

"A world-class foreshore precinct capitalising on its unique location and aspect, delivering a quality leisure tourism experience through contemporary design, best practice facilities and seamless linkage between beach, parkland and tourism-based commercial, retail and food and beverage outlets."

The construction of the Marina together with a premium hotel brand and leisure based retail offer at Rockingham Beach will help realise the City's vision for this precinct.

Key Tourism Lifestyle Strategic objective 4 states the following with respect to coastal facilities:

"A range of quality and contemporary leisure tourism facilities including a "major brand" hotel, marines, boat ramps, jetties, boardwalks and foreshore parks that contribute to the City's reputation as the premier metropolitan coastal tourism destination".

This development directly targets assisting the City of Rockingham to achieve this objective.

3.2.2 City of Rockingham Local Planning Scheme No. 2

Approval requirements

The Port Rockingham Marina component of the development is not subject to the City's Local Planning Scheme No. 2 (LPS 2) given that the development occurs on land reserved under the MRS and for the most part is also located outside of the City of Rockingham local government district boundaries. Clause 2.1.2 of LPS 2 states:

"The approval of Local Government under the Scheme is not required for the commencement of carrying out of any use or development on a Regional Reserve. The provisions of the Metropolitan Region Scheme continue to apply to such Reserves and approval is required under the Metropolitan Region Scheme for the commencement or carrying out of any use or development on a Regional Reserve, unless specifically excluded by the Region Scheme."

The only component of the proposed development the subject of the City's LPS 2 is the on-street parking proposed within the Rockingham Beach Road and Wanliss Street road reserves. These roads are reserved as 'Local Roads' pursuant to LPS 2 and the proposed on-street parking is consistent with the intent of this reserve.

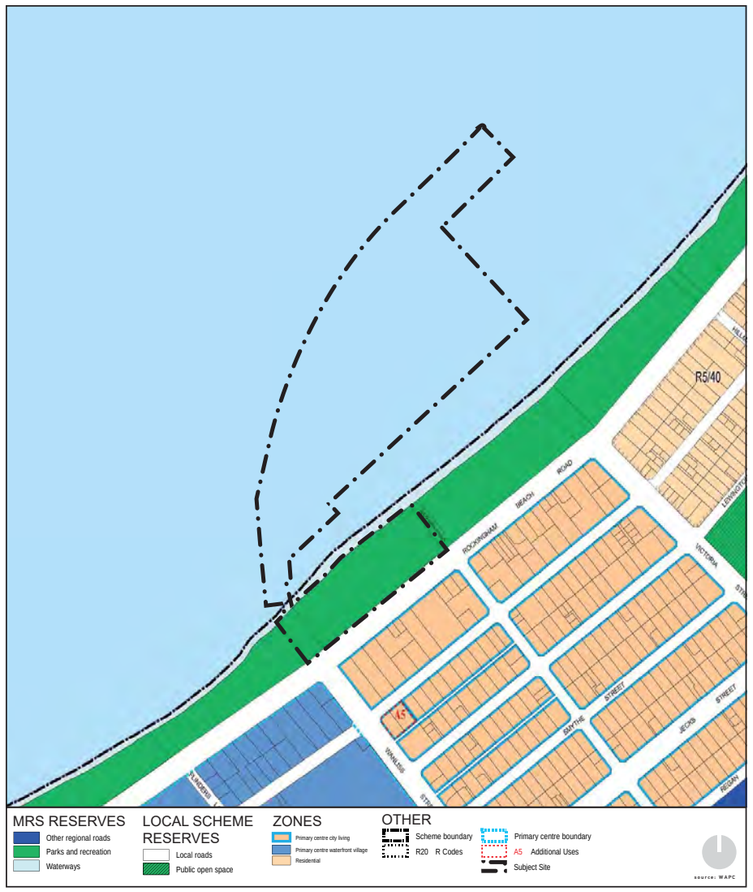

Figure 5 – Local Planning Scheme No. 2

Surrounding Zoning

As previously mentioned, the proposed development is to occur on land reserved under the MRS. Land immediately adjacent to the proposed development includes the Rockingham Beach Road reserve, which is reserved under LPS 2 as a 'Local Road'. Land adjacent to the proposed development, bound by Wanliss Street, Rockingham Beach Road, Alexandra Street and Kent Street is zoned 'Primary Centre City Living' which seeks to promote *'contemporary waterfront residential, tourist accommodation and recreational activities'*. Land bound by Wanliss Street, Rockingham Beach Road, Flinders Lane and Kent Street is zoned 'Primary Centre Waterfront Village' which seeks to promote 'contemporary waterfront residential and accommodation, commercial, tourism and recreational activities'. A mix of restaurants, shops and short stay accommodation are established within this area.

The proposed development is considered to be complementary to these adjacent land uses and will increase the retail, tourism and leisure offer in the Rockingham Waterfront Village area to ensure a wider regional draw of visitors and customers to support local business.

Refer to Figure 5 – Local Planning Scheme No. 2

Minimum Car Parking Standards

While not specifically applicable to this proposal, Table 2 of LPS 2 specifies minimum car parking requirements for specific land uses. In determining appropriate levels of car parking for the Port Rockingham development, we propose to have regard to the minimum requirements in the City's Scheme. This is discussed later in this report.

3.2.3 Rockingham Strategic Metropolitan Centre

State Planning Policy 4.2 - Activity Centres for Perth and Peel (SPP 4.2) requires that the City of Rockingham prepare and maintain an endorsed Activity Centre Structure Plan to guide development within the Rockingham Strategic Metropolitan Centre. The City has prepared a contemporary overall Rockingham Strategic Metropolitan Centre Activity Centre Structure Plan (Structure Plan) to guide the future development of public and private property within the Centre.

In November 2009, the WAPC endorsed the Stage 2 Reports as per SPP 4.2 Activity Centre Plan to guide the future development of the City Centre. The Structure Plan outlined 10 different sectors within the activity centre area, with the subject site located in Sector 9 – Northern Waterfront.

The City then prepared the necessary statutory mechanisms to support the Structure Plan. As the subject site is located within Sector 9 – Northern Waterfront, the primary statutory tool in the area is *Local Planning Policy No. 3.2.6 Development Policy Plan Northern Waterfront Sector* discussed below.

3.2.4 Local Planning Policy No.3.2.6 Development Policy Plan Northern Waterfront Sector

Local Planning Policy No. 3.2.6 Development Policy Plan Northern Waterfront Sector (LPP 3.2.6) focuses on the Northern Waterfront Sector, which is one of a number of defined development sectors within the planning envelope of the endorsed Structure Plan. LPP 3.2.6 provides a more detailed planning vision and policy framework for the sector and sets out the planning context and detailed guidelines within which a properly integrated and high amenity urban renewal outcome may be achieved.

LPP 3.2.6 is primarily concerned with the urban renewal of the residential areas in the sector, however the following planning and development principles are considered relevant to the proposed Marina development:

- *Manage provision of adequate parking facilities and encourage integration of car parking with adjoining sites which are convenient, safe and sustainable;*
- *Locate parking areas to minimise adverse impacts on the streetscape;*
- *Encourage land uses and developments that employ and attract high numbers of people. Such uses should include medium to high density residential, short stay accommodation, retail, civic and community facilities, educational and cultural facilities, cafes, restaurants, hotels, offices and other intensive employment uses; and*
- *Enhance the activity appeal of the Northern Waterfront to both local and regional visitors.*

The proposed development will facilitate a significant improvement to access to public car parking in proximity to the Northern Waterfront Sector. In providing publicly accessible parking within the Wanliss Street road reserve, Rockingham Beach Road reserve and Wanliss Street public car park extension, the need to provide at grade parking within private commercial property will be alleviated, thus meeting the objectives of this policy.

LPP 3.2.6 identifies the proposed development of a Rockingham Marina as one of the key factors in increasing the attraction of the Northern Waterfront sector. Under LPP 3.2.6 Catalysts for Change section 4.3, planning for the effects of a possible marina development considers the following:

> *An appropriately designed marina built offshore from the Northern Waterfront could complement the recreation and tourism infrastructure of the adjacent Waterfront Village.*

LPP 3.2.6 recognises the increased demand for residential accommodation that occurs with a marina development. As such, the proposal responds to this demand with the provision of short stay accommodation.

The 'Parks and Recreation' reserves of Lot 150 and the Wanliss Street Road Reserve also form part of the Northern Foreshore Precinct as one of three precincts within the Sector. Enhanced foreshore parkland with comprehensive shade tree planting is identified as a critical objective for the precinct. Structural plantings are identified as being needed around the public barbeque and shelter areas to create a sense of shelter and amenity. This is intended to improve local amenity by providing shade to pedestrians and beach users, whilst also enhancing the local streetscape.

The City has recently completed a Street Tree Masterplan that makes provision for new tree planting along both sides of Rockingham Beach Road.

3.2.5 Local Planning Policy 3.3.4 Cash-in-Lieu of Car Parking

Local Planning Policy 3.3.4 Cash-in-Lieu of Car Parking (LPP 3.3.4) sets out the objectives and policy provisions for the consideration of the Council in applications seeking to pay cash-in-lieu of the provision of car parking.

This Planning Policy only applies to commercial developments within the Commercial, Development, City Centre and the Baldivis Town Centre zones and it may apply to the Service Commercial zone, in exceptional circumstances. The requirements of this Policy are therefore not applicable to the proposed development, also noting that the City's Scheme and policy framework do not directly apply to the development.

Notwithstanding that this Policy does not apply to the proposed development, we note that the proposed development will facilitate the provision of public parking at no cost to the City and therefore the requirement to pay cash-in-lieu of parking is not relevant to this proposal.

3.2.6 Local Planning Policy 7.3 Cockburn Sound Catchment

Local Planning Policy 7.3 Cockburn Sound Catchment (LPP 7.3) was a whole-of-government response to the deterioration in water quality and loss of marine habitat within Cockburn Sound. The Cockburn Sound Management Council had 23 members selected from a broad base of state and local government, community, industry and other user groups to facilitate the coordination of environmental management and planning for Cockburn Sound and its catchment.

The purpose of LPP 7.3 is to protect and improve the marine waters of Cockburn Sound by minimising contaminant inputs. To achieve this, LPP 7.3 has objectives for long-term protection and improvement of water quality, ensure risk and protection measures are implemented, maintain or increase native local vegetation, and ensure efficiency and consistency in the local government process.

The Port Rockingham Marina proposal is supported by a number of technical documents, including a Marina Waterways Monitoring and Management Plan to ensure water quality around the marina is maintained to an acceptable standard. This document is discussed in further detail later on in this report.

3.2.7 Public Parking Strategy for the Strategic Metropolitan Centre

Following being made aware of the pending Development Application for the marina, the City subsequently released its Public Parking Strategy for the Strategic Metropolitan Centre on the 1 September 2017 for public comment. **element** on behalf of the developer of the Port Rockingham Marina made a formal submission on the draft policy, which objected to specific elements of the draft strategy, in particular Section 4.2.2 which seeks to impose requirements on the future Port Rockingham Marina development.

In summary, the submission raised the following concerns with the strategy:

1. The commercial component of the proposed Marina at Wanliss Street is located outside of the City of Rockingham Local Government District boundaries and the remainder of the proposal (public car parking and associated infrastructure) is located on land reserved under the Metropolitan Region Scheme. The requirements of the draft PPS therefore are not able to be applied to the Marina proposal.
2. The Marina proposal will include the construction of 628 public car parking bays at no cost to the City. It is proposed to extend the Wanliss Street Public Car Park generally in accordance with the City's Rockingham Beach Foreshore Master Plan with the remainder of bays to be constructed within the Rockingham Beach Road Reserve. These additional public car parking bays will improve car parking availability in proximity to Rockingham Beach and will also be able to accommodate overflow parking on event days.
3. **element** strongly object to the City seeking to impose a requirement for the Marina developer to pay cash-in-lieu of car parking and requested that the City remove any reference to the requirement to pay cash-in-lieu of car parking for the Marina proposal within the draft policy.

4. The draft PPS and associated planning framework does not establish an appropriate approach to the collection and expenditure of cash-in-lieu funds for public parking in line with the principles established in State Planning Policy 3.6, which are broadly categorised as follows:
    a) Need and nexus;
    b) Transparency;
    c) Equity;
    d) Certainty;
    e) Efficiency;
    f) Consistency; and
    g) Accountability.

A full copy of **element's** submission is provided at Appendix B.

The City subsequently resolved to adopt the strategy without modification at its council meeting held 19 December 2017. We note that the City commenced preparation of this policy following lapse of the previous development approval associated with the marina, however the policy specifically includes a section and statements which target the marina proposal.

The policy notes that the previous development approval permitted the construction of car parking bays within the adjacent foreshore reserve and local road reserves and then states that the City will no longer support parking bays associated with the marina being provided within the public domain. The policy now seeks to obtain cash-in-lieu payment for car parking associated with the marina so that the City can fund construction of a decked public parking facility elsewhere within the Waterfront Village. The location of the decked parking station means that it will unlikely be of benefit to many users of the marina, such as the users of the boat pens and the hotel component.

We question the level of regard that should be held for a reactive policy specifically targeting a development proposal that has previously been approved and whether that constitutes orderly and proper planning.

We respectfully request that the decision-making authority seeks to grant approval to the marina proposal consistent to the previous planning approval with respect to the provision of car parking associated with the marina.

3.2.8 Rockingham Beach Foreshore Revitalisation Project

In 2015 the City developed a Master Plan for the Rockingham Beach Foreshore. Through extensive community consultation, the Master Plan identified the following ambitions that inform the Revitalisation Project:

- *Provide an innovative upgrade that retains the best elements of the existing foreshore;*
- *Be focused on activation of these areas following construction;*
- *Integrate foreshore businesses and the parks area into a seamless whole;*
- *Provide reasons unique to the region, and Western Australia for people to want to visit the Rockingham Beach Foreshore;*
- *Provide a high quality space and environment that residents of Rockingham can be proud of;*
- *Incorporate a strong point of difference to other beachside developments, particularly in the region, but also across Australia; and*
- *Bring to life the stories inherent in the local heritage through design of its elements. This includes Garden Island Naval Base, Rockingham's maritime history, and local Waakal beliefs.*

The Master Plan did not identify a marina in any indicative plans for the Rockingham foreshore at the time. The primary focus was on increasing amenity, access and function of the foreshore for residents, visitors and tourists. Additional public parking was identified within the Wanliss Street public car park, which is now proposed to be delivered by the developer as part of this application.

Notwithstanding, the Marina proposal will enhance the principles embodied in the Master Plan, including increasing the amenity of Rockingham Beach, and further activating the foreshore through attracting a wider draw of visitors to the precinct.

A Landscape Concept Plan has been prepared and is contained at Appendix C. This Landscape Concept Plan demonstrates how the proposed development and associated foreshore landscaping and infrastructure will tie in with the City's wider vision for the Rockingham Beach foreshore. Consistent with the Rockingham Beach Foreshore Master Plan, the Landscape Concept Plan provides for:

- extension of the Wanliss Street car park;
- a continuous path running adjacent to the beach;
- beach access ramp;
- retention of an area set aside for playground, public toilets and kiosk;
- retention of remnant vegetation where possible; and
- opportunities for public art.

4. Proposed Development

4.1 Development Summary

The proposed development is intended to provide a marina on the Rockingham foreshore, with associated parking and infrastructure. Short stay accommodation will also form part of the proposal to support the functionality of the Port Rockingham Marina. The proposed development in its entirety consists of the following:

- Marina groyne encompassing a total of 497 boat pens;
- An extension to the existing 83 bays within the Wanliss Street public car park to provide a total of 216 bays;
- 12 ground floor commercial tenancy units (inclusive of hotel restaurant) with a total net lettable area floorspace of 2,689m^2 plus alfresco;
- 93 short stay accommodation units;
- Two public fishing platforms;
- A refuelling jetty
- 135 car bays on the breakwater to provide parking access to the boat pens and parking for hotel staff;
- 195 additional on-street parking bays proposed within the Wanliss Street road reserve; and
- 179 additional on-street parking bays proposed within the Rockingham Road road reserve.

Refer to Appendix C - Development Plans

4.2 Design Philosophy

The development of a hotel and commercial facilities at Port Rockingham presents Western Australia with a unique opportunity to create a destination for locals and tourists alike. Critical to the success of the facility is to provide an urban and architectural outcome that is contemporary and inviting to the visitor.

The experience commences upon entering the boardwalk with a clearly define pathway and roadway using materials such as red bitumen, large format paving to define the road vs pedestrian zones, further separated by bollards for pedestrian safety. The design will incorporate a central stormwater swale with paved gutter which will assist with traffic calming as the area is designed as a pedestrian priority zone. The board walk incorporates a covered walkway and windbreak in the form of coreten steel panels with the side perforated decorative panels allowing views to the ocean whilst also acting as a wind break.

Approaching the buildings, the first element that is evident is the landscaping and sculpture leading to the impressive timber and steel porte cochere of the hotel. This element provides for year-round access to the hotel as a drop off and pick up area separate from the main thoroughfare. Opposite to the hotel entrance is the first of the commercial tenancies to incorporate food, shopping and tourist focused activities, all with canopy or built form overhangs for year-round weather protection.

Moving past the hotel into the centre of the site is the commercial retail hub with large central landscaped piazza for dining, sitting, meeting, the hub of the centre and providing a link to the other commercial tenancies to the north and west. The commercial tenancies are dual sided allowing for multiple access points and a diversity of alfresco environments for food and drink based tenants.

The management of deliveries will be centred at the two loading delivery areas one for the commercial tenancies and one for the hotel. The impress of goods will be scheduled in accordance with the facilities management plan to minimise vehicular pedestrian conflicts. Waste is located centrally away from the hub incorporating a compactor, bale press and variety of bins for the storage of waste in accordance with the waste management plan. The bin storage area is screened from view using coreten steel decorative screens of varying heights to create vibrancy and interest not usually afforded to such a utilitarian function.

The building architecture may be described as a contemporary reinterpretation of the dockside sheds using high quality materials such as matt aluminium colourbond wall cladding and roofing, coreten steel, marine grade stainless steel, double glazing, aluminium and timber highlight features. The materials have been selected based upon robustness and their suitability for a marine environment. The ground levels incorporate substantial glazing to commercial facility shopfronts whilst the upper level incorporates the hotel rooms. The ground level facilities are designed to open up and engage with the public areas maximising the potential for commercial success. Central to the port is the hotel which has its lobby, bar and restaurant café facilities at the fulcrum of the development anchoring the entrance and central piazza hub.

The hotel rooms at the first floor level overlook the water and the urban activity areas and the balconies act as a continuous cover to the commercial activities below. The balconies have been designed to afford additional visual privacy to the hotel guest with a solid upstand to part of the balcony front whilst still allowing for interaction and passive overlooking for visual security through the glazed portion of the balcony front. The walls and the large roof overhangs clad in a timber like finish present a soft visual backdrop more like a resort than urban hotel, reflective of the marine and pier environment. The use of double glazing to the hotel rooms in combination with the higher balcony upstands (glazing to 1500mm high) will afford better acoustic outcomes for the guests as well as better year around weather protection, making the balconies a usable space.

4.3 Landscaping

A Landscape Concept Plan has been prepared to demonstrate how the proposed marina development will interface with and integrate with the wider Rockingham Beach foreshore reserve. It is proposed that a detailed landscape plan will build on the principles contained within the Landscape Concept Plan and it is anticipated that a detailed landscape plan will be required to be prepared as a condition of development approval.

In summary, the Landscape Concept Plan proposes the following:

- An extension of the Wanliss Street public car park and integration of landscaped drainage swales in between car parking aisles to facilitate on-site treatment and infiltration of stormwater. Select coastal tolerant shade trees will be incorporated within the car parking area to provide shade and to provide a visual relief to the car park;
- One-way vehicle entry into the proposed development adjacent to the intersection of Wanliss Street and Rockingham Beach Road and separate two-way crossover entry/exit into the Wanliss Street public car park further east on Rockingham Beach Road. The car park has been designed to accommodate swept path movements of coach buses and service vehicles;
- A plaza space at the entry to the marina pier to consist of unitised stone and concrete pavers to designate the area as a pedestrian priority zone. A ramp and separate generous set of steps will provide pedestrian and mobility access down to the beach;
- Provision for service vehicle access onto the beach at the north-eastern end of the Wanliss Street public car parking. This access coincides with an existing access track to the beach in order to limit disruption to the dune and dunal vegetation;
- Provision for a continuous path adjacent to the beach with a pedestrian priority plaza zone at the 'knuckle' to the proposed development signalling a slow speed shared environment;
- Remote control bollards to restrict vehicle entry into the marina to authorised vehicles only. The bollards have been located so as not to impede continuous pedestrian and cyclist movement along the foreshore adjacent to the beach;
- Relocation of four existing Norfolk Island pine trees and incorporation into the landscape entry to the marina development;
- An extended covered entrance to the marina inviting pedestrians into the development from Rockingham Beach Road;
- Retention of Bell Park and provision of area for City planned facilities such as the existing playground, public toilets and kiosk;
- Feature tree planting and opportunities for public art at the entry to the development; and
- Retention of remnant vegetation where possible.

The Landscape Concept Plan is contained at Appendix C.

4.4 Land Use

Given that the proposed development is not subject to the provisions of LPS 2, approval is sought for the following land uses as defined in Schedule 1 (model provisions for local planning schemes) of the *Planning and Development (Local Planning Schemes) Regulations 2015*:

Development Component	Proposed Land Use
• Wanliss Street Public Car Park extension • On-street parking bays within Wanliss Street and Rockingham Beach Road road reserves	**car park** means premises used primarily for parking vehicles whether open to the public or not but does not include — (a) any part of a public road used for parking or for a taxi rank; or (b) any premises in which cars are displayed for sale;
93 Short stay accommodation units	**hotel** means premises the subject of a hotel licence other than a small bar or tavern licence granted under the *Liquor Control Act 1988* including any betting agency on the premises; **serviced apartment** means a group of units or apartments providing — (a) self-contained short stay accommodation for guests; and (b) any associated reception or recreational facilities;
Marina	**Marina** means — (a) premises used for providing mooring, fuelling, servicing, repairing, storage and other facilities for boats, including the associated sale of any boating gear or equipment; and (b) all jetties, piers, embankments, quays, moorings, offices and storerooms used in connection with the provision of those services;
Ground Floor Commercial Tenancies	**amusement parlour** means premises – (a) that are open to the public; and (b) that are used predominantly for amusement by means of amusement machines including computers; and (c) where there are 2 or more amusement machines;
	art gallery means premises – (a) that are open to the public; and (b) where artworks are displayed for viewing or sale;
	convenience store means premises – (a) used for the retail sale of convenience goods commonly sold in supermarkets, delicatessens or newsagents; and (b) operated during hours which include, but may extend beyond, normal trading hours; and (c) the floor area of which does not exceed 300m^2 net lettable area;
	office means premises used for administration, clerical, technical, professional or similar business activities;
	fast food outlet/lunch bar means premises, including premises with a facility for drive-through service, used for the preparation, sale and serving of food to customers in a form ready to be eaten – (a) without further preparation; and (b) primarily off the premises;
	market means premises used for the display and sale of goods from stalls by independent vendors;
	Reception centre means premises used for hosted functions on formal or ceremonial occasions;
	restaurant/cafe means premises primarily used for the preparation, sale and serving of food and drinks for consumption on the premises by customers for whom seating is provided, including premises that are licenced under the *Liquor Control Act 1988;*
	shop means premises other than a bulky goods showroom, a liquor store — large or a liquor store — small used to sell goods by retail, to hire goods, or to provide services of a personal nature, including hairdressing or beauty therapy services;
	small bar means premises the subject of a small bar licence granted under the *Liquor Control Act 1988*;
	tavern means premises the subject of a tavern licence granted under the *Liquor Control Act 1988;*

It is envisaged that the planning approval will be granted for all of the uses listed in the table and that these uses can be readily interchangeable within the various tenancies proposed without requiring further planning approval from the WAPC. It is considered that all the uses proposed are consistent with the amenity of the Rockingham Beach precinct and with the functionality and amenity for the adjacent Waterfront Village Precinct and that the uses proposed can co-exist together. The operator of the Marina will determine the optimal mix of tenancies required to activate the Marina.

4.5 Car Parking

4.5.1 Wanliss Street Public Car Park

It is proposed to modify and extend the Wanliss Street Public Car Park from the existing 83 bays to a total of 198 bays, representing an increase in 115 public car parking bays immediately adjacent the proposed Port Rockingham development and in walking distance to the Rockingham Foreshore commercial strip. It is reinforced here that these bays will be public car parking bays for use by the general public and will not be restricted to Port Rockingham tenants or visitors to the Marina.

In summary, the modifications to the Wanliss Street public car park include the following:

- a reconfigured one-way entry into the public car park which will also serve as the primary vehicle entry onto the Port Rockingham Breakwater. This will provide access to car parking bays on the breakwater associated with the boat pens as well as provide service vehicle access for deliveries and waste removal associated with the commercial and hotel component of the Marina;
- decommissioning of the existing vehicle exit crossover from the car park and provision of a new two-way entry/exit crossover off Rockingham Beach Road further to the north-east of the existing crossover;
- provision of a total of 198 car parking bays in a new configured layout that maximises vehicle permeability throughout; and
- reconfigure the existing footpath on the northern extent of the public car park where required.

It is proposed to clear the remnant vegetation within the foreshore reserve to make way for the car park extension which is in accordance with the EPA approval previously granted for the Port Rockingham Marina development. The car park extension is also set back on the landward side of the modelled 2040 coastal erosion line to ensure that the parking is not at risk of coastal erosion in the immediate future.

Refer to Appendix C – Development Plans

4.5.2 Breakwater Parking

It is proposed to provide 135 car bays on the breakwater to provide parking access to the boat pens and for use by hotel staff. The breakwater parking will include disabled access parking to provide access onto the Marina for the mobility impaired.

4.5.3 On Street Car Parking

Rockingham Beach Road

In order to provide for parking for the proposed development and the precinct as a whole, it is proposed to construct an additional 179 angle car parking bays within the Rockingham Beach Road reserve between Wanliss Street and Victoria Street. These bays could be constructed at the developers cost as a condition of planning approval and provide additional parking to the public adjacent to the Rockingham Beach foreshore. Whilst it is noted that informal parking already occurs within this section of the Rockingham Beach Road reserve, especially during events on the foreshore, the formalisation of parking will optimise the access to an increased number of possible parking bays and improve foreshore accessibility for those arriving by car. The formalisation of angled parking will also reduce damage to the Rockingham Beach road reserve as a result of informal parking activity, as well as enhance the streetscape.

Wanliss Street

Similarly to the Rockingham Beach Road on-street parking, it is possible to provide an additional 195 car parking bays within the Wanliss Street road reserve between Kent Street and Patterson Road, which again could be at the developers cost as a condition of planning

approval. These would be publicly accessible bays which would increase the supply of public parking near the Rockingham Beach foreshore and adjacent the Waterfront Village precinct.

These bays are anticipated to be required to be constructed by the developer as a condition of planning approval.

4.5.4 Summary of Car Parking Provision

The overall parking that could be provided as part of this development is summarised below:

Description of Parking	Number of Bays
Wanliss Street Public Parking Extension A total of 198 car parking bays representing an increase in 115 bays to the existing 83 bays.	115 bays
Breakwater Parking 135 car parking bays proposed on the breakwater.	135 bays
Port Cochere Drop Off Bays A total of 4 drop off bays.	4 bays
Rockingham Beach Road On-Street Parking A total of 179 additional car parking bays.	179 bays
Wanliss Street On-Street Parking A total of 195 additional car parking bays .	217 bays
Total	**628 bays**

4.5.5 Assessment of Minimum Parking Requirements

While the requirements of the City's LPS 2 are not applicable to the marina component of the proposed development, an assessment against the minimum car parking requirements of the City's Scheme has been undertaken to provide an indication as to how the development would otherwise comply with minimum car parking requirements. It is also not possible to anticipate the type and distribution of tenancies that will occupy the Marina tenancies. Therefore a 'best guess' breakdown of land uses has been assumed for the purposes of this calculation. Where applicable, the parking requirements of Table 4 of LPS 2 have been applied as these rates relate to the Primary Centre Waterfront Village Zone on the basis that this zone is located adjacent to the proposed development and is arguably the zone most consistent with the uses contained in the proposed development. We also note that LSP2 does not reference a car parking requirement for boat pens, so we have used AS 3962-2001:Guidelines for design of marinas as a guide.

Land Use Description	Minimum Car Parking Rate	Source	Total Minimum Required
Marina 497 boat pens	0.6 bays / pen	AS 3962	298.2 bays
Hotel (93 units) 280 m^2 of restaurant / bar area (approx.)	1 bay per dwelling included above (ancillary to short stay accommodation use)	As per the R-Codes	93 bays for units
Restaurant / Café Total 1,343m^2 floorspace; 1,074.4m^2 dining area) Indicative based on tenancies 1,4-7	1 bay for every 8 persons the building is designed to accommodate *Assume 8 persons = 10m^2 dining area	Table 4 of LPS 2	107.4 bays
Shop (555m^2 floorspace) Indicative based on tenancies 3,8-10	1 bay per 22m^2 NLA	Table 4 of LPS 2	25.2 bays
Tavern (303m^2 total; 240 m^2 public area) Indicative based on tenancy 11	1 / 6.5m^2 NLA	Table 4 of LPS 2	36.9 bays
Office (208m^2 floorspace) Indicative based on tenancy 2	1 bay per 40m^2 NLA	Table 4 of LPS 2	5.2 bays
Total			**565.9 (566) bays**

As described above, the developer is willing to accept as a condition of planning approval to construct a total of 628 bays in the immediate locality of the proposed development. This represents a surplus of 62 car bays compared with the minimum bays required under LSP2. The development is therefore considered compliant with the minimum car parking requirement that would ordinarily be required pursuant to LPS 2 (and the Australian Standards) for such a development.

As the development proposal includes the construction of substantial more public parking for use by the wider community than what would ordinarily be required for such a development, it is argued that the requirements to pay cash-in-lieu is not required in this instance.

4.5.6 Reciprocal Car Parking

As outlined in the Traffic Report prepared by Riley Consulting in Appendix D, it is unlikely that the peak demand for parking associated with the various land uses will coincide due to the varied nature and operational requirements of the uses. It can be expected that the marina based functions will have a peak parking attraction in the morning whilst the commercial uses will have a peak demand later in the day and in the evening. There is a significant potential for reciprocal parking, thus reducing the overall peak period parking demand. As identified in Appendix D, restaurants are known to attract up to 40% of patrons from people passing-by, potentially reducing the parking requirements for the restaurant component alone by up to 60 bays.

The Traffic Report notes that the potential reciprocal parking and cross-visitation could reduce parking demands by at least 12% to the minimum requirements of LPS 2. This figure could potentially be much greater, given the mix of uses and on the basis that 298 bays have been attributed to the 497 boat pens, which are unlikely to be 100% occupied by cars associated with the boat pens for most of the year.

Based on a conservative ratio of 12% reciprocal parking demand, peak parking requirements would total 510 bays.

4.6 Boat Access and Refuelling

The Marina has been designed to provide a high pedestrian amenity with a 2.5 metre minimum width covered pedestrian path adjacent to the groyne access way. Vehicles can, by prior arrangement (or allocated swipe card), utilise the bridge connection to the groyne to access the boat berth parking on the marina groyne, so that lessees of the boat pens have easy access to their boats and boat pens. Parking will also be provided for hotel staff on the groyne to ensure safe and direct car parking for staff. The groyne parking will also include disabled parking for those wanting to enjoy the Marina. Disabled access will be managed through the Marina management.

A refuelling jetty has been provided within the marina at the commencement of the breakwater to provide for boat refuelling.

4.7 Ongoing Management Responsibilities

It is proposed a single entity will be responsible for managing the assets at Port Rockingham, including the breakwater, jetty and marina. This entity will also be responsible for the relevant coastal monitoring and management associated with the development. A clear link will therefore be maintained between the assets and the management responsibility. The monitoring and maintenance works will be completed in consultation with the City and would require City approvals.

The Proponent will also be responsible for monitoring and maintaining assets constructed as part of the proposed Port Rockingham development. This would include regular inspections of the breakwater and jetty structures and assessment of condition.

The Proponent will also be responsible for the costs associated with any sand bypassing required as a result of the Port Rockingham Marina development. An appropriate condition in this regard is expected to be applied to the planning approval.

The City would still be responsible for managing City assets, such as the foreshore adjacent to Port Rockingham, the Wanliss Street public car park and other City infrastructure.

5. Site and Development Investigations

5.1 Traffic and Transport Assessment

Riley Consulting were originally engaged in 2011 to prepare a traffic and transport assessment for the Port Rockingham development to support the original development application. Riley Consulting were subsequently engaged to prepare an update to this report in February 2017. The City provided comments in relation to this report as part of the preliminary assessment of the development application, and subsequently, Riley Consulting updated the report in June 2018 to respond to items raised by the City.

In summary, the revised assessment finds the following in relation to the proposal:

- The proposed development is shown to generate approximately 30% less traffic than considered in the 2011 traffic report.
- In total 2,579 vehicle movements per day are forecast to use the marina facilities during peak days of activity.
- Peak use is expected to occur on Sundays between 12pm and 1pm. During this period 245 vehicle movements are anticipated, based on all land uses being considered in isolation.
- The peak attraction is shown to have no material traffic impact to the surrounding road network.
- Intersection analysis undertaken in 2011 showed operation with very good Levels of Service with the proposed marina. The change to the proposed land uses will not change this finding.
- Parking greater than the minimum set out in the City of Rockingham's TPS can be provided for the marina.

It is concluded that the change to the proposed development will have no greater impact to the local road network than identified in the original 2011 traffic report. Indeed, with a 30% reduction to traffic demands based on isolated land uses, the impacts are anticipated to be much less.

Based on the WAPC traffic impact guidelines, the proposed marina would be expected to have no material traffic impact.

5.2 Bushfire Management Plan

Bushfire Smart conducted a Bushfire Attack Level (BAL) Assessment and provided a subsequent Bushfire Management Plan (BMP) for areas including and surrounding the subject site in January 2017. This report was subsequently updated in June 2018 in response to comments received from the Department of Fire and Emergency Services.

Due to the restricted nature of access in and out of the marina, the proposed marina is classified as a vulnerable land use pursuant to State Planning Policy 3.7. The determined BAL for the site is BAL 12.5. In order to meet requirements for bushfire protection, the BMP outlined the necessary bushfire risk management measures around four elements. A summary of the measures is presented in the following table:

Element	Intent	Response
1. Location	To ensure that strategic planning proposals, subdivision and development applications are located in areas with the least possible risk of bushfire to facilitate the protection of people, property and infrastructure.	The risk of bushfire ignition from the site itself is low as it is located in the ocean. However, due the current separation distance from the classified vegetation on shore, the Bushfire Attack Level on site will not exceed BAL-12.5.
2. Siting	To ensure that the siting and design of development minimises the level of bushfire impact.	The proposed development is located in the ocean with the first building (hotel) at a distance of 50.5 meters from the closest classified vegetation. Since there is no classifiable vegetation in the ocean, there is no suitable risk of ignition. By the very nature of a port development, performance principle P2 of the guidelines is satisfied. However, if any vegetation is to be proposed on site in the future in the form of parks or nature strips, there should be a plan for regular management to ensure the vegetation is always kept in a low fuel/ low threat condition as per the exclusion clause 2.2.3.2 (f) from the AS3935.
3. Vehicular Access	To ensure that the vehicular access serving a subdivision/development is available and safe during a bushfire event.	Access will primarily be provided by Rockingham Beach Road giving a choice of two safe egress destinations to the north-east and south-west, which are available to all people at all times.
4. Water	To ensure that water is available to the subdivision, development or land use to enable people, property and infrastructure to be defended from bushfire.	The site will have access to reticulated water to cater for proposed future developments on site.

The BMP also made a number of recommendations, including the following:

1. A notice is to be placed on titles by the local government alerting future landowners to this BMP.
2. All future vegetation proposed on site must be kept in a low fuel condition at all times and to abide by the Performance Principle; P2 from the guidelines for planning in bushfire prone regions.
3. Proposed road to meet the requirements of element 3 from the Guidelines for Planning in Bushfire Prone Regions.
4. Reticulated water to supply future hydrants be instated before construction commences.
5. Landowner to thoroughly read this BMP. If there are any items which require clarification it is recommended that they contact the author of this report.
6. Implementation and enforcement schedule to be actively adhered to.

Refer to Appendix E – BAL Assessment and Bushfire Management Plan

5.3 Coastal Adaptation Plan

As mentioned above, the EPA assessment placed requirements for management and monitoring of the Marina. Assessment 8-1 indicated that "Through an Adaptive Management Strategy, the Proponent shall ensure that construction and operation of the proposal does not cause changes to shoreline movements, width of beach and beach profiles, in excess of that predicted...". M P Rogers & Associates PL has been engaged to prepare a Coastal Adaptation Plan (CAP) report for the Port Rockingham area to meet the requirements of EPA's assessment.

Preliminary investigations were undertaken by The Cockburn Sound Coastal Alliance (CSCA), an alliance of the Cities of Fremantle, Cockburn, Kwinana and Rockingham. The focus area of the investigations covers the shoreline from Fremantle to Cape Peron, as well as the section of the Garden Island shoreline facing Cockburn Sound, and the entirety of the subject site area. The CSCA has undertaken a Coastal Vulnerability & Flexible Adaptation Pathways Project that has thus far included a Coastal Vulnerability Study (2013), Values & Risk Assessment Study (2014), and a Coastal Adaptation Plan (2016).

The MP Rogers scope relating to the preparation of the CAP to support the Port Rockingham Marina development involved a review of the CSCA work to identify any changes to the CSCA work already completed for the existing shoreline caused by the proposed Marina

development. The CAP indicates that outside of the proposed Port Rockingham development area, there will be no change to the coastal hazard areas previously determined by the City or the CSCA.

MP Rogers prepared Coastal erosion and inundation hazard maps for the "Post Development" case. The hazard areas have been reduced directly behind the breakwater and importantly there is no change to coastal hazard areas for the remainder of the Rockingham Beach shoreline. The risk tolerance scales suggest that consideration needs to be given to risk mitigation for the specific assets proposed in the Port Rockingham development, namely, the Marina, jetty and offshore breakwater. The Port Rockingham Coastal Adaptation Plan outlines in detail the appropriate design, monitoring, maintenance and adaptation strategies.

The following coastal adaptation responses are proposed with respect to development associated with this proposal.

Asset	Risk Mitigation & Adaptation	Trigger	Responsibility
Port Rockingham Marina & Jetty	• Protected by offshore breakwater • Designed to accommodate sea level rise and avoid coastal inundation • Designed to meet Australian Standards • Monitoring and maintenance program	During design and construction	Proponent
Port Rockingham Breakwater	• Designed to accommodate storm events • Designed to avoid coastal inundation • Designed to meet Australian Standards • Monitoring and maintenance program	During design and construction	Proponent
Beach & Dunes	• Monitoring program • Sand bypassing to maintain coastal processes • Longer term – managed retreat to allow retention of beach and dunes	Construction	Proponent (Port Rockingham) for Coastal management & City (managed retreat)
Port Rockingham Foreshore	• Monitoring program • Protect (sand bypassing) to maintain coastal processes • Longer term – managed retreat	Construction As determined by monitoring and in line with EPA condition 8-1	Proponent (Port Rockingham) & City (City assets)
Existing Assets	• As per Rockingham Beach Masterplan	As per Rockingham Beach Masterplan	City
All	• Review and update CAP and strategies		Proponent (Port Rockingham) & City (City assets)

It is proposed a single entity will be responsible for managing the assets at Port Rockingham, including the breakwater, jetty and marina. They will also be responsible for the relevant coastal monitoring and management associated with the development. A clear link will therefore be maintained between the assets and the management responsibility. The monitoring and maintenance works will be completed in consultation with the City and would require City approvals.

The City would still be responsible for managing City assets, such as the foreshore through the area.

It is considered that the above adaptation responses mitigate the risk of coastal erosion on coastal assets to an acceptable level.

5.4 Foreshore Management Plan

Strategen were engaged to prepare a Foreshore Management Plan to guide the management of the coastal foreshore reserve located adjacent to the Port Rockingham Marina. Key management considerations relating to the foreshore are summarised below.

5.4.1 Foreshore tenure and management

The Marina is to be located within a seabed lease and will be owned and operated by one operator. Ongoing management of and the liability for the completed Marina would therefore be the responsibility of the Proponent, not the City of Rockingham, or State government agency.

5.4.2 Wastewater, stormwater and water sensitive urban design

Considerations for water management associated with the proposal include:

- treating stormwater before discharge onto beach areas;
- reducing the potential for erosion at outlet locations; and
- consider the continued appropriateness of discharging stormwater into dunes.

A Marina Waterways Monitoring and Management Plan has been prepared by Strategen for the proposed development and this document is discussed further below. This document demonstrates how impacts of wastewater and stormwater into the ocean will be managed and monitored, so as not to adversely impact water quality of Rockingham Beach or surrounding community swimming areas.

5.4.3 Monitoring

Coastal Monitoring

It is essential that a monitoring and review program is implemented in order to track changes to the shoreline over time. While the coastal hazard mapping and sediment budget presented in the FMP provide an indication of the potential changes to the shoreline over time, the system is inherently complex and the actual shoreline response could be different to that presented. Triggers should therefore be based on the observed coastal response, determined by the monitoring program.

The Proponent will be responsible to monitor and review shoreline change through profile monitoring and shoreline surveys. It is important that this is done in conjunction with the City and their coastal monitoring program and it is anticipated that a condition will be imposed in this regard.

Structure Monitoring

The proponent of the Port Rockingham Marina development will be responsible for monitoring and maintaining assets constructed as part of the development. This would include regular inspections of the breakwater and jetty structures and assessment of condition. Ongoing maintenance costs would be the responsibility of the developer.

Refer to Appendix G – Foreshore Management Plan

5.5 Marina Waterways Monitoring and Management Plan

As mentioned above, the amended 2016 EPA assessment placed further requirements on the management and monitoring of the Marina. Assessment 6-1 was updated to indicate that: *"Through a Marina Waterways Monitoring Management Plan, the Proponent shall implement the proposal to achieve the Environmental Quality Objectives (EOQs) and associated Levels of Ecological Quality Protection (LEP)…of the State Environmental (Cockburn Sound) Policy 2015".* EQOs of the SECSP relate to ecosystems health, fishing and aquaculture, recreation and aesthetics, cultural and spiritual, and industrial water supply. The Marina Waterways Monitoring and Management Plan (MWMMP) is to ensure the proposed Marina achieves the intent outlined in the State Environmental (Cockburn Sound) Policy (SECSP).

Strategen prepared a MWMMP, meeting the requirements of the SECSP and EPA Assessment. Risk-based management actions are identified and prioritised in the report to achieve the environmental objectives for this MWMMP. The management actions focus on the ongoing operational activities of the Marina that have the highest likelihood of causing environmental impact, and are specifically developed to reduce potential impacts marine water quality. Ongoing management and monitoring to be implemented by the Proponent for the Marina is also outlined in the MWMMP.

Specifically with respect to maintaining water quality of the surrounding marine environment, the MWMMP notes the following:

- the presence of the Port Rockingham Marina will not adversely impact on the water quality of southern Cockburn Sound; and
- rapid flushing, even at 'worst-case' scenario will result in negligible impact on water quality inside or outside the Port Rockingham Marina.

Refer to Appendix H - Marina Waterways Monitoring and Management Plan

5.6 Construction and Environmental Management Plan

Aureus Commercial Pty Ltd prepared a Draft CMP in January 2017. The CMP provides an environmental management manual for use by management and construction staff to minimise adverse environmental impacts associated with the development. The CMP provides sufficient information to support this development application.

Upon receiving development approval, the proponent will be in a position to prepare more detailed construction drawings. It is at this point that more detailed planning around construction management issues can be undertaken. It is anticipated that a further more detailed Construction and Environmental Management Plan will be required as a condition of planning approval and will be prepared and implemented to the satisfaction of the City.

Refer to Appendix I – Draft Construction Management Plan

5.7 Waste Management Plan

Encycle were engaged to prepare a Waste Management Plan (WMP) for the proposed development. Key components of the WMP are summarised below.

5.7.1 Centralised storage of waste

The development will have one bin store which will allow for the segregated storage and collection of:

1. Commercial waste and recycling; and
2. Boating waste and recycling and public place waste and recycling.

The centralised bin store is proposed to be located at the rock wall adjacent to the commercial tenancies, on the access road which provides access and egress from the Marina.

All waste will be stored within the centralised bin store. Bins intended for boating waste will be segregated and clearly signed.

5.7.2 Waste transfer

Transfer of waste from commercial tenancies

Staff from the hotel, retail and food and beverage tenancies will manually transfer waste and recyclables to the bin store. Waste and recyclables will be transferred daily at appropriate times so as not to impact on pedestrians and customers.

Hotel housekeepers will transfer bins from each hotel floor to the bin store using 240 L bins or tug and trailer systems as appropriate.

General waste will be transferred to the large waste compactor/skip directly in bags or via a bin lifter. Recyclables will be placed into the correct bins as required.

Transfer of waste from boats and public place

General waste and recycling will be transferred manually by boat owners/users to the segregated boating bins within the bin store. These bins will be clearly segregated and signed to ensure correct use.

Bins will also be placed in the public place areas of the Marina, including bins along the boardwalks and jetties. These bins will be managed by the facilities manager and the waste and recycling will be transferred to the boating general waste and recycling bins in the bin store.

5.7.3 Collection and vehicle access

Private service providers will undertake the waste and recycling collections. A range of rear-lift and hook-lift vehicles will have access to the Marina bin store and a tanker vehicle will service the used cooking oil storage unit.

Collection will occur directly from the bin stores.

On collection days vehicles for general waste and recycling will enter the Marina from Rockingham Beach Road. The vehicles will drive along the driveway, past the commercial tenancies and stop in the stopping bay within the bin store. Operatives will move around the store to retrieve and service the bins. The operatives/building management will replace the empty bins into the bin store.

Compactor units for general waste will be serviced as required. The waste service provider will be notified automatically (by sensors on the unit) that the unit is nearly full and will schedule the hook lift vehicle to service the unit. Compactor units will be loaded onto the hook lift vehicle and taken off site for emptying (at a landfill/transfer station, recycling facility or waste treatment facility. Once emptied, the compactor unit will be returned to the bin store at the Marina.

Recycling streams in wheeled bins (such as commingled containers, soft plastics and glass) will be collected as required. Rear lift vehicles will have direct access to the bins through a stopping bay within the bin store.

Access to the grease trap located on ground level will be via the same route.

Refer to Appendix J – Waste Management Plan

5.8 Servicing Information

Reticulated power and water services are proposed to be extended from existing services within the Wanliss Street road reserve and are proposed to be run underneath the pier linking to the breakwater. The Marina pier facilities and car park will be fully sewered with a vacuum sewer joining to the existing Water Corp system.

A new Western Power substation is proposed adjacent the Wanliss Street public car park to service the proposed development.

A sullage disposal system will be located within the Marina to allow boats to empty their sullage tanks. This system will be connected to the Marina sewer system.

A short period of dewatering may be required in the vicinity of the Wanliss Street car park during the linking of the Marina sewer to the existing Water Corp system. Groundwater will not be discharged directly to the ocean, and would instead be infiltrated locally into the groundwater.

Fuel storage is proposed by way of fuel tanks that will be designed to be incorporated into the groyne and will be designed and constructed to the specifications and requirements of the Department of Mines and Petroleum.

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6. Planning Merit

The principles of orderly and proper planning require that new development is a logical and efficient extension of existing development in the locality and consistent with the planning vision for the area. The key points regarding the proposed development are as follows:

1. The Port Rockingham Marina development complies with the relevant requirements of the State Planning Framework, is consistent with and directly responds to the City's Strategic Community Plan and vision for the Rockingham Beach Foreshore and has given due regard to the requirements of the local planning framework.
2. The Port Rockingham Marina development represents a major investment for the Rockingham Beach locality, will bring a world class hotel operator to the precinct, and boost the local economy and employment opportunities.
3. The proposed land uses are consistent uses for this part of Rockingham Beach and contribute to and not detract from the functionality of the Primary Centre Waterfront Village Precinct.
4. The Marina will enhance the amenity and public enjoyment of the Rockingham Beach Foreshore, making it a more attractive destination for a wider population and user catchment.
5. The development will further enhance and activate this underutilised section of the Rockingham foreshore, and will build upon the existing retail and entertainment offer to increase the dynamic of this vibrant beach precinct.
6. The proposal will deliver 497 boat pens to address an identified demand and gap in the market for boat pens.
7. The hotel and commercial components of the proposed development have been architecturally designed, consisting of high quality materials and the built form is low scale respecting the sensitive coastal foreshore location.
8. The proposal involves the construction of 628 new public parking bays in the immediate locality, by way of providing bays within the Marina development, extending the existing Wanliss Street public car park and through the provision of additional car bays within the Rockingham Beach Road and Wanliss Street road reserves. This will address the previously identified need for surplus bays to address shortfall in event parking at certain times of the year, while also increasing the availability and accessibility of public parking for all visitors and users of the wider Rockingham Beach foreshore area.
9. The development responds appropriately to environmental factors and has been granted the necessary environmental approval from the Environmental Protection Authority.
10. The proposed development provides appropriate adaptation responses to the risk of coastal erosion and storm surge inundation. The commercial tenancies have finished floor levels that are raised above the identified flood levels. The extension of the Wanliss Street public car park is to occur on the landward side of the modelled 2040 coastal erosion line.
11. This development is supported by the necessary technical studies including but not limited to the following;
    - Traffic and Parking Assessment;
    - Bushfire Management Plan and BAL assessment;
    - Coastal Adaption Plan;
    - Foreshore Management Plan;
    - Marina Waterways Monitoring and Management Plan;
    - Landscape Concept Plan;
    - Draft Construction Management Plan; and
    - Waste Management Plan.

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7. Conclusion

This report has been prepared by **element** on behalf of Aureus Commercial Pty Ltd in support of the development application for the proposed Port Rockingham Marina. This application seeks approval for a 497 berth Marina, inclusive of hotel and restaurant, retail and commercial land uses. The developmemt will also facilitate the construction of 628 public parking bays in the immediate vicinity of the proposed development.

The plans and documentation demonstrate a high level of design thought and management detail in support of a high quality marina development that will support activities that promote further enjoyment and celebration of the Rockingham Foreshore.

As previously stated, this proposal will provide a major contribution to the local and wider community of Western Australia through the following:

- Port Rockingham Marina represents a significant asset for the enjoyment of the community, providing much needed boat pens, combined with a range of recreation, tourism, restaurants and retail. The marina will be a major draw that will attract additional visitation to further activate the Rockingham Beach Foreshore;
- Port Rockingham Marina will promote the growth, development and evolution of the Rockingham City Waterfront Village Precinct into a more dynamic tourism and commercial hub;
- The development will be an employment generator that will provide many new jobs for the local community;
- Port Rockingham Marina will improve the amenity and vibrancy of this section of Rockingham Beach for the benefit of residents and the local community; and
- The provision of 497 boat pens will alleviate the need to construct a marina development at Point Peron. The Point Peron (Mangles Bay Marina) proposal involves clearing of approximately 40 hectares of Bush Forever vegetation and does not have support of sections of the community. The Port Rockingham Marina proposal has much wider support due to its location and having much less impact on the environment.

In light of the above, the approval of the Development Assessment Panel and favourable recommendation of the Western Australian Planning Commission and City of Rockingham is respectfully sought.

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Appendix A

Certificates of Title

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WESTERN AUSTRALIA | EDITION N/A | N/A

VOLUME LR3116 | FOLIO 806

RECORD OF QUALIFIED CERTIFICATE OF CROWN LAND TITLE

UNDER THE TRANSFER OF LAND ACT 1893
AND THE LAND ADMINISTRATION ACT 1997

NO DUPLICATE CREATED

The undermentioned land is Crown land in the name of the STATE OF WESTERN AUSTRALIA, subject to the interests and Status Orders shown in the first schedule which are in turn subject to the limitations, interests, encumbrances and notifications shown in the second schedule.

REGISTRAR OF TITLES

LAND DESCRIPTION:

LOT 4556 ON DEPOSITED PLAN 220689

STATUS ORDER AND PRIMARY INTEREST HOLDER:
(FIRST SCHEDULE)

STATUS ORDER/INTEREST: RESERVE VESTED UNDER STATUTE

PRIMARY INTEREST HOLDER: MINISTER FOR TRANSPORT OF 1 ESSEX STREET, FREMANTLE
(XE L381737) REGISTERED 22/7/2010

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

1. K944745 RESERVE 50180 FOR THE PURPOSE OF HARBOUR PURPOSES REGISTERED 18/5/2009.
2. L381737 VESTED. PURSUANT TO SECTION 9(1) OF THE MARINE AND HARBOURS ACT 1981. REGISTERED 22/7/2010.

Warning: (1) A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required. Lot as described in the land description may be a lot or location.
(2) The land and interests etc. shown hereon may be affected by interests etc. that can be, but are not, shown on the register.
(3) The interests etc. shown hereon may have a different priority than shown.

----------END OF CERTIFICATE OF CROWN LAND TITLE----------

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND:	DP220689
PREVIOUS TITLE:	LR3116-806
PROPERTY STREET ADDRESS:	NO STREET ADDRESS INFORMATION AVAILABLE.
LOCAL GOVERNMENT AUTHORITY:	CITY OF ROCKINGHAM
RESPONSIBLE AGENCY:	DEPARTMENT OF TRANSPORT (SMHD)

END OF PAGE 1 - CONTINUED OVER

NOTE 1:	A000001A	SUBJECT TO SURVEY - NOT FOR ALIENATION PURPOSES
NOTE 2:		LAND PARCEL IDENTIFIER OF COCKBURN SOUND LOCATION 4556 ON SUPERSEDED PAPER CERTIFICATE OF CROWN LAND TITLE CHANGED TO LOT 4556 ON DEPOSITED PLAN 220689 ON 06-SEP-02 TO ENABLE ISSUE OF A DIGITAL CERTIFICATE OF TITLE.
NOTE 3:		THE ABOVE NOTE MAY NOT BE SHOWN ON THE SUPERSEDED PAPER CERTIFICATE OF TITLE.
NOTE 4:	L109793	CORRESPONDENCE FILE 00322-2009-01RO

WESTERN AUSTRALIA

REGISTER NUMBER	
150/DP223083	
DUPLICATE EDITION	DATE DUPLICATE ISSUED
N/A	N/A

VOLUME LR3154 FOLIO 418

RECORD OF QUALIFIED CERTIFICATE OF CROWN LAND TITLE

UNDER THE TRANSFER OF LAND ACT 1893
AND THE LAND ADMINISTRATION ACT 1997

NO DUPLICATE CREATED

The undermentioned land is Crown land in the name of the STATE OF WESTERN AUSTRALIA, subject to the interests and Status Orders shown in the first schedule which are in turn subject to the limitations, interests, encumbrances and notifications shown in the second schedule.

REGISTRAR OF TITLES

LAND DESCRIPTION:

LOT 150 ON DEPOSITED PLAN 223083

STATUS ORDER AND PRIMARY INTEREST HOLDER:
(FIRST SCHEDULE)

STATUS ORDER/INTEREST: RESERVE UNDER MANAGEMENT ORDER

PRIMARY INTEREST HOLDER: SHIRE OF ROCKINGHAM

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

1. PART CLASS A RESERVE 22568 FOR THE PURPOSE OF PARK & RECREATION MANAGEMENT ORDER. CONTAINS CONDITIONS TO BE OBSERVED.

Warning: (1) A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required. Lot as described in the land description may be a lot or location.
(2) The land and interests etc. shown hereon may be affected by interests etc. that can be, but are not, shown on the register.
(3) The interests etc. shown hereon may have a different priority than shown.

----------END OF CERTIFICATE OF CROWN LAND TITLE----------

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND:	DP223083
PREVIOUS TITLE:	LR3154-418
PROPERTY STREET ADDRESS:	NO STREET ADDRESS INFORMATION AVAILABLE.
LOCAL GOVERNMENT AUTHORITY:	CITY OF ROCKINGHAM
RESPONSIBLE AGENCY:	DEPARTMENT OF LANDS (SLSD)

NOTE 1: K655746 CORRESPONDENCE FILE 04054-1989-02RO

Appendix B

Submission on Draft Public Parking Strategy for the Strategic Metropolitan Centre

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Our Ref: 17-519

22 September 2017

Chief Executive Officer
City of Rockingham
PO Box 2142
ROCKINGHAM DC
WA 6967

Attention: Peter Ricci, Manager Major Planning Projects

Dear Peter,

SUBMISSION IN RELATION TO DRAFT PUBLIC PARKING STRATEGY - ROCKINGHAM STRATEGIC METROPOLITAN CENTRE

TPG+Place Match (TPG) has prepared this submission in response to the City of Rockingham (the City) Draft Public Parking Strategy - Rockingham Strategic Metropolitan Centre, on behalf of Aureus Commercial Pty Ltd, the proponent for the proposed marina development. The marina is proposed to be developed over land parcels including Wanliss Street road reserve, Lot 150 on Plan 223083, and Lot 4556 on Deposited Plan 220689 (the subject site).

We wish to specifically object to issues relating to Section 4.2.2 of the Draft Public Parking Strategy (PPS) which relate to the Wanliss Street marina proposal as outlined below.

Description of Proposed Marina and Site Details

The following provides a summary of key components of the proposed marina development to provide context to our submission:

- A marina groyne encompassing a total of 497 boat pens;
- A total of 600 publicly accessible car parking bays which is in addition to the existing 52 bays within the Wanliss Street public car park;
- Two public jetties; and
- Hotel development comprising approximately 93 short stay accommodation units and associated facilities and services.

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The Planning Group Australia Pty Ltd
ABN 36 097 273 222

The proposed marina development, including associated public car parking to be constructed by the proponent, is to occur on portions of the following land parcels.

Land Details	Management Authority
Wanliss Street road reserve	City of Rockingham
Lot 150 on Plan 223083 (Reserve 22568) Part Class A Reserve for 'Parks and Recreation' with Management Order to City of Rockingham	City of Rockingham
Lot 4556 on Deposited Plan 220689 (Reserve 50180) Reserve for 'Harbour Purposes' with Management Order to the Minister for Transport	Department of Transport

We note that the marina is proposed to be constructed primarily on land located outside of the City's district local government boundaries within Cockburn Sound. Access to this land has been granted to our client by way of a seabed lease issued by the Department of Transport, being the management authority responsible for this Crown land. Therefore, the hotel, boat pens, short stay accommodation and commercial tenancies are all located outside of the City's local government jurisdiction.

Major Investment and Attractor

The proposed marina development represents a major investment for the City and will include the construction of a hotel and associated leisure tourism commercial uses intended to be operated by a world class hotel chain. The City has flagged the desire to see a major brand hotel operator establish within the Rockingham Beach locality as it will attract a greater level of tourism exposure and activity to the precinct.

The City acknowledges a desire to attract tourism operators to the Rockingham Beach precinct in its Strategic Community Plan 2015-2025. The Strategic Community Plan focusses on attracting major investment to the City, including leisure tourism and a major brand hotel and marina.

The significance of the marina proposal in attracting further investment into the City is acknowledged by the City in its Planning Policy 3.2.5: Development Policy Plan for the Waterfront Village Sector, which states:

> *"Provision has been made for an off-shore marina development at the beach front end of Wanliss Street. If the marina is constructed, it will stimulate further investment in nearby development. It could also act as a catalyst for urban renewal along the length of Wanliss Street."*

The marina proposal is reliant on the construction of publicly accessible car parking bays in close proximity to the development. Without accessible public car parking, the marina would not be viable. This consideration forms a basis for our submission below.

Zoning

Lot 4556 as described above is reserved for 'Waterways' pursuant to the MRS. This lot will accommodate the commercial component of the marina development, including breakwater, boat pens, hotel and commercial uses.

Lot 150 as described above is reserved for 'Parks and Recreation' pursuant to the MRS. This proposed marina development would involve the expansion of the Wanliss Street public car parking in line with that recommended in the Rockingham Beach Foreshore Management Plan.

The Wanliss Street road reserve is reserved as a local road pursuant to the City's LPS 2. Works associated with the reconfiguration of the Wanliss Street Public Car Park and associated infrastructure is proposed within this land parcel. The portion of this land parcel the subject to the marina development is also reserved for 'Parks and Recreation' pursuant to the MRS.

Marina Development not subject to the City's Local Planning Scheme or Policy Framework

Notwithstanding that the commercial component of the proposed marina is to be located on land located outside of the District local government boundaries of the City, portions of the proposal are to be located on land within the District but reserved under the MRS. The proposed development is therefore not subject to the City's LPS 2 and associated local planning policy framework.

Clause 2.1.2 of LPS 2 acknowledges this which states that:

"The approval of Council under the Scheme is not required for the commencement or carrying out of any use or development on a Regional Reserve. The provisions of the Metropolitan Region Scheme continue to apply to such Reserves and approval is required under the Metropolitan Region Scheme from the Commission for the commencement or carrying out of any use or development on a Regional Reserve."

Notwithstanding, we note that the basis for collecting cash-in-lieu for public parking within the Primary Centre Waterfront Village Zone is established by clause 4.15.2 of LPS 2, which in summary requires cash-in-lieu payments in accordance with the following:

(a) for development other than for the purposes dealt with by the R-Codes, not less than 60% of the minimum number must be provided in the form of a cash-in-lieu payment to the Council;
(b) for residential development or short stay accommodation, the visitor allocation as per the R-Codes must be provided in the form of cash-in-lieu payment to the Council;
(c) the number of parking spaces provided on-site shall be reduced by the number of parking spaces provided through the cash-in-lieu contribution.

The intent of this requirement is to reduce the number of on-site private parking bays in favour of a coordinated approach to the provision of public parking to ensure built form and activity within the centre is not compromised by parking.

Apart from a number of bays proposed on the breakwater, the marina proposal does not involve the construction of private bays on site, and therefore should be treated differently from other private developments. We address this in further detail in our submission.

Comments on Draft Car Parking Strategy

Application of the PPS

Figure 2 – Waterfront Village Sector Study Area indicates that the draft PPS applies to land not zoned or reserved under the City's LPS 2. We believe that the PPS cannot legally apply to land reserved under the MRS as this land is not subject to the requirements of LPS 2 or the City's planning framework. Figure 2 should therefore be amended accordingly.

Section 4.2.2 of the PPS

We note that section 4.2.2 of the draft Public Parking Strategy deals specifically with the proposed marina development at Wanliss Street. We object to the proposed marina development being specifically targeted within the policy. While the proposed marina represents an exciting opportunity and will be a major attractor of further investment to the precinct, we do not believe it necessary to single out a single development proposal. The policy instead should establish a fair, equitable and transparent policy framework that can equally be applied to all developments within the Strategic Metropolitan Centre.

Notwithstanding, we seek to address specific statements of this section of the draft strategy below.

Parking Location and Public Accessibility

The draft PPS makes the following statements:

"The lapsed Planning Approval for the marina involved the full parking allocation to service the development (other than bays on the proposed breakwater) being provided within the adjacent foreshore reserve and the road reserves of Rockingham Beach Road and Wanliss Street.

In hindsight, this approach is not supported as it causes inequity compared to the consideration of other commercial developments at the Waterfront Village and relies on parking that could otherwise be provided by the City to address public parking demand with or without the marina."

And:

"The City will not support parking bays being provided in the public domain to support the parking requirements of the marina.

Whilst discussing the marina and its relationship to the foreshore, it is important to note that the adopted Rockingham Beach Foreshore Master Plan does not envisage significant portions of the foreshore being dedicated to parking."

The City's endorsed Rockingham Beach Foreshore Management Plan identifies the City's intention to expand the Wanliss Street Public Car Park by 80 bays.

We note that the developer of the marina proposes to expand the Wanliss Street Public Car Park consistent with the intent illustrated within the City's Rockingham Beach Foreshore Management Plan. The developer would pay for and construct the additional bays on behalf of the City and these bays would be handed over to the City and managed as public car parking.

The developer proposes to construct a total of approximately 600 public car parking bays at no cost to the City, a majority of which would be located within the Rockingham Beach Road reserve and would not detract from the use and enjoyment of the foreshore reserve. These bays will increase accessibility to the Rockingham Foreshore for motorists visiting the locality.

Cash-in-lieu of parking

The draft PPS makes the following statement with respect to the application of cash-in-lieu for the marina proposal:

"In this regard, the proposed marina will be subject to the same statutory cash-in-lieu requirements as other Waterfront Village proposals with the funds generated from such being directed to the construction of a decked parking station within a walkable catchment, to be determined by the prioritisation action detailed above."

We are of the view that the City cannot legally require, or recommend to the relevant approval authority to impose a condition on a development approval which would require the developer of the proposed marina to be subject to the payment of cash-in-lieu to the City. Firstly, the commercial component of the proposal is located outside of the local government boundaries of the City, and secondly, the remainder of the development is not subject to the provisions and requirements of the City's LPS 2, associated local planning framework and the *Planning and Development (Local Planning Schemes) Regulations 2015*.

We further note that the City's LPS 2 does not specify car parking rates for the marina component of the proposal and therefore it is not transparent or clear as to how the City would calculate the payment of cash-in-lieu for car parking.

The developer of the marina has committed to construct up to 600 public car parking bays, including the 80 bays within the Wanliss Street Public Car Park that the City has previously committed to constructing. Therefore, the marina developer already proposes to provide the City with a direct contribution which would result in a substantial cost saving the City relating to the provision of public parking. To then require the developer to pay cash-in-lieu on top of this, would in effect be requiring the developer to pay for public car parking twice (i.e. 'double dipping').

We oppose the imposition of cash-in-lieu on the proposed marina development for the following reasons:

1. We are of the view that the City cannot legally require or legally impose the requirement for the payment on cash-in-lieu of car parking;
2. There is no transparency or openness in how the City would calculate the required number of car parking bays to be paid as cash-in-lieu as part of the marina proposal; and
3. The developer of the marina already proposes to construct a minimum of 80 additional public car parking bays within the Wanliss Street public car park and a total of 600 public car parking bays at no cost to the City.

We therefore request that this section be modified to remove any reference to the requirement to pay cash-in-lieu of car parking for the marina proposal.

Overflow Parking

Section 4.2.4 of the draft PPS acknowledges the need for the City to provide overflow parking for major events within land managed by the City. This overflow parking requirement would be addressed by the 600 public parking bays to be constructed by the developer of the marina. The location of the bays within the Wanliss Street public car park and Rockingham Beach Road reserve would ensure the public overflow bays are provided in a convenient location for events located within the Waterfront Village sector and Rockingham Beach foreshore.

An equitable and transparent process for collecting funds for public infrastructure is required

We have previously stated that the approach proposed by the City in relation to cash-in-lieu lacks transparency in relation to the marina proposal. State Planning Policy 3.6 – Development Contributions for Infrastructure (SPP 3.6) establishes the principles for collecting contributions to fund public infrastructure and is therefore a sound and relevant reference point to assess whether the City's approach to funding public parking represents a fair and equitable process.

SPP 3.6 identifies eight principles that should inform the collection of development contributions for public infrastructure, and we have provided an assessment of the City's proposed approach to collecting cash-in-lieu from the marina development to fund public parking against the principles in the table below:

Development Contribution Principle	Comment on the City's approach
1. Need and nexus The need for the infrastructure included in the development contribution plan must be clearly demonstrated (need) and the connection between the development and the demand created should be clearly established (nexus).	The developer is proposing to construct 600 public car parking bays to address the need for parking associated with the marina and public parking generally. It is noted that the 600 public parking bays to be constructed by the developer of the marina and will address 51% of the estimated additional public parking required for the Rockingham Beach Area (1160) as identified by the Rockingham Beach Car Parking Strategy (2004). We believe the need and demand for the City to collect further cash-in-lieu to fund additional public car parking is removed in relation to the marina

Development Contribution Principle	Comment on the City's approach
	proposal on the basis of the marina developer providing 600 public bays. Furthermore, we note that the City has not undertaken a Public Parking Demand Assessment with this task being identified as a future activity under Section 8 of the draft PPS. A Public Parking Demand Assessment is critical to define the need and nexus between development and public parking and to ensure costs are apportioned appropriately.
2. Transparency Both the method for calculating the development contribution and the manner in which it is applied should be clear, transparent and simple to understand and administer.	As previously mentioned in our submission, it is not clear as to the rate of provision of car parking that the City will apply to a marina development for the purposes of calculating cash-in-lieu payments as LPS 2 is silent on the minimum parking requirements for such a facility. The City's approach therefore does not pass the test of being a transparent process.
3. Equity Development contributions should be levied from all developments within a development contribution area, based on their relative contribution to need.	The principle of equity cannot be clearly demonstrated where it is not clear as to the rate of car parking provision that the City will seek to apply to the marina development. There is no clear link to how the need (i.e quantifiable number) for the public parking will be determined by the City. It is also not clear if the City will enforce paid parking, and therefore generate an income from car parking constructed by private developer funds. This would not be an equitable approach and should be factored in to the overall equation for calculating the extent to which private developers are required to fund public parking. We believe that the City should also be contributing to the provision of a portion of the required public parking within the Centre. Not all of the visitation and demand for public parking will be generated by development proposals within the precinct, with regional visitation also contributing to the demand. The City should identify the demand and apportion cost appropriately.
4. Certainty All development contributions should be clearly identified and methods of accounting for escalation agreed upon at the commencement of a development.	While the draft PPS specifies the estimated cost of providing different types of public parking, it is not clear what rate the City will apply to collecting cash-in-lieu. Furthermore, the report does not specify an annual escalation rate so there is no certainty as to likely increase of costs in the future. We also note that there is no certainty with respect to the timing of delivery of public parking bays to be provided by the City. Therefore there is the risk that developers will be required to pay contributions towards public parking facilities, and not be able to realise the benefits for some time into the future.

Development Contribution Principle	Comment on the City's approach
5. Efficiency Development contributions should be justified on a whole of life capital cost basis consistent with maintaining financial discipline on service providers by precluding over recovery of costs.	This principle is not directly relevant to the draft PPS or marina.
6. Consistency Development contributions should be applied uniformly across a Development Contribution Area and the methodology for applying contributions should be consistent.	A uniform approach has not been defined for collection of public car parking funds given the lack of a Public Parking Demand Assessment and a clear framework for equitable application of car parking rates.
7. Right of consultation and arbitration Land owners and developers have the right to be consulted on the manner in which development contributions are determined. They also have the opportunity to seek a review by an independent third party if they believe that the calculation of the contributions is not reasonable in accordance with the procedures set out in the draft Model Scheme Text in appendix 2.	This is not specifically relevant to the consideration of the draft PPS.
8. Accountable There must be accountability in the manner in which development contributions are determined and expended.	The draft PPS does not establish a clear framework to ensure accountability in the process of collecting and expending cash-in-lieu funds.

We encourage the City to review its approach based on the principles contained in SPP 3.6.

CONCLUSION

In accordance with the above assessment of the City's Draft Public Parking Strategy - Rockingham Strategic Metropolitan Centre (PPS), we request that Section 4.4.2 of the PPS be removed or modified to address our following concerns:

1. The commercial component of the proposed marina at Wanliss Street is located outside of the City of Rockingham Local Government District boundaries and the remainder of the proposal (public car parking and associated infrastructure) is located on land reserved under the Metropolitan Region Scheme. The requirements of the draft PPS therefore are not able to be applied to the marina proposal.
2. The marina proposal will include the construction of up to 600 public car parking bays at no cost to the City. It is proposed to extend the Wanliss Street Public Car Park generally in accordance with the City's Rockingham Beach Foreshore Management Plan with the remainder of bays to be constructed within the Rockingham Beach Road Reserve. These additional public car parking bays will improve car parking availability in proximity to Rockingham Beach and will also be able to accommodate overflow parking on event days.
3. We strongly object to the City seeking to impose a requirement for the marina developer to pay cash-in-lieu of car parking for reasons outlined in our submission and therefore request that Section 4.2.2 of the draft PPS be modified to remove any reference to the requirement to pay cash-in-lieu of car parking for the marina proposal.
4. The draft PPS and associated planning framework does not establish an appropriate approach to the collection and expenditure of cash-in-lieu funds for public parking in line with the principles established in State Planning Policy 3.6.

In conclusion. the value Rockingham Marina will bring to the local and broader Rockingham community and economy is acknowledged by the City. In order to support the development of the Rockingham Marina and related short stay accommodation, the provision of 600 public parking bays is proposed by the developer to support the expected increase in visitor numbers to the area. These bays will remain for public use and will

not be exclusive use bays for the marina tenants. We therefore do not believe that the additional imposition of cash-in-lieu is necessary, and furthermore, could undermine the viability of the marina development.

We therefore respectfully request that the City work constructively with the proponent of the marina, by minimising unnecessary red tape and requirements, such as cash-in-lieu, to ensure the marina is able to be successfully delivered. This marina proposal is in line with the City's Strategic Community Plan and will result in further investment and attraction of a broader catchment of visitors to Rockingham Beach for the benefit of the City and its ratepayers.

For the reasons set out above, we respectfully request that the City amend the draft PPS prior to Council adoption to ensure that orderly and proper planning is observed. We would welcome the opportunity to review an amended draft prior to Council adoption of the document.

Please do not hesitate to contact Mike Davis or the undersigned on (08) 9289 8300 should you wish to discuss our submission in further detail.

Yours sincerely
TPG+PLACEMATCH

David Read
Director

cc
Paul Ogilvie
Director
Aureus Commercial Pty Ltd

Appendix C

Development Plans

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PORT ROCKINGHAM
ARTIST IMPRESSION VIEW 01

JUNE 2018 JOB NO. BDG 1746

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Interior Design
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West Perth WA 6005
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PORT ROCKINGHAM

ARTIST IMPRESSION VIEW 02

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PORT ROCKINGHAM
ARTIST IMPRESSION VIEW 03

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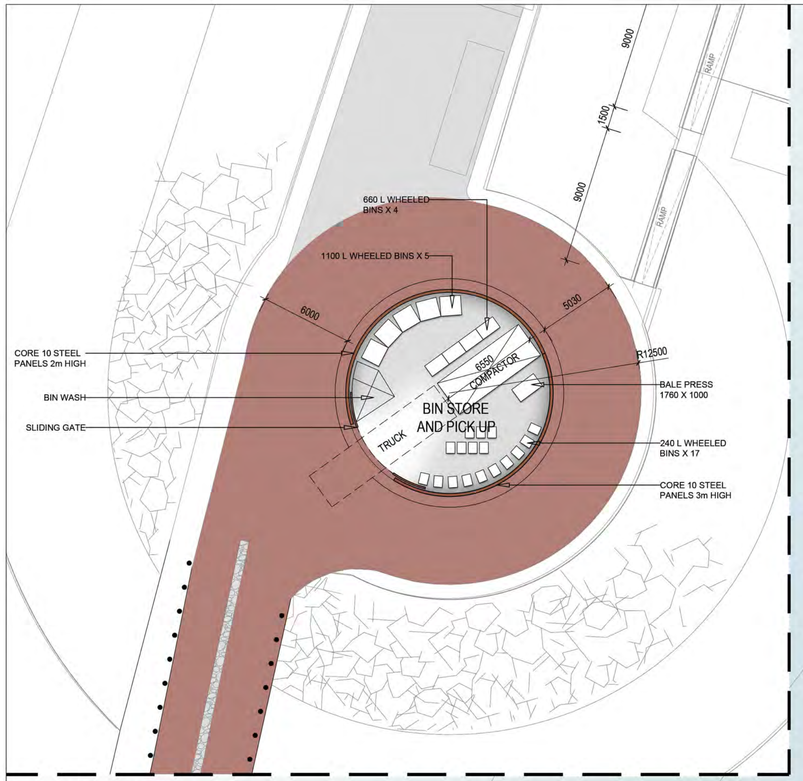

BIN STORE PLAN
SCALE: 1.200

SK03 | PORT ROCKINGHAM
GROUND FLOOR PLAN

JUNE 2018 SCALE 1 : 400 @ A1 JOB NO. BDG 1746

N

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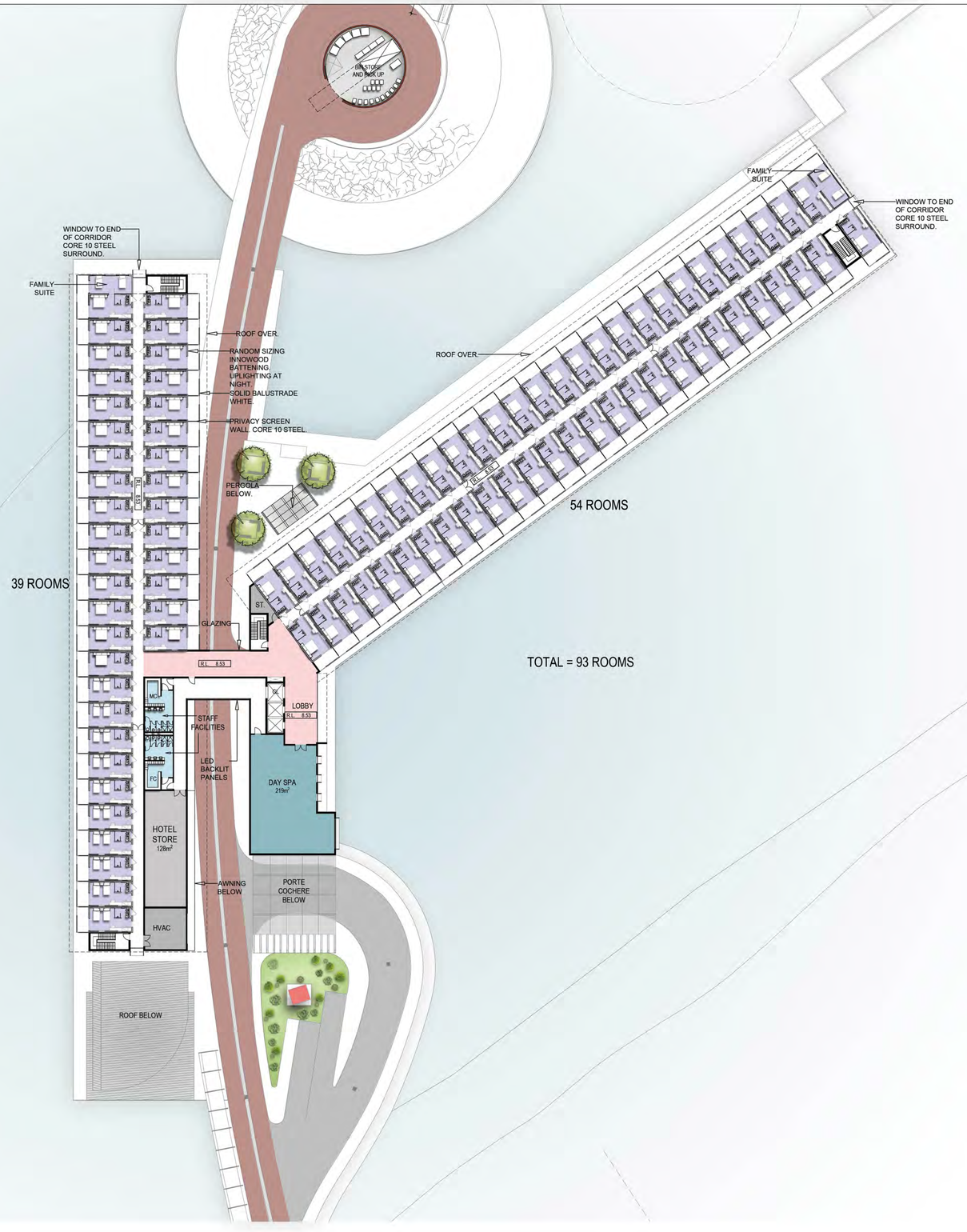

SK04 | PORT ROCKINGHAM
FIRST FLOOR PLAN

JUNE 2018 SCALE 1 : 400 @ A1 JOB NO. BDG 1746

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BIN WASH
SLIDING GATE
BIN STORE AND PICK UP
TRUCK
240 L WHEELED BINS X 17
CORE 10 STEEL PANELS 3m HIGH
STORMWATER GRATE
BUILDING OVER
PLANTER BOXES WITH SEATING
STAIRS
UP
DECK
PERGOLA
ALFRESCO
BICYCLE PARKING
BERTHING AREA
DAY BOAT AREA
BALCONY
COMMERCIAL 11
303m²
WC'S
UAT
COMMERCIAL 10
125m²
COMMERCIAL 9
125m²
COMMERCIAL 8
125m²
COMMERCIAL 7
190m²
COMMERCIAL 6
190m²
PUBLIC WC'S
CAFE WC'S
HOTEL RESTAURANT
280m²
R.L. 4.10
KITCHEN
85m²
CR
BINS 240L X 7
LOADING DELIVERY
COMMERCIAL 5
383m²
COMMERCIAL 4
355m²
COMMERCIAL 3
180m²
R.L. 4.10
PILED JETTY STRUCTURE

SK05

PORT ROCKINGHAM

GROUND FLOOR PLAN PART 1

JUNE 2018 SCALE 1 : 200 @ A1 JOB NO. BDG 1746

N

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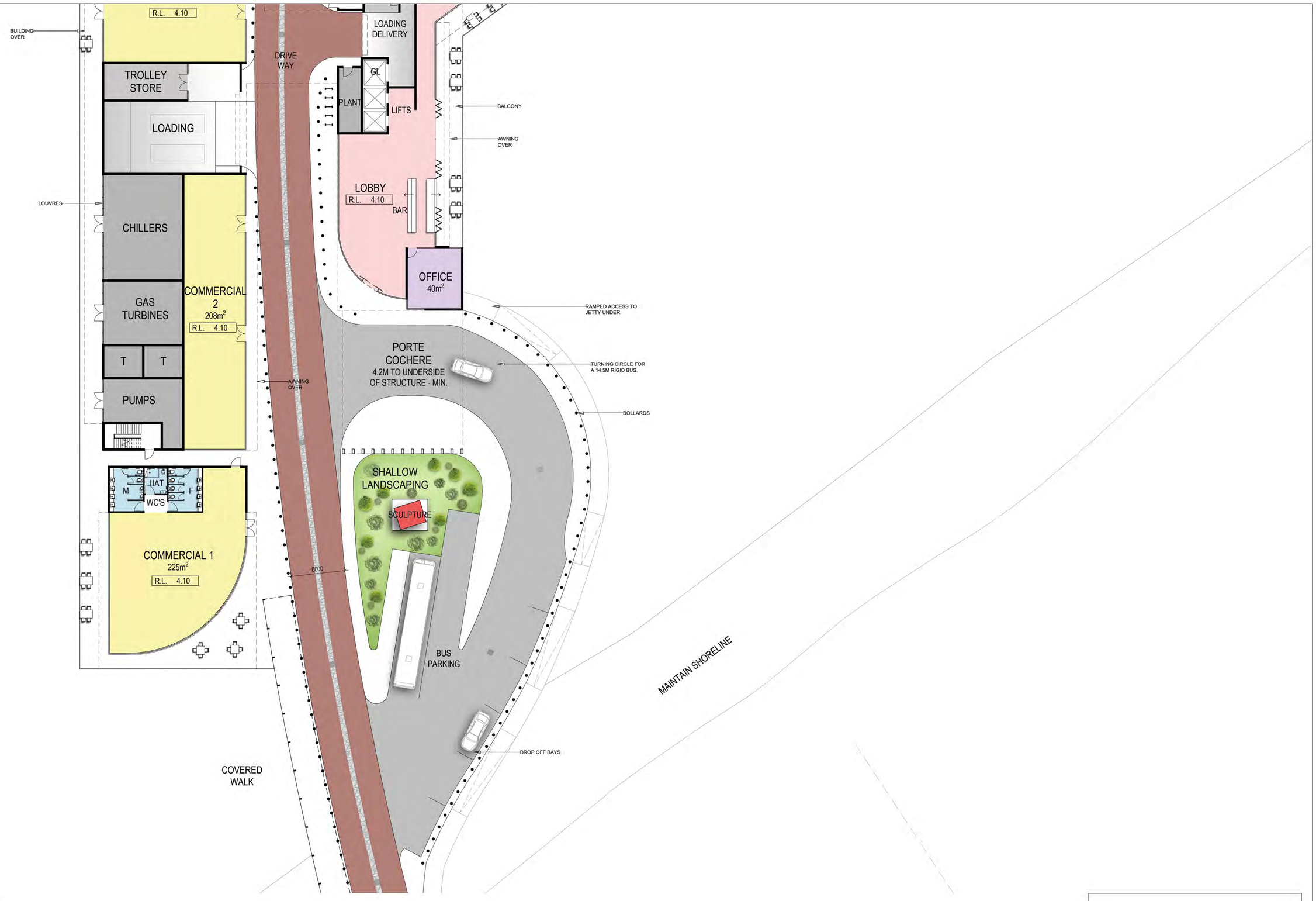

SK06 | PORT ROCKINGHAM
GROUND FLOOR PLAN PART 2

JUNE 2018 SCALE 1 : 200 @ A1 JOB NO. BDG 1746

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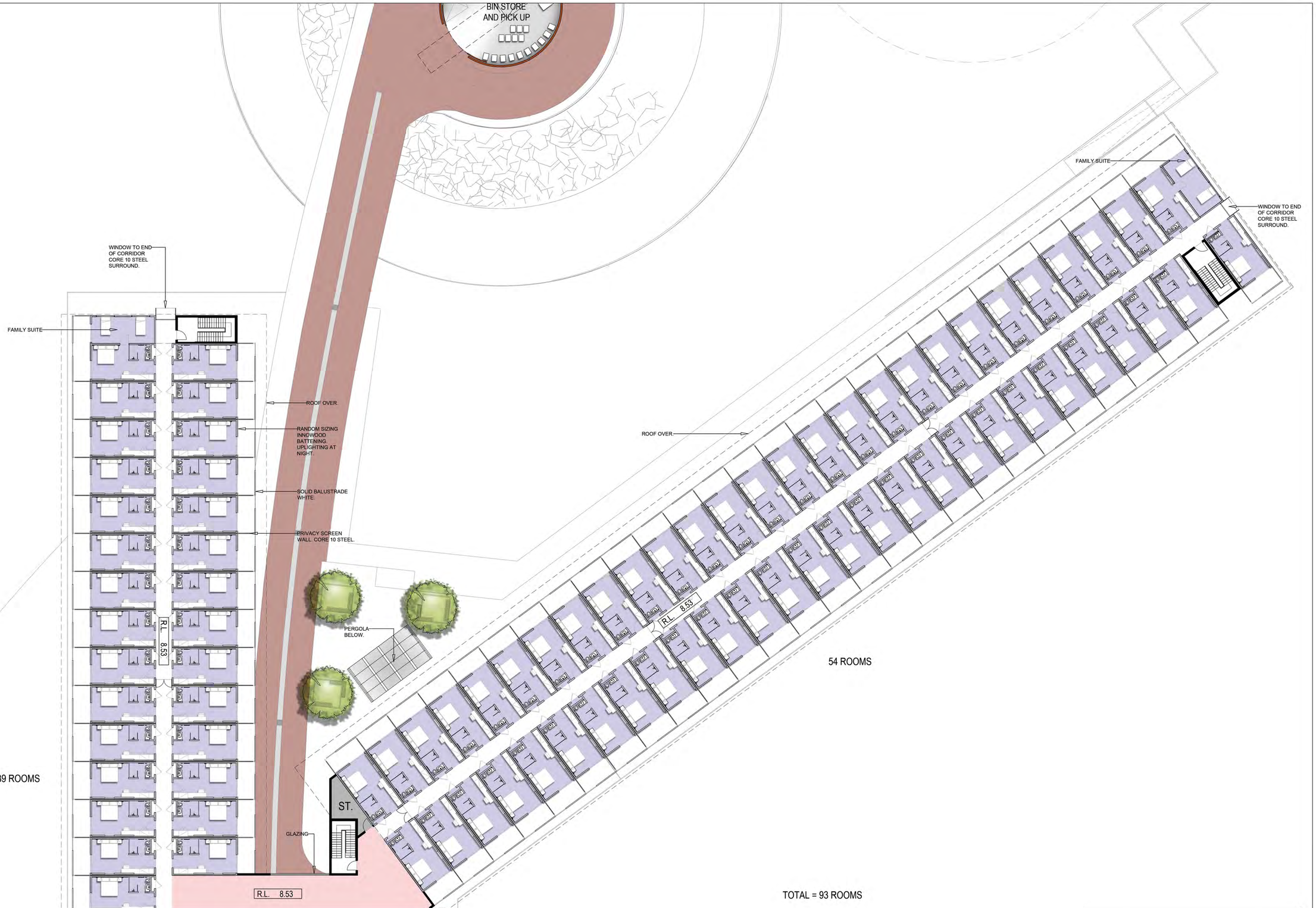

SK07 | PORT ROCKINGHAM

FIRST FLOOR PLAN PART 1

JUNE 2018 SCALE 1 : 200 @ A1 JOB NO. BDG 1746

N

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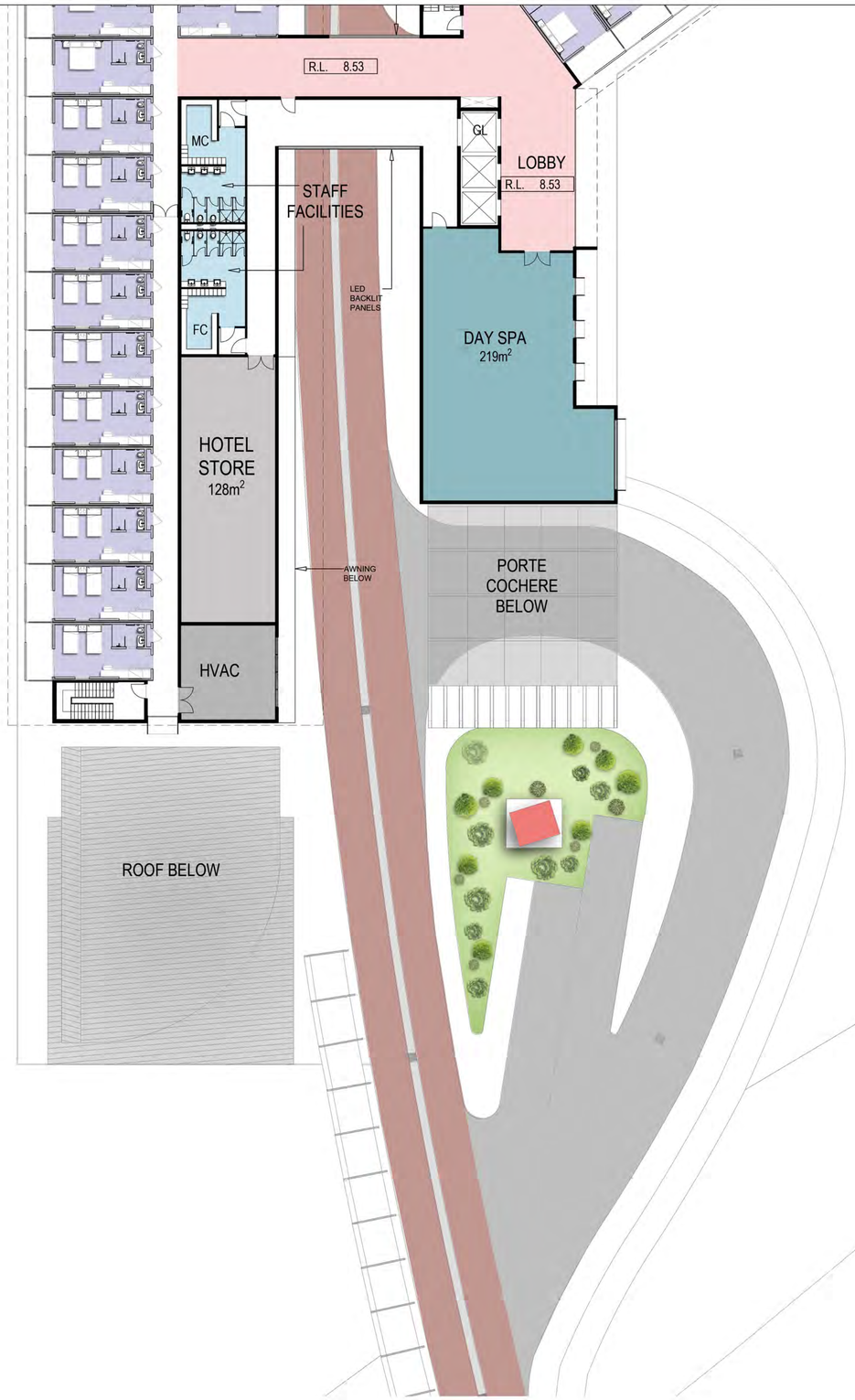
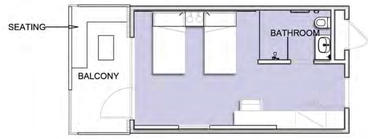
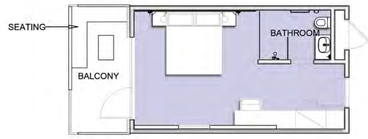


TOTAL = 93 ROOMS



TYPICAL ROOM WITH BALCONY (2 SINGLE BEDS)



TYPICAL ROOM WITH BALCONY (KING BED)

ROOM : 26m²
BALCONY : 7m²

TOTAL : 33m²

SCALE: 1.100

SK08 | PORT ROCKINGHAM
FIRST FLOOR PLAN PART 2

JUNE 2018 SCALE 1 : 200 @ A1 JOB NO. BDG 1746

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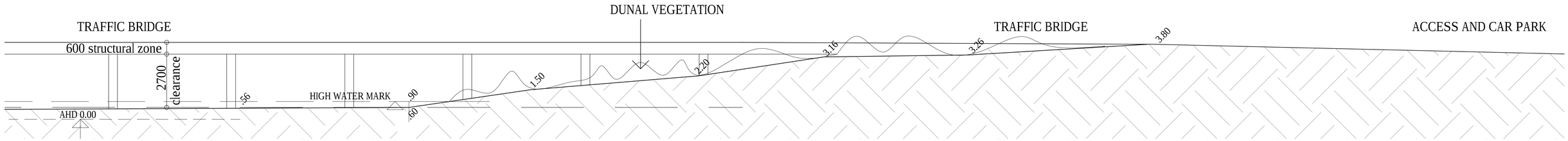

SK10 | PORT ROCKINGHAM
GROUND LEVELS

JUNE 2018 SCALE 1 : 100 @ A1 JOB NO. BDG 1746

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SOUTH ELEVATION
SCALE 1:200

WEST ELEVATION - WESTEN BUILDING
SCALE 1:200

WEST ELEVATION - EASTERN BUILDING
SCALE 1:200

SK11 | PORT ROCKINGHAM
ELEVATIONS

JUNE 2018 SCALE 1 : 200 @ A1 JOB NO. BDG 1746

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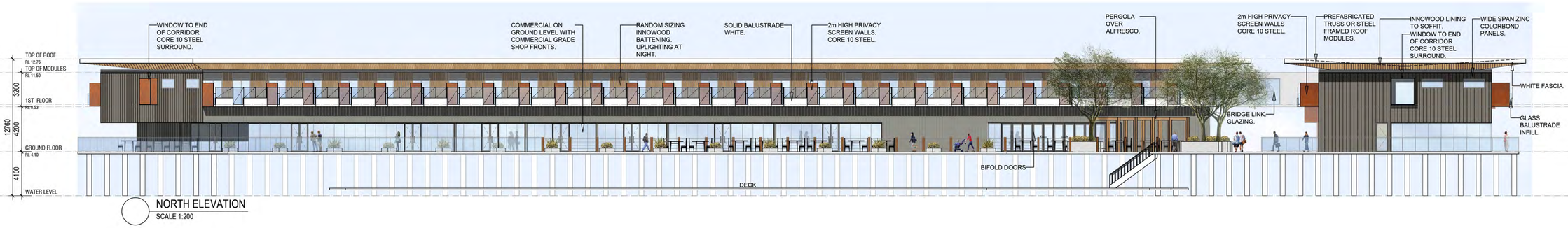
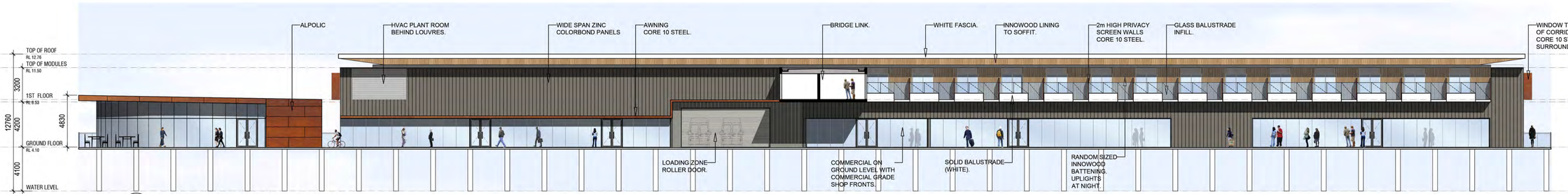
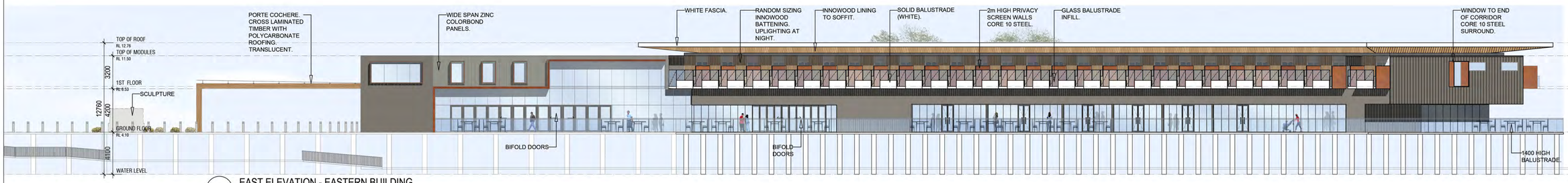


NORTH ELEVATION
SCALE 1:200



EAST ELEVATION - WESTERN BUILDING
SCALE 1:200



EAST ELEVATION - EASTERN BUILDING
SCALE 1:200

SK12 | PORT ROCKINGHAM
ELEVATIONS

JUNE 2018 SCALE 1 : 200 @ A1 JOB NO. BDG 1746

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Appendix D

Traffic and Parking Assessment

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PORT ROCKINGHAM MARINA

WANLISS STREET, ROCKINGHAM
TRAFFIC IMPACT REPORT

June 2018

Riley Consulting Pty Ltd
PO Box Z5578
Perth WA 6831
0413 607 779 Mobile

Issued on	13 June 2018	Amendment	Date
Version	V3	V2 updated for City comments V3 minor amendments	6-06-18 13-06-18
Reference	912		

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1. EXECUTIVE SUMMARY

1.1. Riley Consulting was commissioned to prepare the traffic and access report for the proposed Port Rockingham marina in 2011. The report was lodged with the City of Rockingham and the findings accepted.

1.2. The marina development proposal was approved by the City of Rockingham, but due to global financial conditions, the development could not be started. Now conditions are better it is intended to start construction of the marina. However, the development approval has lapsed and a new approval is being sought.

1.3. This report re-issues the 2011 report that was agreed with officers of the City of Rockingham for the previous development approval for 497 berths and a total of 4,000m^2 of commercial activity.

1.4. The current development proposal will provide 497 boat pens, 93 accommodation rooms and associated restaurant and retail activity. The change in land uses is shown to have the following traffic impacts.

1.4.1. The proposed development is shown to generate approximately 30% less traffic than considered in the 2011 traffic report.

1.4.2. In total 2,579 vehicle movements per day are forecast to use the marina facilities during peak days of activity.

1.4.3. Peak use is expected to occur on Sundays between 12pm and 1pm. During this period 245 vehicle movements are anticipated, based on all land uses being considered in isolation.

1.4.4. The peak attraction is shown to have no material traffic impact to the surrounding road network.

1.4.5. Intersection analysis undertaken in 2011 showed operation with very good Levels of Service with the proposed marina. The change to the proposed land uses will not change this finding.

1.4.6. Parking greater than the minimum set out in the City of Rockingham's TPS can be provided for the marina.

1.5. It is concluded that the change to the proposed development will have no greater impact to the local road network than identified in the original 2011 traffic report. Indeed, with a 30% reduction to traffic demands based on isolated land uses, the impacts are anticipated to be much less.

1.6. Based on the WAPC traffic impact guidelines, the proposed marina would be expected to have no material traffic impact.

Overview of Report Update May 2018

The City of Rockingham has responded to the proposed development application and raised maters that require further clarification. In regard to the traffic impacts of the proposed development, this report has been updated to address the peak trip rates and peak impacts. Commentary on the service vehicle access has also been included.

It is noted that the traffic generation identified in this report is based on isolated use of the individual land uses. However as a mixed use development there will be a high level of cross visitation between the land uses. Further, the marina will attract people already visiting the Rockingham beachfront area.

The traffic generation also does not make any allowance for the significant forecast population growth of over 3,000 people expected within the walkable catchment of the marina.

The City requested swept path assessment for delivery vehicles servicing the marina. This has not been included in this report due to the likelihood of changes during detail design. However, it is noted that adequate servicing arrangements must be provided.

2. INTRODUCTION AND BACKGROUND

2.1. Riley Consulting was commissioned by Benchmark Projects in 2007 to prepare a traffic and transport assessment for the proposed Rockingham Marina. The marina was approved by the City of Rockingham, but due to global financial conditions, the development could not be started. Now conditions are better it is intended to start

2.2. An update to the traffic report was prepared in January 2017, but since that time the proposed development yield has been amended. This report is an update to the previously approved report that includes current traffic data that is available and updates to the proposed development.

2.3. The site is located opposite Wanliss Street on the Rockingham foreshore, approximately 2km north west of Rockingham town centre. The site is adjacent to the recent development of Rockingham Village, which is centred around the Flinders Lane / Kent Street / Rockingham Beach Road precinct. Figure 1 shows the location of the site in relation to the local and district road network.

Figure 1 **Site Location** (Source Google Maps)

2.4. Roads of importance to the development site are discussed below. The City of Rockingham has provided current traffic data and reference to Main Roads traffic counts is also made. Current traffic data indicates that traffic has not significantly changed since 2007. Table 1 shows the available traffic data.

2.5. The current traffic count data provided in November 2017 by the City of Rockingham is as shown in Table 1.

2.6. Whist the traffic data contained in Table 1 may be considered old, reference to the changes in local traffic demands indicates a decline. On this basis it is concluded that traffic demands are unlikely to be higher and the impacts identified in this report will still be valid.

Wanliss Street

2.7. Wanliss Street is classified as an access street in the Main Roads *Functional Road Hierarchy*, but would be considered as a neighbourhood connector due to its full movement connectivity to Patterson Road. Wanliss Street is predominantly occupied with residential land uses. Traffic volume data provided for 2013 by the City of Rockingham indicating a flow of 2,421 vehicles per day (vpd) south of Kent Street. The morning peak flow was 178 vehicles and the evening peak 224 vehicles. During the weekend a peak flow of 255 vehicles is shown on Sundays between 11am and 12pm.

2.8. Traffic data recorded in 2013 north of Jecks Street shows 2,425vpd which compares well to the 2007 traffic count north of Patterson Road showing 2,390vpd).

2.9. Forecast traffic data has also been provided by the City of Rockingham from the Palm Beach traffic study (Worley), which indicates 4,000vpd on Wanliss Street and 6,000vpd on Rockingham Beach Road. There is no supporting data to identify how or what these forecasts relate to. However, caution is suggested in their use as Rockingham Beach Road between Railway Terrace and Flinders Lane is shown to have a forecast flow of 11,500vpd, but there is no forecast for Kent Street, which will provide primary access for many of the new residential apartments in the locality. Further, the traffic report for the Rockingham Waterfront Village (Landcorp) identified that Wanliss Street would experience an increase of about 300vpd adjacent to Patterson Road. No significant increases were anticipated west or north of the study area.

2.10. Wanliss Street has been identified for the route of the RCCTS transit system, which will link the waterfront to the city centre and the rail network and is currently operating as a bus service.

Rockingham Beach Road

2.11. Rockingham Beach Road is classified in the Main Roads *Functional Road Hierarchy* as a district distributor type B road. It is constructed with a wide carriageway (12 metres adjacent to the subject site) and has residential development to one side (the west side is ocean foreshore). It is also part of the Rockingham Coastal Drive signed from Patterson Road.

2.12. Traffic data supplied for January 2017 by the City of Rockingham indicates a daily flow of 4,847vpd with a peak flow of about 390 vehicles. On Sundays the peak hour flow increases to 736 vehicles between 12pm and 1pm.

2.13. South of Weld Street the City's data indicates 2,423vpd with an evening peak demand of 173 vehicles. On Sundays between 12pm and 1pm the demand is 368 vehicles. It can be seen that Sundays experience the peak demand.

2.14. MRWA data indicates 2,248vpd south of Kwinana Beach Road (2018)

2.15. The previous report identified from an evening peak period survey at the Wanliss Street intersection, a volume of 3,700 vehicles per day. It can be seen that traffic demands have increased on Rockingham Beach Road.

Kent Street

2.16. Kent Street runs parallel to Rockingham Beach Road and operates as a two-way road with a carriageway width of 7.0 metres. The Rockingham transit route uses Kent Street to access Rockingham Station providing a convenient public transport route. Anecdotal evidence suggests that this transit system has limited the traffic growth in the vicinity (based on the reduced volumes on Patterson Road).

2.17. Traffic data provided by the City of Rockingham from 2013 shows 2,791vpd west of Wanliss Street.

Patterson Road

2.18. Patterson Road is constructed as a four-lane divided carriageway with turning pockets at most intersections. The posted speed is 60kph, although the road environment reflects an 80kph speed. It is classified as a district distributor type A road between Ennis Avenue and Read Street. West of Read Street it is classified as a district distributor type B road.

2.19. Daily traffic flows provided by the City of Rockingham for 2013 show about 19,400vpd between Ennis Avenue and Dixon Road. In 2007 the flow was in the order of 17,000vpd east of Read Street and about 15,000vpd west of Read Street.

2.20. Traffic flow data retrieved from the traffic signals indicates that between Kent Street and Flinders Lane traffic has reduced on Patterson Road to about 12,300 vehicles per day. MRWA traffic data indicates 16,054vpd adjacent to Read Street and 23,039vpd by Enniss Avenue.

2.21. The intersection of Patterson Road / Wanliss Street has been upgraded to provide a roundabout.

Flinders Lane

2.22. Flinders Lane is classified as a local distributor road and links Patterson Road to Rockingham Beach Road (a district distributor type B road outside of the study area).

2.23. Daily traffic flows provided by the City of Rockingham for 2013 show 3,431vpd south of Kent Street. The 2007 data showed a daily flow of 4,350vpd on Flinders Lane north of Patterson Road, indicating that traffic flows have decreased slightly.

Victoria Street

2.24. Victoria Street is a quiet residential Street with a pavement of about 9.5 metres. Traffic data available indicates a daily flow of 692vpd (year unknown). Victoria Street has access to Patterson Road using priority control. It is not expected that Victoria Street would experience a traffic increase as a result of the proposed development as other streets provide more direct access.

2.25. Traffic data is shown in Table 1 and Figure 2. Figure 3 shows an indicative development plan.

Table 1 Local Traffic Data (latest data available)

Street	2005	2013	2015	2017	Change
Wanliss Street	2,390	2,421	-		+1%
Rockingham Beach Road	2,478	2,498	-	4,847	-1%
Rockingham Beach Road N	-	2,423	-	2,248	-7%
Kent Street	-	2,791	-	-	-
Patterson Road	17,820	16,189	-	16,054	<1%
Patterson Road N (MRWA)	-	(20,729)	-	(23,039)	+11%
Flinders Lane	4,350	4,115	-		-5%
Flinders lane (South Kent)	-	3,431	-	-	-
Victoria Street	8,750	-	8,133		-7%

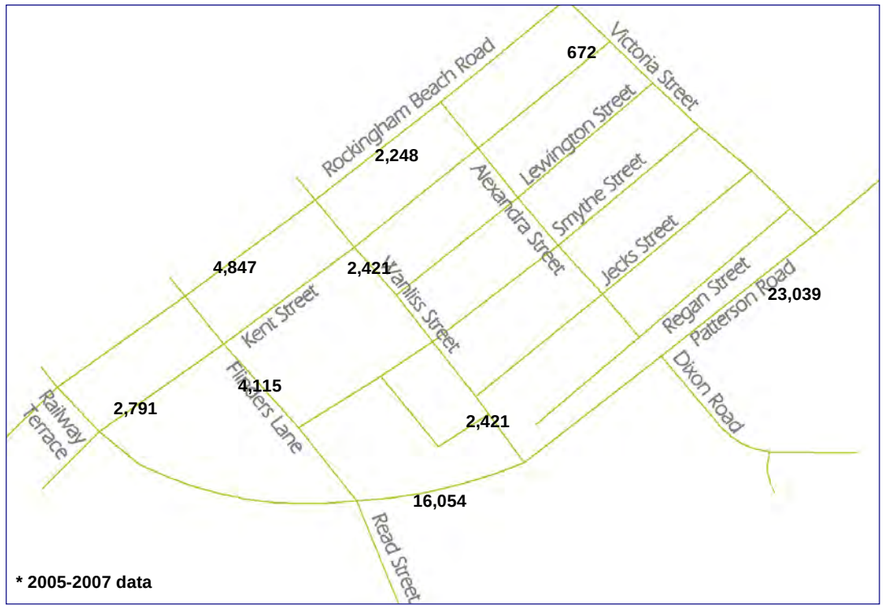


Figure 2 Traffic Data

Impact of Future Waterfront Village Development

2.1. Reference to plan *07155-Figure 6* prepared by Worley indicates the forecast traffic flow on local streets with the full development of the Waterfront Village. The plan is part reproduced as Figure 3. The plan indicates that the future development will result in an increase to current traffic flows of up to 67%. These increases are considered in the analysis.

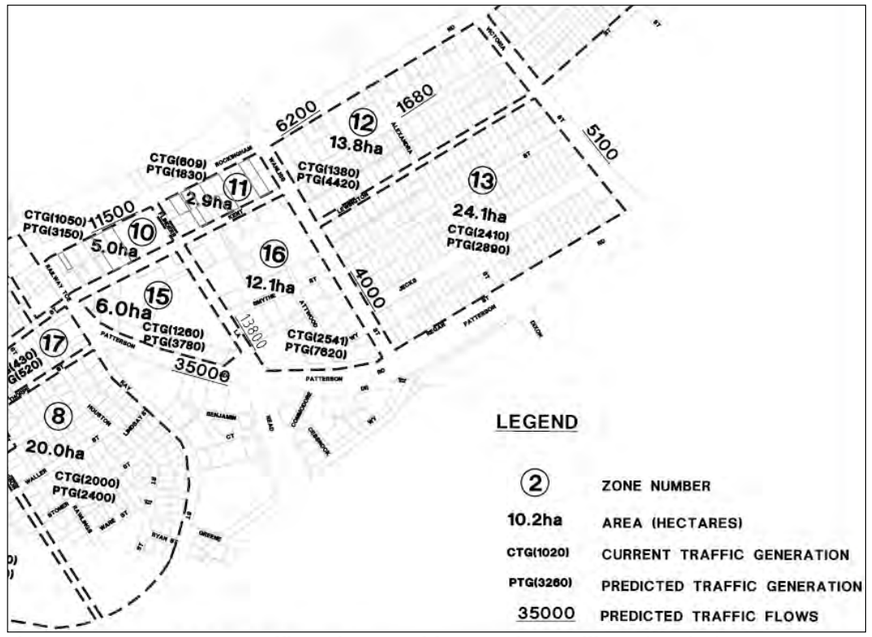


Figure 3 Forecast Traffic Volumes with Waterfront Village (Worley)

Future Traffic Forecasts

2.2. The forecast volumes for street affected by the Port Rockingham Marina are:

- Wanliss Street north of Patterson Road 4,000vpd
- Rockingham Beach Road, north of Wanliss Street 6,200vpd
- Rockingham Beach Road south of Wanliss Street 11,500vpd
- Patterson Road at Flinders Street 35,000vpd
- Victoria Street north of Patterson Road 5,100vpd

Summary

2.3. Since the original traffic report was approved by the City of Rockingham in 2011, it can be seen that local traffic demands have changed slightly. However, the development of the precinct is still yet to be completed and the traffic demands used in 2011 are still considered to be reflective of the current situation.

3. TRAFFIC GENERATION AND DISTRIBUTION

3.1. The original traffic report in 2011 considered the development of 497 boat pens with 2,240m^2 restaurant use, 160m^2 al-fresco seating, 1,028m^2 retail and 723m^2 of office type activity. The forecast traffic generation stated in the 2011 traffic report is shown in Table 2.

Table 2 Anticipated Traffic Generation 2011 Development

Land Use	Daily	Peak Hour	Sunday Peak
Marina	404	60	60 (0/100)
Restaurant	1,440	120	120 (60/40)
Retail – retail/office	1,768	225	225 (50/50)
Office	30	6	0
Total	**3,642**	**411**	**405**

(60/40) Indicates expected in / out split

CURRENT DEVELOPMENT CONCEPT

3.2. The concept plan for the proposed marina has been amended to include an hotel within the marina. Figure 4 shows the indicative concept plan containing:

- Boat Berths 497 pens
- Hotel (including restaurant) 93 rooms
- Café 225m^2
- Tourist operator 208m^2
- Gift Shop / Fishing Shop 180m^2
- Asian / Thai / Italian restaurants 383m^2
- Casual restaurants 735m^2
- Ice cream shop, Fashion Shop, Surf Shop 375m^2
- Microbrewery 303m^2

3.3. The proposed development is considered by land use below on the basis of the 2011 traffic report.

Boat Pens

3.4. There are two main references for the trip rates associated with boating marinas. The Roads and Traffic Authority (NSW) *Guide to Traffic Generating Developments (RTA* Guide*)* and the ITE manual *Trip Generation* (ITE). The RTA document provides a daily trip rate of 2.7 trips per fixed berth and 1.4 trips

per swing mooring. The ITE document suggests a trip generation of 2.96 per berth. Given that the RTA data is Australian based, it is considered to be more reliable. An extract of the RTA guide is provided below:

Marinas

Substantial seasonal variations in marina usage involve peak traffic generation occurring particularly during weekends in summer. While a weekday evening peak hour generation rate is not given below, events such as summer evening yacht racing may have to be considered.

Generation rates vary with the type of berth and the type of boat. The rates given below are based on a marina with a mix of boat types (both power boats and yachts); the design is based on a summer weekend day. These rates also include an allowance for shore-based facilities such as boat sales and repairs.

Rates

Daily vehicle trips = 2.7 per fixed berth + 1.4 per swing mooring.

Factors.

The two key factors in the traffic generation of marinas are the level of usage and the transport mode of boats. Boats that are more accessible (in wet marina berths) are more likely to be used than boats in dry berths or on swing moorings. Use also varies with boating purposes. For example, yachts which engage in regular racing are used more often than yachts used only for social outings. Surveys of four marinas in Pittwater in 1978 over the summer weekend/public holidays found an average utilisation of 30% over all berths. Surveys of racing yachts at one club on Middle Harbour in 1990/91 found an average utilisation on summer racing days of 65%.

3.5. The Port Rockingham Marina will have 497 fixed berths and thus a daily traffic generation of (497 x 2.7) 1,342 trips per day would be expected with 100% use. However, as can be seen from the RTA data, it can generally be expected that 30% of the berths will be used on typical weekend days and would generate 404 trips (202 vehicles).

3.6. On rare peak occasions 65% utilisation may be experienced or 872 trips (436 vehicles). It is considered that the Rockingham marina would not operate with racing days as identified by the RTA guidelines.

3.7. The peak period of attraction to the marina will be early in the morning (arrivals) and then at lunchtime as boats return. Surveys at the Mindarie marina in 2004 showed that peak arrivals occurred before 8am in the morning and had minimal impact on the operation of the local road network, as all other land uses were

not operational. Of significance to the proposed development are the departures during the morning which were:

- 11am to 12pm 11.3% of the associated boat parking
- 12pm to 1pm 29.5% of the associated boat parking
- 1pm to 2pm 18.8% of the associated boat parking
- 2pm to 3pm 17.2% of the associated boat parking

3.8. It is clearly demonstrated that the peak period of boat related activity is between 12pm and 1pm. Based on the typical summer weekend attraction of 202 vehicles it can be deduced that peak period departures could be

- 11am to 12pm 11.3% 23 vehicle movements
- 12pm to 1pm 29.5% 60 vehicle movements
- 1pm to 2pm 18.8% 38 vehicle movements
- 2pm to 3pm 17.2% 35 vehicle movements

3.9. During the PM peak period minimal activity would be expected and 10 trips are assumed.

Hotel / Hotel Restaurant

3.10. Reference to the RTA *Guide to Traffic Generating Developments* suggests that accommodation units can be expected to generate 3 trips per room per day. The original traffic report adopted this traffic generation rate.

3.11. Recent discussions with the City of Rockingham have suggested that the ITE (USA) "Hotel" trip rate of 8.17 trips per room should be used.

3.12. Based on 93 rooms, the hotel would be expected to generate 760 vehicle movements per day.

3.13. The evening peak trip rate (ITE USA) is 0.59 trips per room (55 trips) and the Sunday peak 0.56 trips per room. (52 trips) However, the Sunday peak will occur between 10am and 11am based on normal check out times. Between 12pm and 1pm 5% of the daily demand is assumed, or 37 trips.

Restaurant / Cafe

3.14. Reference to the RTA *Guide to Traffic Generating Developments* suggests that restaurant land uses can be expected to generate 60 trips per 100m^2 floor area and 5 trips per 100m^2 during the traditional evening peak period. No data is available for Sunday trading, but reference to Google data for existing local restaurants indicates the Sunday demand between 12pm and 1pm is similar to

the evening peak, but continues over the afternoon period. The evening peak trip rate is therefore applied to the Sunday peak period of 12pm to 1pm.

3.15. The trip generation of these land uses is shown in Table 3.

Retail

3.16. Reference to the RTA *Guide to Traffic Generating Developments* suggests that speciality retail land uses can be expected to generate about 46 trips per day per 100m^2 of floor area, based on shopping centre pass by and reciprocal attraction. It is obvious that retail activity within the marina is most unlikely to be destination retail and business will trade from people working, staying and using the marina.

3.17. No trip generation data is available for the traditional morning and evening peak periods. It can be expected that during the week most retail activity will cease around 5pm and only staff trips would occur. For the purpose of the traffic assessment 10% is assumed.

3.18. During the Sunday peak period, the retail uses on the marina are unlikely to attract traffic in their own right. However, 5% of the daily attraction is assumed.

3.19. The trip generation of these land uses is shown in Table 3.

Office / Commercial

3.20. The RTA *Guide to Traffic Generating Developments* suggests a trip rate of 10 trips per 100m^2 of floor area for office and commercial premises. The peak trip rate is 2 trips per 100m^2.

3.21. The tourism operators would fall into this category and can be expected to operate between 9am and 5pm on most days. The trip rate can therefore be applied to the weekend. However, the attraction during the day would be minimal and 5% is used.

3.22. The trip generation of these land uses is shown in Table 3.

Microbrewery

3.23. There are no trip rates specific to a microbrewery. Reference to the Director General Transport South Australia – Land use Trip Generation Guidelines (1987) suggests that taverns generate 110 trips per 100m^2 floor area. However, this data is old and does not reflect present day attitudes toward drink driving.

3.24. The ITE cites a trip rate for "drinking place" but this would not relate to the facility being provided. As there are no other reliable data sources, the South Australian trip rate is applied.

3.25. Reference to Google indicates the Breakwater at Hillary;s has a peak occupancy on Friday and Saturday nights with Sunday between 12pm and 1pm having an attraction similar to the PM peak.

3.26. The peak evening hour trip rate stated by the SA guide is 20 trips per 100m^2. This trip rate is applied to the Sunday peak between 12pm and 1pm.

3.27. The trip generation of this land uses is shown in Table 3.

Summary of Traffic Generation

3.28. Table 3 shows the forecast traffic generation of the current concept plan and assumes peak periods of traffic generation occurring in a similar time period. However, peak attraction to restaurants, shops and the brewery are likely not to coincide.

Table 3 Anticipated Traffic Generation

Land Use	Daily	Weekday Peak Hour 5pm-6pm	Sunday Peak 12pm-1pm
Marina	403	10	60
Hotel	760	55	38
Café	135	11	11
Gift Shop / Fishing Shop	83	8	8
Tourist operator	21	2	2
Asian / Italian restaurant	230	19	19
Other restaurants	441	37	37
Ice cream, Fashion, Surf Shop	173	17	9
Microbrewery	333	61	61
Total	**2,579**	**220**	**245**

3.29. It can be seen from Table 3 that the peak period of traffic demand can be expected on a Sunday. The peak period is based on peak use of boating activity between 12pm and 1pm. period of boating activity.

3.30. The assessment of the traffic generation to the proposed marina has considered the isolated use of each element of the development. In reality, a high level of cross-visitation between the land uses can be expected. It is known that a restaurant can be expected to attract up to 40% of trade from passers-by. The location of the development being in close proximity to

Rockingham Village and the existing waterfront residential and commercial activity will give rise to high levels of cross-visitation. To provide a robust assessment this report does not consider the possible traffic reductions due to cross-visitation.

Summary of Traffic Generation

3.31. The revised concept plan has changed some of the land uses proposed within the marina. The number of boat pens remains the same, but much of the commercial activity originally indicated has been replaced with accommodation. Overall the change to the proposed land uses within the marina will reduce the forecast traffic generation of the marina from 3,642 vehicle movements per day to 2,578 vehicle movements per day.

3.32. The change in land uses result in about a 30% reduction to traffic demands previously forecast.

Distribution

3.33. The marina development is considered to create a similar facility to that provided at Hillary's boat harbour in the northern suburbs of Perth. Traffic attracted to the proposed marina development could therefore include regional based movements. To the north of the site lies extensive areas of industrial development which would not be expected to generate significant movement to the proposed development. Further north is Fremantle marina and the proposed Port Coogee development, which would be expected to further reduce the attraction from the north.

3.34. To the south lies Mandurah, a major tourism-based marina that can be expected to limit the attraction from the south. Although major traffic issues occur in Mandurah, the construction of the Kwinana Freeway extension can be expected to relieve these issues. It can be concluded therefore that the majority of traffic attracted to the site will come from the east. The following attraction is assumed:

- 35% from the north (Patterson Road 30% and Rockingham Beach Road 5%)
- 20% from the south (Read Street)
- 40% from the east (Dixon Road, Mandurah Road from the south etc)
- 5% from Shoalwater / Point Peron

3.35. Based on the above traffic assumptions, the changes to local traffic patterns are shown in Figure 5 for the typical weekday and the peak period on Sunday.

3.36. It should be noted that the traffic attraction is based on all generated trafic using the marina car poark, whch in reality will not happen is parking is provided on adjacent streets. It can be expected that regular users will not access the marina car park during busy periods and thus a lower traffic increase may occur on some local streets.

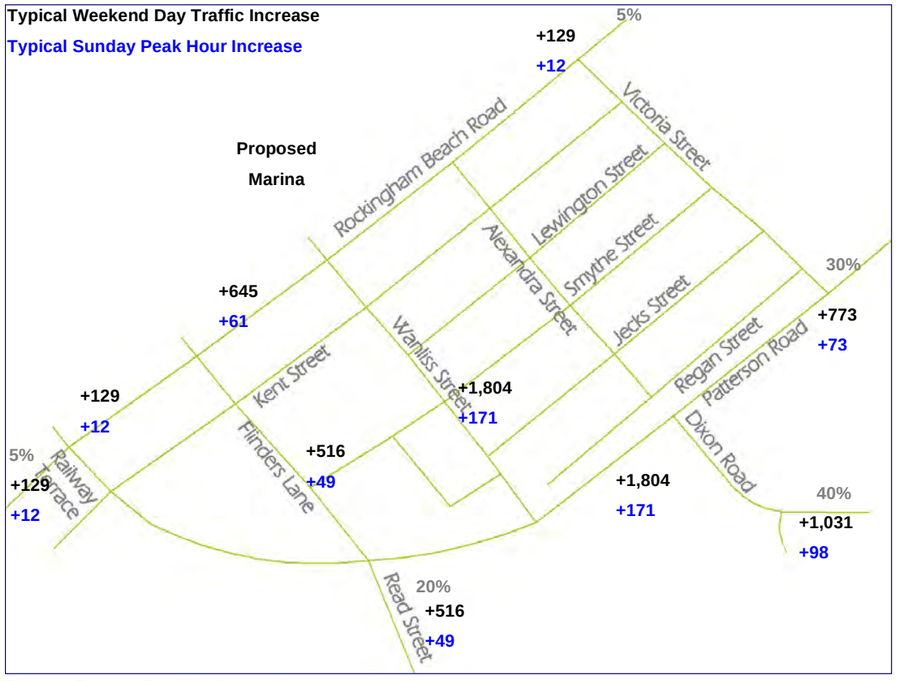


Figure 5 Traffic Attraction

3.37. The traffic attraction in this report may not appear significant, particularly when considered to the previous report from 2007 which considered primarily retail land uses (rather than the higher level of restaurant / café land uses now proposed). It can be expected that as the waterfront village is developed and more people move into the area, the increase in pedestrian traffic could be significant.

4. TRAFFIC IMPACT

4.1. Reference to the WAPC Transport Assessment Guidelines for Developments states that:

> *"As a general guide, an increase in traffic of less than 10% of capacity would not normally be likely to have a material impact on any particular section of road, but increases over 10% may. All sections of road with an increase greater than 10% of capacity should therefore be included in the analysis. For ease of assessment, an increase of 100 vehicles per hour for any lane can be considered as equating to around 10% of capacity. Therefore any section of road where traffic would increase flows by more than 100 vehicles per hour for any lane should be included in the analysis. An intersection may be considered materially affected if flows on any leg increase by more than 10% or any individual movement by more than 20%".*

4.2. Table 4 considers the traffic impact of the development based on the generated daily traffic demands. Table 4 does not include reductions for pass-by traffic and provides a robust assessment of the maximum traffic impact.

4.3. Reference to Appendix A shows the capacity of each street type and the level of Service that can be expected.

Table 4 Forecast Traffic Flow Changes with Peak Attraction

Street	Capacity	Marina	%
Patterson Road	45,000	773	1.72%
Read Street	45,000	516	1.15%
Flinders Lane	22,900	516	2.25%
Wanliss Street	22,900	1,804	7.88%
Rockingham Beach Road north	22,900	129	0.56%
Rockingham Beach Road south	22,900	129	0.56%
Dixon Road	45,000	1,031	2.29%

4.4. Table 4 indicates that based on the WAPC Transport Assessment Guidelines for Developments the proposed development would not increase traffic demand by more than 10% of the affected road capacity and therefore would be considered to have no material traffic impacts.

4.5. Table 5 shows that Wanliss Street is shown to experience the largest increase to forecast traffic demands at just under 8%. Table 6 considers the impact to future Levels of Service. The Levels of Service are shown at Appendix A.

Table 5 Level of Service Impacts

Road	Type	Future Volume*	LoS	With Marina	Los
Patterson Road	4	35,000	C	35,773	C
Read Street	4	20,500	A	21,016	A
Flinders Lane	2	13,800	D	14,316	D
Wanliss Street	1	4,000	B	5,804	C
Rockingham Beach Road north	1	6,200	C	6,329	C

*refer Figure 3

4.6. Table 4 demonstrates that all streets will continue to function with acceptable Levels of Service. In summary the following conclusions of the 2011 remain valid:

- Patterson Road is shown to retain its Level of Service at C
- Read Street is shown to be unaffected.
- Flinders Lane is shown to be unaffected.
- Wanliss Street is shown to have a slightly reduced Level of Service from B to C, but this is still a good and acceptable Level of Service.
- Rockingham Beach Road is shown to be unaffected north of Wanliss Street.

4.7. The traffic increases do not result in any street operating contrary to its function in the MRWA *Functional Road Hierarchy.*

The change of land uses within the marina has no impact to the findings of the 2011 traffic report.

Peak Period Impacts

4.8. Table 3 indicates that based on isolated land use trip rates, the proposed development will increase the evening peak hour traffic by 220 trips. The generated traffic would not be expected to result in any traffic lane experiencing an increase of more than 100 vehicles during the peak period. Under the WAPC guidelines, the level of traffic increase can be considered as having no material impact and further assessment of the road network would not be *required.*

4.9. During the Sunday lunchtime period, the peak period of development activity, Table 3 indicates that the development can be expected to increase local traffic by 245 vehicle movements. Figure 5 shows the peak demand will increase traffic by up to 171 movements. Based on a 50/50 split in traffic movement, an increase of more than 100 vehicles to a traffic lane would not be expected.

4.10. It can be anticipated that Wanliss Street would carry the majority of traffic demands with most vehicles travelling straight. It is not expected that the development will increase turning movements at local intersections by more than 20% and under the WAPC guidelines; additional intersection assessment would not be required.

4.11. A large roundabout controls the intersection of Wanliss Street and Patterson Road where an increase commensurate with WAPC guidelines may require assessment. However, as a large roundabout, the intersection would be expected to have ample capacity to cater for the proposed development.

Operation of Access

4.12. The traffic report prepared in 2011 analysed the operation of local intersections affected by the proposed marina development. As the level of traffic generated by the proposed development has reduced by some 30%, the findings of the 2011 traffic report are still considered to be valid.

4.13. The following tables reproduce the Sidra assessment of the marina access shown in the 2011 traffic report. It should be noted that an existing car park access is already present).

Table 6 Existing Intersection Operation - Sunday Peak 12pm to 1pm

	Existing		With marina	
Approach	**Delay**	**LoS**	**Delay**	**LoS**
Rockingham Beach Road south	3.2s	A	4.5s	A
Wanliss Street	9.3s	A	13.8s	A
Rockingham Beach Road north	2.2s	A	4.7s	A
Car park	10.0s	A	One way entry	

Table 6a Car Park Access with Marina - Sunday Peak 12pm to 1pm

Approach	Average Delay	Level of Service
Rockingham Beach Road south	2.3s	A
Car park	14.8s	A
Rockingham Beach Road north	2.4s	A

4.14. It can be seen from the analysis that during typical summer weekends, very good Levels of Service can be expected at the access points.

4.15. Analysis was also provided using the forecast traffic movements anticipated for full development of the Waterfront Village. The analysis of the affected intersections undertaken in the 2011 traffic report is summarised in Tables 7 and 7a.

Table 7 Intersection Operation with Marina - Sunday Peak 12pm to 1pm + Waterfront Village

Approach	Average Delay	Level of Service
Rockingham Beach Road south	6.2	A
Wanliss Street	27.5	B
Rockingham Beach Road north	5.1s	A
Car park	One way entry	

Table 7a Car Park Access - Sunday Peak 12pm to 1pm + Waterfront Village

Approach	Average Delay	Level of Service
Rockingham Beach Road south	1.6s	A
Car park	33.1s	C
Rockingham Beach Road north	3.3s	A

4.16. It can be seen from Tables 7 and 7a that with the full development of the Waterfront Village, good Levels of Service can be expected at the affected intersections.

4.17. To provide a sensitivity test to the analysis, an assessment of the anticipated intersection operation was undertaken with a peak day attraction to the marina,

being utilisation of 65% of the available berths. Tables 8 and 8a show the summary of the 2011 analysis.

Table 8 Intersection Operation - Sunday Peak 12pm to 1pm with Waterfront Village and 65% Utilisation of Marina Berths

Approach	Average Delay	Level of Service
Rockingham Beach Road south	7.1	A
Wanliss Street	30.6s	C
Rockingham Beach Road north	5.45	A
Car park	One way entry	

Table 8a Intersection Operation - Sunday Peak 12pm to 1pm with Waterfront Village and 65% Utilisation of Marina Berths

Approach	Average Delay	Level of Service
Rockingham Beach Road south	1.6	A
Car park	66.7s	E
Rockingham Beach Road north	3.3s	A

4.18. Analysis of a peak day with 65% utilisation of the marina berths and full development of the Waterfront Village indicates that the car park access could operate with Level of Service E, which is not an acceptable Level of Service for everyday operation. However, the operation of the marina with 65% berth utilisation will be a very rare occurrence and may only happen once or twice a year. It is considered that this is an acceptable situation as additional parking is provided locally and the option to park further away will exist.

4.19. It is considered that the increased traffic flows on the regional road network will not have a detrimental impact to current operational characteristics as the peak attraction to the marina will be during weekends when underlying traffic volumes are lower.

4.20. The traffic flows used for the analysis in the 2011 traffic report are shown in Appendix B.

Service Vehicles

4.21. The retail, commercial and hotel uses within the marina will require servicing in regard to deliveries and waste removal. Access to the marina boardwalk can be

made for small trucks (transit van type vehicles) and garbage vehicles. A waste management plan has been prepared. It is noted that garbage collection will be undertaken typically between 7am and 10am during weekdays, when pedestrian activity within the marina is at its minimum.

4.22. Deliveries may also use the boardwalk between the hours of 7am and 10am to service the commercial and hotel land uses. The management of servicing would be similar to that currently undertaken for the City of Perth pedestrian malls.

4.23. The use of the boardwalk by vehicles is not seen as an issue as an appropriate footpath is provided adjacent to the built form. The use of the roadway by pedestrians is only anticipated to occur during weekends when peak attraction to the marina is expected.

5. PARKING

5.1. Parking for the proposed marina development will be provided by expansion of existing car parks, the provision of additional on-street parking and limited parking on the groyne for specific boat berths.

5.2. Commonly parking is required to be provided within the subject land area, however as a marina this is not feasible. Close proximity parking would be required for users of the boat berths, but visitors to the area would be prepared to park further away and walk along the coastal path to reach the marina.

5.3. The planning of the marina has considered a walkable distance as the primary desirable catchment for parking.

5.4. The City of Rockingham's Town Planning Scheme sets out maximum and minimum parking requirements for development within the Rockingham Village area as follows:

- Hotel 1 bay per room
- Office land uses 1 bay per 40m^2
- Retail land uses 1 bay per 22^2 NLA
- Restaurant 1 bay per 8 persons (4 persons = 5m^2)
- Tavern 1 bay per 6.5m^2 public area.

5.5. AS 3962 sets out various parking requirements based on the size of the berths provided. At this stage the size of the berths is unknown and it can be expected that a range to meet public demand would be provided. The average requirement of AS 3962 is 0.6 bays per berth.

5.6. Based on the land uses identified, the parking requirement is shown in Table 9.

5.7. Based on isolated land uses, the minimum parking requirement to meet the City of Rockingham's TPS would be 566 bays. Advice from the proponent indicates that some 628 parking bays are to be provided to support the proposed marina.

5.8. On the basis of 628 bays, sufficient parking can be provided for the development.

Table 9 Car Parking TPS Requirement

Land Use	Rate	No / Public Area	Required
Marina	0.6	497	298.2
Hotel	1/room	93	93
Restaurants / Café	1 / 10m^2	1,074m^2	107.4
Shops	1 / 22m^2	555m^2	25.2
Office	1 / 40m^2	208m^2	5.2
Microbrewery	1 / 6.5m^2	240m^2	36.9
Total			**565.9**

Parking Demands

5.9. It is unlikely that the peak demand for parking associated with the various land uses will coincide. It can be expected that the marina based functions will have a peak parking attraction in the morning whilst the commercial uses will have a peak demand later in the day and in the evening. There is therefore, a significant potential for reciprocal parking.

5.10. As has been discussed in this report, restaurants are known to attract up to 40% of patrons from people passing-by, potentially reducing the parking requirements for the restaurants by up to 50 bays.

5.11. It should also be borne in mind that the Rockingham Village precinct has a forecast population increase of over 3,000 persons (within an acceptable walking distance) and the region expected to experience an increase of about 52,000 people. The development of a marina will be a significant attraction for people to move to the village precinct.

5.12. It is further noted that since the publication of the original traffic report, a regular bus service with a 15minute frequency now services Rockingham Village.

Disabled Parking

5.13. It is also proposed to provide additional parking for disabled users. It is recommended that 2 additional disabled bays be provided in close proximity to the marina.

5.14. After lunchtimes on weekends it can be expected that the parking demand of boat berth users will be significantly lower than during the early morning. There is an opportunity to allow parking in these bays by disabled persons visiting the restaurants within the marina. This will be a matter for the marina management to consider as entry to the groyne for cars will be strictly controlled for pen users, disabled persons and delivery vehicles.

6. PEDESTRIANS, CYCLISTS AND PUBLIC TRANSPORT

6.1. The close proximity of the Rockingham Waterfront Village is ideal to create a good walking and cycling environment. Attractions such as the beach, local shops and a variety of cafes and restaurants are all close at hand and a high level of cross-visitation between local developments would be expected. The Rockingham Village street network has been developed to provide a pleasant walking environment with low traffic speeds and significant opportunity for shade trees. Cycling on-street would be expected and traffic flows are low to enable cycling in a safe manner.

6.2. The development of the marina will introduce additional traffic calming to Rockingham Beach Road by virtue of the on-street car parking. Verge parking currently occurs in a random manner and the formation of angled parking, to match the existing car parking layout of Rockingham Beach Road, will provide a visual sign to traffic that they are entering the village precinct.

6.3. The existing pedestrian access to the foreshore path is not good in the vicinity of Wanliss Street and will be significantly improved by the marina development.

6.4. The boat marina berths will not attract significant pedestrian movements except in the early morning and afternoon as boats are tended to at departure and return. However, it can be expected that large numbers of tourists will be attracted to the commercial and restaurant facilities of the marina. Indeed many people will want to just walk out along the groyne to enjoy the scenery.

6.5. The marina has been designed to provide a high pedestrian amenity with a 2.5 metre minimum width covered pedestrian path adjacent to the groyne access way. Vehicles can, by prior arrangement, utilise the bridge connection to the groyne for the purpose of deliveries and access to the disabled parking. A small number of cars will also have access to designated boat pen parking on the groyne. Traffic movements on the groyne will be very low and will not interfere with pedestrian movement.

There will be minimal traffic movement on the groyne

6.6. The primary advantage of creating traffic access to the groyne is the ability to provide disabled parking close to the boats and a level of disabled parking for those wanting to enjoy the marina. Disabled access will be managed through the marina management, but disabled fishermen will now have far greater access than had been previously proposed. Further, disabled access can also be provided in greater levels during the evening by utilising empty boat berth

bays, although this will be by prior arrangement only. It will not be possible to just drive onto the groyne.

6.7. Access to the marina bridge will be controlled so that traffic approaching must stop prior to the coastal path. It has been suggested that the integration of vehicles and pedestrians on this path is undesirable. However, the path already has a high degree of vehicle interaction due to the tractor train, which currently runs along the path. It is considered that the tractor train presents a far greater hazard to pedestrian safety than the proposed controlled vehicle crossing. It is considered that even in very peak conditions, only 24 vehicles would cross the path in the weekend peak hour (based on a peak of 60% berth utilisation and 29% discharge of car parking). Vehicle crossings will be at slow speeds and managed by marina management staff. However, such peak periods are only likely to occur once or twice each year.

Allowing vehicle access to the groyne does not present a significant detrimental impact to pedestrian safety or amenity

Public Transport

6.8. A transit system has been provided to link the beach to the city centre and the Perth - Mandurah rail line located on Ennis Avenue. Figure 6 shows the bus routes servicing the foreshore and the marina development. Route 550 runs every 15 minutes to the rail station whilst route 555 provides four services per hour. The existing transit service provides excellent public transport access to the marina.

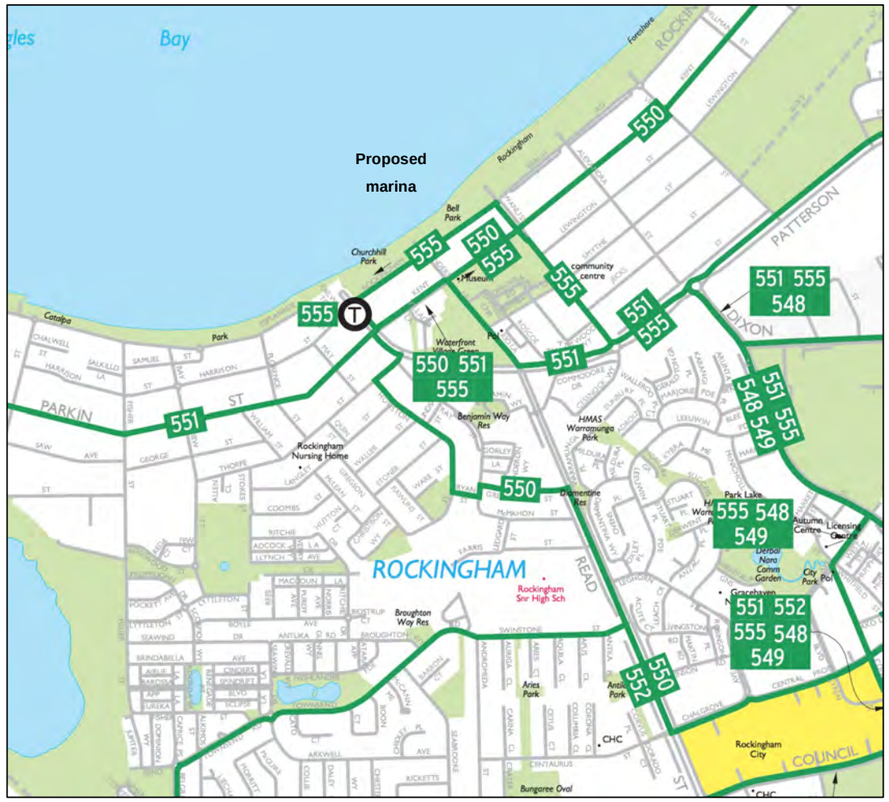


Figure 6 Existing Bus Routes

7. Conclusions

7.1. The development of the Port Rockingham Marina will provide 497 boat berths, 93 accommodation rooms and associated commercial opportunities. The following conclusions have been drawn from the traffic impact analysis provided in the 2011 traffic report and this update.

7.1.1. The analysis of the restaurant/café and retail land uses within the development has been based upon isolated land use. No reduction to the forecast traffic movements has been made to account for the likelihood of cross-visitation between tenancies within the marina. Further, no reductions have been made to account for the very high probability of cross-visitation with existing commercial and recreational land uses in the area. It is considered that this report provides a robust assessment of the potential traffic impact of the proposed marina.

7.1.2. Based on the maximum forecast traffic increases, all roads considered in this report can be expected to operate in an acceptable manner. No road is shown to operate with forecast traffic flows greater than their desirable capacity. Acceptable Levels of Service will be maintained on the local and regional road network.

7.1.3. Analysis of the local intersection of Rockingham Beach Road / Wanliss Street shows that good Levels of Service will be maintained with the proposed marina.

7.1.4. Parking for 628 vehicles can be provided within a reasonable walking distance of the marina. The level of parking exceeds the minimum requirements set out in the City of Rockingham's TPS. It is proposed to provide restricted and controlled parking on the marina groyne for a limited number of boat berths.

APPENDIX A

Levels of Service by Road Type

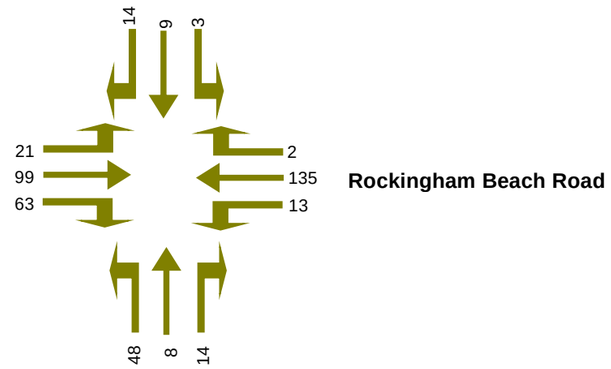
LOS	Single Carriageway[1]	2-Lane Boulevard[2]	Dual Carriageway (4-Lanes)[3]	Dual Carriageway (4-lane Clearway)[3]
TYPE	***1***	***2***	***3***	***4***
A	2,400vpd	2,600vpd	24,000vpd	27,000vpd
B	4,800vpd	5,300vpd	28,000vpd	31,500vpd
C	7,900vpd	8,700vpd	32,000vpd	36,000vpd
D	13,500vpd	15,000vpd	36,000vpd	40,500vpd
E	22,900vpd	25,200vpd[4]	40,000vpd	45,000vpd
F	>22,900vpd	>25,200vpd[4]	>40,000vpd	>45,000vpd

[1] Based on Table 3.9 Austroads - Guide to Traffic Engineering Practice Part 2
[2] Based on single carriageway +10% (supported by Table 3.1 Austroads - Guide to Traffic Engineering Practice Part 3) – Boulevard or division by medians.
[3] Based on RRR Table 3.5 - mid-block service flow rates (SF.) for urban arterial roads with interrupted flow. Using 60/40 peak split.
[4] Note James Street Guildford passes 28,000vpd.

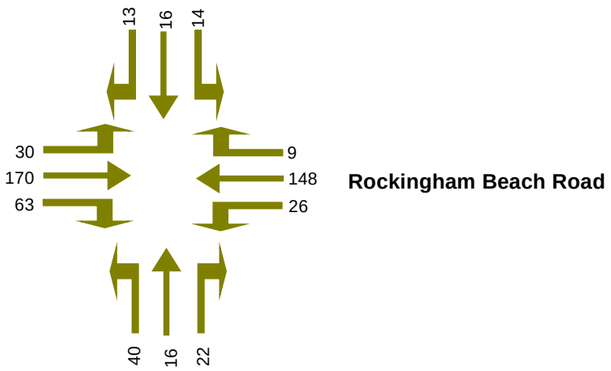
For the purposes of planning, the capacity of a road can be taken as the value between Level of Service E and F. However, a Level of Service D is the lowest preferred operational Level of Service.

APPENDIX B
Existing Traffic Flows Used in 2011 Analysis (@30% than expected generation)

Saturday Lunchtime 12pm to 1pm

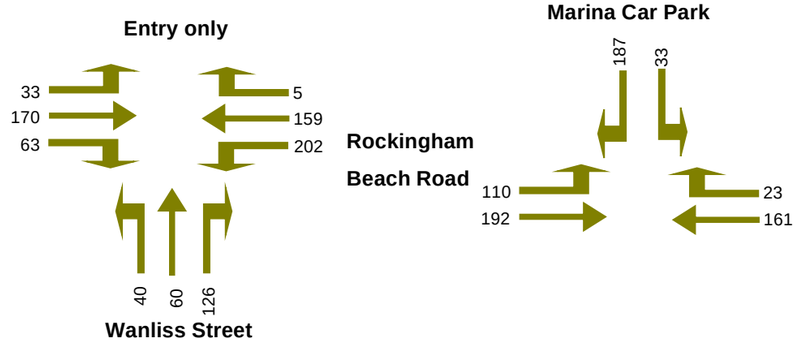


Sunday Lunchtime 12pm to 1pm

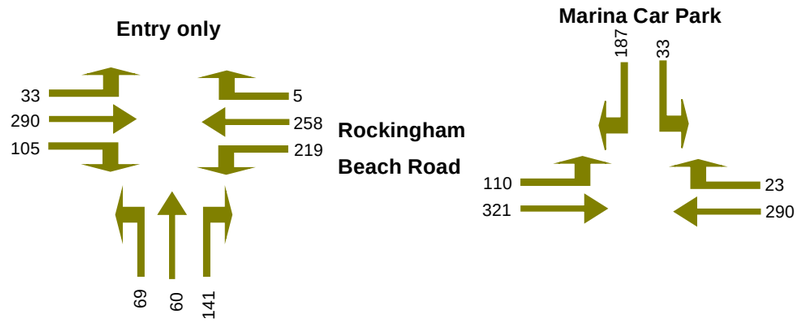


Forecast Traffic Flows Used in 2011 Analysis (@30% than expected generation)

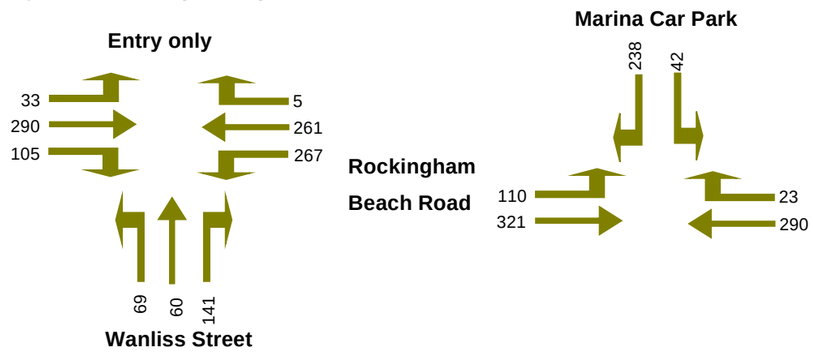
Sunday Lunchtime 12pm to 1pm with expected marina traffic attraction



Waterfront Village Full Development
Sunday Lunchtime 12pm to 1pm with expected marina traffic attraction



Waterfront Village Full Development
Sunday Lunchtime 12pm to 1pm with 65% berth use



Appendix E

BAL Assessment and Bushfire Management Plan and Emergency Evacuation Plan

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Bushfire management plan/Statement addressing the Bushfire Protection Criteria coversheet

Site address: Port Rockingham, Rockingham Beach Road, Rockingham

Site visit: Yes ☒ No ☐

Date of site visit (if applicable): Day 10 Month January Year 2017

Report author or reviewer: James Terenciuk

WA BPAD accreditation level (please circle):

Not accredited ☐ Level 1 BAL assessor ☐ Level 2 practitioner ☒ Level 3 practitioner ☐

If accredited please provide the following.

BPAD accreditation number: BPAD36529 Accreditation expiry: Month February Year 2018

Bushfire management plan version number: 1

Bushfire management plan date: Day 25 Month January Year 2017

Client/business name: Bushfire Smart

	Yes	No
Has the BAL been calculated by a method other than method 1 as outlined in AS3959 (tick no if AS3959 method 1 has been used to calculate the BAL)?	☐	☒
Have any of the bushfire protection criteria elements been addressed through the use of a performance principle (tick no if only acceptable solutions have been used to address all of the bushfire protection criteria elements)?	☐	☒

Is the proposal any of the following (see SPP 3.7 for definitions)?	Yes	No
Unavoidable development (in BAL-40 or BAL-FZ)	☐	☐
Strategic planning proposal (including rezoning applications)	☐	☐
High risk land-use	☐	☐
Vulnerable land-use	☒	☐

None of the above ☐

Note: Only if one (or more) of the above answers in the tables is yes should the decision maker (e.g. local government or the WAPC) refer the proposal to DFES for comment.

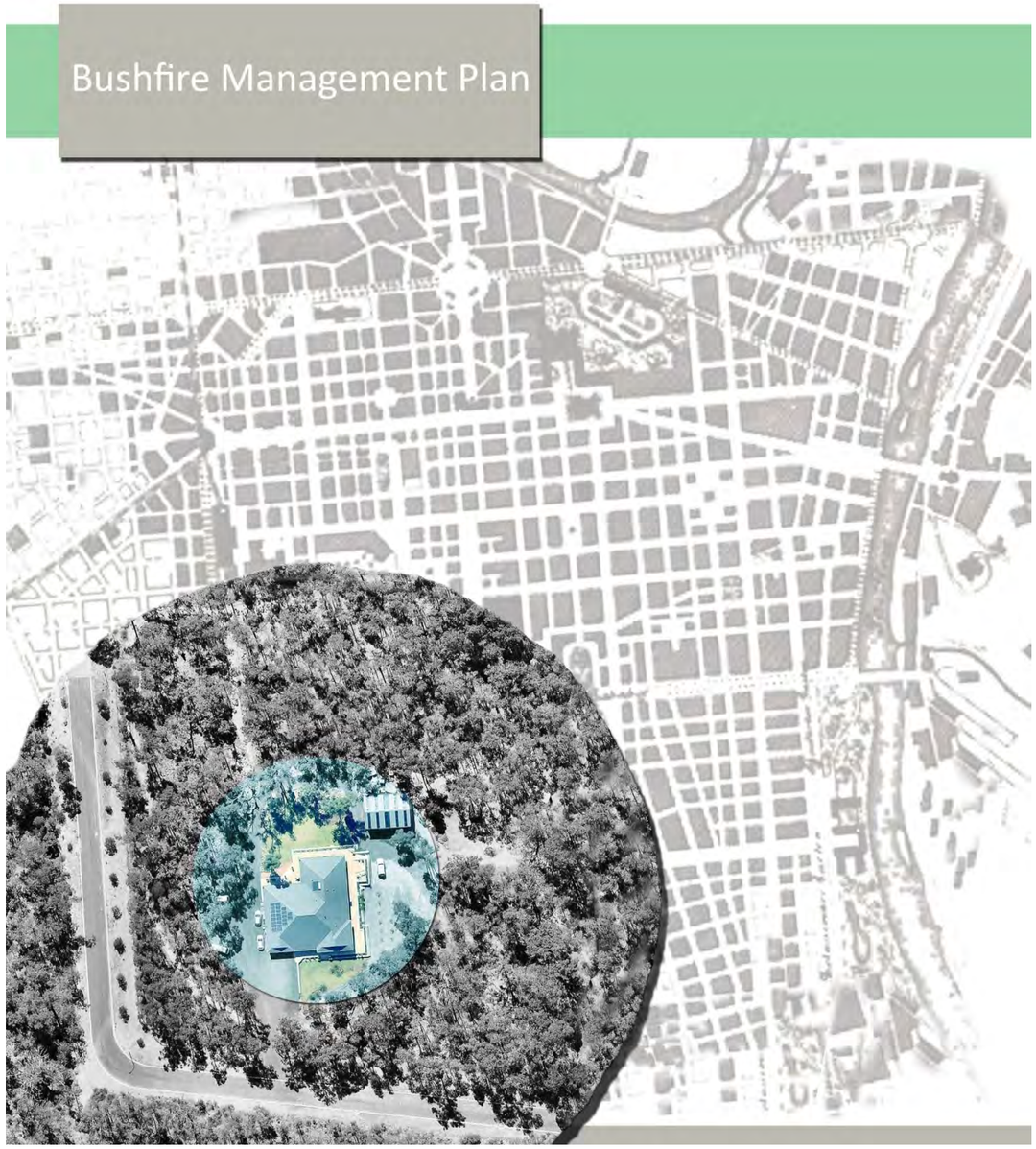
Why has it been given one of the above listed classifications (E.g. Considered vulnerable land-use as the development is for accommodation of the elderly, etc.)?

Council has requested it to be viewed as Vulnerable Use.

The information provided within this bushfire management plan to the best of my knowledge is true and correct:

Signature of report author or reviewer

Date 25/01/2017



DRAFT Report Details		
Project:	Proposed Port Development	
Project Address:	Port Rockingham, Rockingham Beach Rd, Rockingham, WA, 6168	
Prepared by:		
Report / Job Number 6424	**Report Version** 3	**Assessment Date:** 11 June 2018

BUSHFIRE SMART

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Bushfire Management Plan

Executive Summary

The aim of this report is to take a detailed look into bushfire management strategies to reduce the risk to future development on the subject site. Furthermore, development of the land is consistent with the principles of orderly and proper planning and is not considered to impact the safety of future residents.

1. Background Information

This Bushfire Management Plan was prepared to provide guidance for the planning and management of potential bushfire threat. The standards and recommendations within this plan are based on the performance criteria as set out in Guidelines for Planning in Bushfire Prone Areas (2017).

This Bushfire Management Plan meets the requirements of SPP 3.7 and the Guidelines for Planning in Bushfire Prone Areas.

1.1 Purpose of Plan

The purpose of this Plan is to identify the probable risks, to minimise the occurrence and impact of bushfires and their devastating effects to life, property and the environment, and to document fire prevention requirements at the Site. By providing acceptable solutions the BAL level can be managed to an acceptable level.

1.2 Proposed Development

The proposal at Port Rockingham, Rockingham Beach Rd, Rockingham seeks approval for a **hotel which is considered a "vulnerable land use" (as per section 5.5.1 of the Guidelines) and a refueling facility for boats defined as a "high-risk land use" (refer to section 5.6).**
According to the most recent Map of Bushfire Prone Areas 2016, published by the Department of Fire and Emergency Services, the site itself has not been identified as being at risk, but the proximity to classified vegetation on shore puts the proposed buildings at risk.

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1.3 Objectives

The objectives of this Plan are to:

- Define areas where values are located
- Define and rank hazard areas
- Identify individuals and organizations responsible for fire management and associated works within the area of the plan
- Develop fire management strategies for all land with regard to life, property and the environment
- Nominate an assessment procedure that evaluates the effectiveness and impact of proposed and existing fire prevention work and strategies
- Identify performance criteria and acceptable solutions for all fire management works, including acceptable solutions for fire breaks, low fuel areas and building construction standards.

This Plan will achieve the objectives by:

- Assessing the bushfire hazard level
- Assessing the bushfire attack level
- Determining bushfire management requirements
- Determining ongoing management responsibilities

1.4 Site Details and Overview

The Site address is Port Rockingham, Rockingham Beach Rd, Rockingham, located approximately 48.6 km South-West of the Perth CBD. A Marina (hotel, retail, commercial, boat area) and refueling facility for boats) are proposed on a port development at a fair distance into the ocean.

1.5 Bushfire Risk Assessment

Risk	Impact	Pre BMP Risk Level	Strategy	Post Development Risk Level
The potential of bushfire to cause injury or death.	People	Low	Egress available in 2 directions. Public road proposed on site.	Low
The potential of bushfire to cause damage to the proposed buildings.	Buildings	Low	All vegetation proposed on the development to be maintained in a low fuel condition.	Low
The potential of bushfire to cause damage to the environment	Environment	Low	No clearing proposed.	Low

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Bushfire Management Plan

1.6 Solutions applied

The Guidelines for Planning in Bushfire Prone Areas require a statement of which Acceptable Solutions are proposed, and where applicable, a summary of any alternative solutions proposed and in what sections of the Bushfire Management Plan they are documented.

Applicable Acceptable Solutions addressed in Part 4 of this Bushfire Management Plan: A1.1, A2.1, A3.1, A3.2, A4.1. Alternative Solutions forming part of this report: Nil.

2. Spatial Considerations of Bushfire Threat

The location and extent of the classifiable vegetation in relation to the proposed development have been assessed and recorded in the attached BAL Assessment Report extract. The BAL Assessment Report is produced based on a methodology 1 assessment, with the vegetation being assessed “as is” in accordance with AS3959. The indicative BAL is given in the table below. Exemptions in Clause 2.2.3.2 of AS3959 have been utilized where appropriate and results in a BAL rating of BAL-29 or below, in accordance with the Guidelines to Planning in Bushfire Prone Areas.

Building Envelope	Vegetation Classification	Effective Slope	Proposed Separation	Indicative BAL Rating
Refueling facility	Class D Scrub	Flat/Upslope	180 m	BAL-LOW
Hotel	Class D Scrub	Flat/Upslope	50.5 m	BAL-12.5

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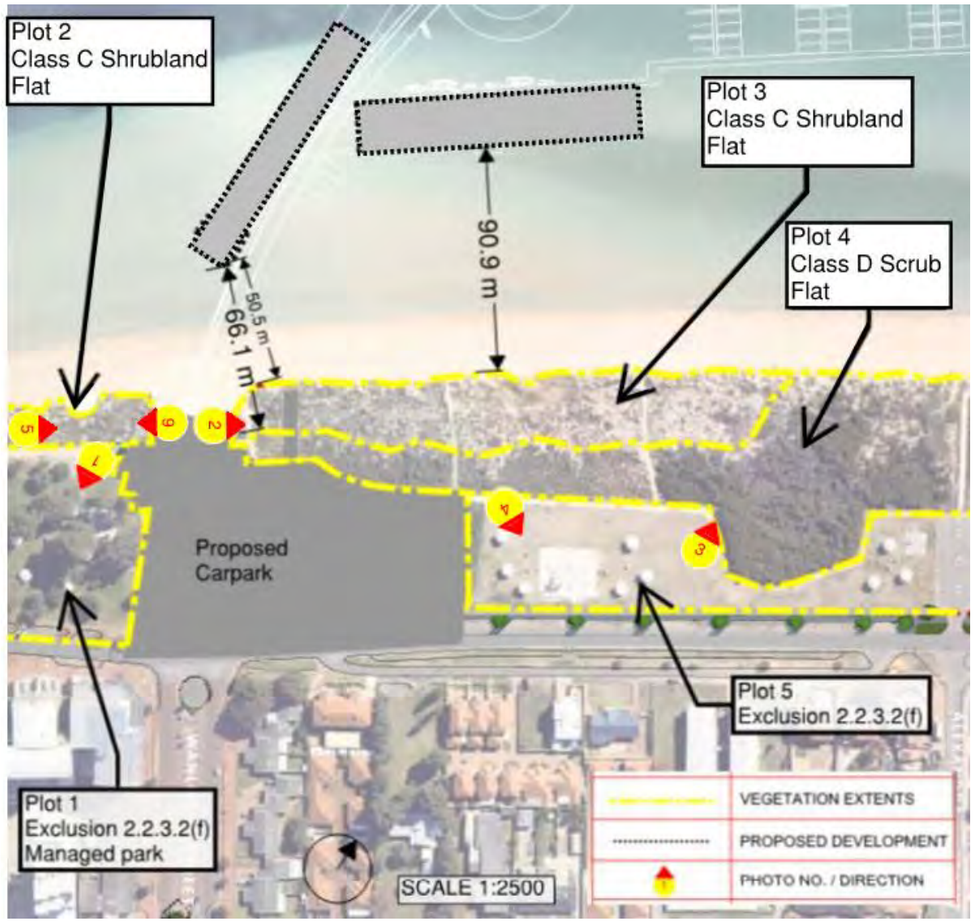
2.1 Preliminary BAL Assessment

2.1.1 Site Assessment

The assessment of this site / development was undertaken by a BPAD Accredited Practitioner for the purpose of determining the Bushfire Attack Level in accordance with AS 3959 - 2009 Simplified Procedure (Method 1).



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Bushfire Management Plan

2.1.2 Vegetation Classification

All vegetation within 100m of the site / proposed development was classified in accordance with Clause 2.2.3 of AS 3959-2009. Each distinguishable vegetation plot with the potential to determine the Bushfire Attack Level is identified below.

Photo ID:	1	**Plot:**	1
Vegetation Classification or Exclusion Clause			
Excludable - 2.2.3.2(f) Low Threat Vegetation			
Description / Justification for Classification			
Low threat vegetation, including grassland managed in a minimal fuel condition, maintained lawns, nature strips and windbreaks.			

Photo ID:	2	**Plot:**	3
Vegetation Classification or Exclusion Clause			
Class C Shrubland - Low shrubland C-12			
Description / Justification for Classification			
Shrubs <2 m high; greater than 30% foliage cover. Understoreys may contain grasses.			

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Photo ID:	3	Plot:	4
Vegetation Classification or Exclusion Clause			
Class D Scrub - Closed scrub D-13			
Description / Justification for Classification			
Found in wet areas and/or areas affected by poor soil fertility or shallow soils; >30% foliage cover. Dry heaths occur in rocky areas. Shrubs >2 m high. Typical of coastal wetlands and tall heaths.			

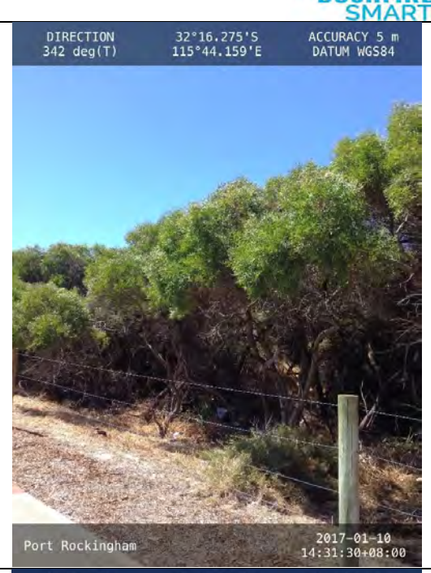
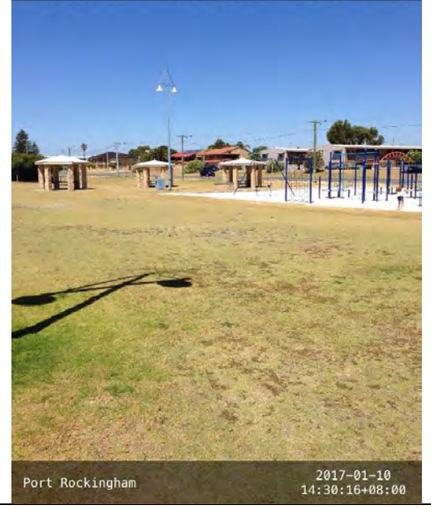


Photo ID:	4	Plot:	5
Vegetation Classification or Exclusion Clause			
Excludable - 2.2.3.2(f) Low Threat Vegetation			
Description / Justification for Classification			
Low threat vegetation, including grassland managed in a minimal fuel condition, maintained lawns, nature strips and windbreaks.			



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Bushfire Management Plan

Photo ID:	5	Plot:	2
Vegetation Classification or Exclusion Clause			
Class C Shrubland - Low shrubland C-12			
Description / Justification for Classification			
Shrubs <2 m high; greater than 30% foliage cover. Understoreys may contain grasses.			

Photo ID:	6	Plot:	2
Vegetation Classification or Exclusion Clause			
Class C Shrubland - Low shrubland C-12			
Description / Justification for Classification			
Shrubs <2 m high; greater than 30% foliage cover. Understoreys may contain grasses.			

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Relevant Fire Danger Index

The fire danger index for this site has been determined in accordance with Table 2.1 or otherwise determined in accordance with a jurisdictional variation applicable to the site.

Fire Danger Index			
FDI 40 ☐	FDI 50 ☐	FDI 80 ☒	FDI 100 ☐
Table 2.4.5	*Table 2.4.4*	*Table 2.4.3*	*Table 2.4.2*

Potential Bushfire Impacts

The potential bushfire impact to the site / proposed development from each of the identified vegetation plots are identified below.

Plot	Vegetation Classification	Effective Slope	Separation (m)	BAL
1	Excludable – Clause 2.2.3.2(f)	-	-	BAL – LOW
2	Class C Shrubland	Flat/Upslope	70 m	BAL – 12.5
3	Class C Shrubland	Flat/Upslope	50.5 m	BAL – 12.5
4	Class D Scrub	Flat/Upslope	66.1 m	BAL – 12.5
5	Excludable – Clause 2.2.3.2(f)	-	-	BAL – LOW

Table 1: BAL Analysis

Determined Bushfire Attack Level (BAL)

The Determined Bushfire Attack Level (highest BAL) for the site / proposed development has been determined in accordance with clause 2.2.6 of AS 3959-2009 using the above analysis.

Determined Bushfire Attack Level	**BAL – 12.5**

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2.2 Site Plan

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2.3 BAL Contour Map

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Bushfire Management Plan

3. Proposal Compliance and Justification

3.1 Meeting the Objectives of SPP3.7

Objective 5.1 Avoid any increase in the threat of bushfire to people, property and infrastructure. The preservation of life and the management of bushfire impact are paramount. Objective 5.1 is satisfied by addressing all of the 4 Elements in the Guidelines for Planning in Bushfire Prone Areas.
Objective 5.2 Reduce vulnerability to bushfire through the identification and consideration of bushfire risks in decision-making at all stages of the planning and development process. Objective 5.2 is satisfied by identifying the bushfire risks present to this particular site and considering them in the attached Bushfire Attack Level Assessments.
Objective 5.3 Ensure that higher order strategic planning documents, strategic planning proposals, subdivision and development applications take into account bushfire protection requirements and include specified bushfire protection measures Objective 5.3 is satisfied by the compliance with the 4 elements of the bushfire protection criteria listed in section 4 of this report.
Objective 5.4 Achieve an appropriate balance between bushfire risk management measures and, biodiversity conservation values, environmental protection and biodiversity management and landscape amenity, with consideration of the potential impacts of climate change. Objective 5.4 is satisfied by no clearing proposed maintaining the amenity valued in the area.

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3.2 Policy Measures Which Apply To This Proposal

6.1 Higher order strategic planning documents in bushfire prone areas Not Applicable.
6.2 Strategic planning proposals, subdivision and development applications Site has been identified as being rated above BAL-LOW therefore Policy Measures 6.3, 6.4 and 6.5 are triggered.
6.3 Information to accompany strategic planning proposals This Bushfire Management Plan contains all of the required elements to support the proposed development at the subject site. The included site assessment map and BAL Contour Map identifies all the likely bushfire hazards within the context of the site. It also shows compliance and mitigation of bushfire protection criteria and the future bushfire risk management strategies of the proposed port development.
6.4 Information to accompany subdivision applications Not applicable.
6.5 Information to accompany development applications Not applicable.
6.6 Vulnerable or high-risk land uses This site has been classified as vulnerable land use as defined in SPP 3.7 and requires an emergency evacuation plan.
6.7 Strategic planning proposals, subdivision or development applications in areas where an extreme BHL and/or BAL-40 or BAL-FZ applies Not applicable.
6.8 Advice of State/relevant authority/s for emergency services to be sought Not Applicable.
6.9 Advice of State/relevant agencies/authorities for environmental protection to be sought Not applicable.
6.10 Bushfire conditions may be imposed Notice on titles to be enforced by Local Government notifying future owners of Bushfire Management Plan and requirement to areas of property in low fuel conditions.
6.11 Precautionary principle The precautionary principle is a fundamental part of bushfire planning and has been incorporated in all aspects of this Bushfire Management Plan.

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Bushfire Management Plan

3.3 How Does the Proposal Address the Bushfire Protection Criteria

The Bushfire Protection Criteria are addressed in Part 4 of this Bushfire Management Plan.

3.4 Statement Against Other Relevant Documents

This Bushfire Management Plan meets the intent of:

1. State Planning Policy 3.7,
2. Guidelines for Planning in Bushfire Prone Areas,
3. Local planning strategy references to bushfire risk management,
4. Local planning scheme provisions relating to bushfire risk management,
5. Applicable structure plans, special control area provisions, previous planning approvals or similar referencing bushfire risk management applicable to the subject site,
6. Standard fire break orders of the area; and
7. AS3959 Construction of Buildings in Bushfire-Prone Areas.

There is currently no Bushfire Management Plan prepared over the subject site, no existing Bushfire Hazard Level assessment or BAL assessment prepared over the site and no applicable landscaping plans. No noncomplying areas have been identified.

4. Bushfire Risk Management Measures

The 4 elements of bushfire protection criteria to follow have been provided to assist in the design and development of strategic planning proposals, subdivision applications and development applications in bushfire prone areas.

4.1 Element 1: Location

Intent: To ensure that strategic planning proposals, subdivision and development applications are located in areas with the least possible risk of bushfire to facilitate the protection of people, property and infrastructure.

Performance Principle P1: The strategic planning proposal, subdivision and development application is located in an area where the bushfire hazard assessment is or will, on completion, be moderate or low, or a BAL–29 or below, and the risk can be managed.

Acceptable Solution A1.1 Development location: The strategic planning proposal, subdivision and development application is located in an area that is or will, on completion, be subject to either a moderate or low bushfire hazard level, or BAL–29 or below.

Response: The purpose of this bushfire management plan is to reduce the risk of bushfire attack to the Proposed Marina. The risk of bushfire ignition from the site itself is low as it is located in the ocean. However, due the current separation distance from the classified vegetation on shore, the Bushfire Attack Level on site will not exceed BAL-12.5.

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4.2 Element 2: Siting

Intent: To ensure that the siting and design of development minimises the level of bushfire impact.

Performance Principle P2: The siting and design of the strategic planning proposal, subdivision or development application, including roads, paths and landscaping, is appropriate to the level of bushfire threat that applies to the site. That it minimises the bushfire risk to people, property and infrastructure, including compliance with AS 3959.

Acceptable Solution A2.1 Asset Protection Zone (APZ): Every building is surrounded by an Asset Protection Zone (APZ), depicted on submitted plans, which meets the following requirements:

a. Width: 20 metres measured from any external wall of the building or building envelope. Where the slope increases above 10 degrees, the APZ should be increased to ensure the potential radiant heat impact of a fire does not exceed 29kW/m². Where a full 20 metre APZ is not possible, the APZ should be sufficient enough to ensure the potential radiant heat impact of a fire does not exceed 29kW/m²;
b. Location: within the boundaries of the lot on which the building is situated;
c. Fine Fuel load: reduced to and maintained at two tonnes per hectare;
d. Trees (crowns) are a minimum distance of ten metres apart. A small group of trees within close proximity to one another may be treated as one crown provided the combined crowns do not exceed the area of a large or mature crown size for that species;
e. No tall shrubs or trees located within two metres of a building;
f. No tree crowns overhang the building;
g. Fences within the APZ are constructed using non-combustible materials (e.g. iron, brick, limestone, metal post and wire); and
h. Sheds within the APZ should not contain flammable materials.

Response: The proposed Marina is located in the ocean with the first building (hotel) at a distance of 50.5 meters from the closest classified vegetation. Since there is no classifiable vegetation in the ocean, there is no suitable risk of ignition. By the very nature of a port development, performance principle P2 of the guidelines is satisfied. However, if any vegetation is to be proposed on site in the future in the form of parks or nature strips, there should be a plan for regular management to ensure the vegetation is always kept in a low fuel/ low threat condition as per the exclusion clause 2.2.3.2 (f) from the AS3935.

a. Due to the low fire risk, specified width of an APZ is not applicable.
b. The APZ is to be located within the boundaries of the development.
c. No classifiable fuel load present currently on site but all proposed vegetation to be at a fine fuel load.
d. No trees present currently on site but all proposed trees to have a clear 10 m clear separation of crowns.
e. No shrubs present but all proposed shrubs to be located 2 m further from proposed structures.
f. No tree crowns present but if trees proposed close the building, the tree crowns may not overhang over the proposed buildings.
g. The refueling station is more than 100m from the closest vegetation therefore there is no APZ required.
h. Any fencing to be constructed of non-combustible materials.
i. No sheds to contain flammable materials.

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Bushfire Management Plan

4.3 Element 3: Vehicular Access

Intent: To ensure that the vehicular access serving a subdivision/development is available and safe during a bushfire event.

Performance Principle P3: The internal layout, design and construction of public and private vehicular access and egress in the subdivision/ development allow emergency and other vehicles to move through it easily and safely at all times.

Acceptable Solution A3.1 Two access routes: Two different vehicular access routes are provided, both of which connect to the public road network, provide safe access and egress to two different destinations and are available to all residents/the public at all times and under all weather conditions.

It is also necessary that the public have two safe access options leading to two different destinations that can withstand all weather conditions. This applies to access routes leading into a subdivision, as well as those within a subdivision. This acceptable solution allows for the situation if a vehicular access/egress route to a subdivision or lot becomes blocked during a fire then there is an alternative vehicular access/egress route which provides access to a different destination. Accordingly, road widening in lieu of providing two different access routes should not be supported. All access should be suitable to accommodate type 3.4 fire appliances (i.e. fire trucks with a four-wheel-drive 7-tonne chassis).

Two-way access should be provided as a public road; however, where a public road cannot be provided, (this will need to be demonstrated by the proponent providing justification for why this cannot be achieved) an emergency access way may be considered.

Response: Access will primarily be provided by Rockingham Beach Road giving a choice of two safe egress destinations to the north-east and south-west, which are available to all people at all times.

Acceptable Solution A3.2 Public Road: A public road is to meet the requirements in Table 4, Column 1 as shown below:

Table 4: Vehicular access technical requirements

TECHNICAL REQUIREMENTS	1 Public road	2 Cul-de-sac	3 Private driveway	4 Emergency access way	5 Fire service access routes
Minimum trafficable surface (m)	6*	6	4	6*	6*
Horizontal clearance (m)	6	6	6	6	6
Vertical clearance (m)	4.5	N/A	4.5	4.5	4.5
Maximum grade <50 metres	1 in 10	1 in 10	1 in 10	1 in 10	1 in 10
Minimum weight capacity (t)	15	15	15	15	15
Maximum crossfall	1 in 33	1 in 33	1 in 33	1 in 33	1 in 33
Curves minimum inner radius (m)	8.5	8.5	8.5	8.5	8.5
*Refer to E3.2 Public roads: Trafficable surface					

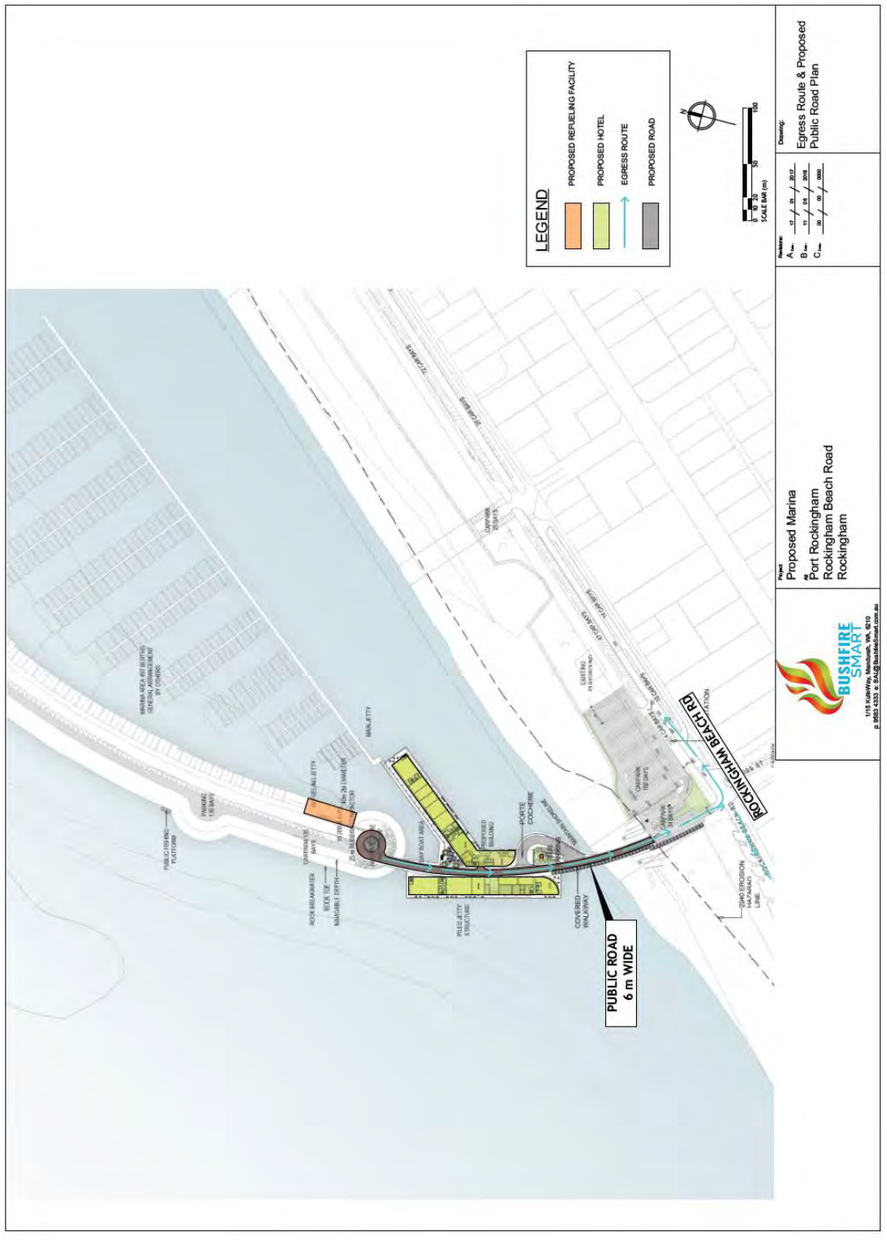
Figure 17: Minimum design requirements for a public road

Widths quoted for access routes refer to the width of the trafficable surface. A six metre trafficable surface does not necessarily mean paving width. It could, for example, include four metre wide paving one metre wide constructed road shoulders.
All roads should allow for two-way traffic to allow conventional two-wheel drive vehicles and fire appliances to travel safely on them.

Response: The proposed public road is to meet Rockingham Beach Road for two way access and to provide a safe egress from the site as shown in the egress route and proposed public road diagram ahead in this document. It is to meet all the requirements of Table 4, Column 1 and allow two way access throughout the proposed road.

Address: 1/15 Kulin Way, Mandurah, WA 6210
Email: BAL@BushfireSmart.com.au, **Phone:** (08) 9555 9444

4.3.1 Egress Route & Proposed Public Road Plan



4.4 Element 4: Water

Intent: To ensure that water is available to the subdivision, development or land use to enable people, property and infrastructure to be defended from bushfire.

Performance Principle P4: The subdivision, development or land use is provided with a permanent and secure water supply that is sufficient for firefighting purposes.

A4.1 Reticulated areas
The subdivision, development or land use is provided with a reticulated water supply in accordance with the specifications of the relevant water supply authority and Department of Fire and Emergency Services.

Response: The site will have access to reticulated water to cater for proposed future developments on site.

5. Implementation and Enforcement

Task	Upfront tasks needing to be completed		Individuals and/or organisations	
	Responsible Party	Time Frame	Responsible Party	Time Frame
Construction requirements	Builder and Building Surveyor	Before construction commences	Land owner	Ongoing
Public Road	Developer	During port development	Local Government	Ongoing
Fuel reduction	Land owner	Ongoing	Land Owner	Annually
Fire hydrants	Local Government	Prior to building permit clearance	Land owner	Ongoing
Firefighting Response	DFES and Local Volunteer Brigade	Ongoing	DFES and Local Volunteer Brigade	Ongoing
Inspection and Enforcement			Local Government	Ongoing

** Responsible for ongoing fire management and works proposed in the Bushfire Management Plan (e.g. local government for land vested in it and private property owners for freehold land*

To ensure that the above individuals/organisations are able to comply with the Bushfire Management Plan they are to be notified of their responsibilities by the builder and be given a copy of the endorsed Bushfire Management Plan.

This Bushfire Management Plan relates to a specific planning approval and should be referred to periodically as part of the owners fire mitigation strategy. As time passes any items found to require review due to changing circumstances are to be brought to the attention of the local government and the Bushfire Management Plan author.

6. Recommendations

1. This Bushfire Management Plan has been devised as a draft document as it is based on a master plan that is subject to design changes in the future. The purpose of this document is to introduce considerations for compliance with the SPP 3.7 and Bushfire protection criteria at early stages of development which may or may not change with the design development of the project.
2. A notice is to be placed on titles by the local government alerting future landowners to this BMP.
3. All future vegetation proposed on site must be kept in a low fuel condition at all times and to abide by the Performance Principle; P2 from the guidelines for planning in bushfire prone regions.
4. Proposed road to meet the requirements of element 3 from the Guidelines for Planning in Bushfire Prone Regions.
5. Reticulated water to supply future hydrants be instated before construction commences.
6. Landowner to thoroughly read this BMP. If there are any items which require clarification it is recommended that they contact the author of this report.
7. Implementation and enforcement schedule to be actively adhered to.
8. This BMP is to be referred to DFES and the local governments planning department.

Address: 1/15 Kulin Way, Mandurah, WA 6210
Email: BAL@BushfireSmart.com.au, **Phone:** (08) 9555 9444

BUSH FIRE EMERGENCY EVACUATION PLAN

Name of Facility: Proposed Restaurant

Address: Port Rockingham

Prepared by: Bushfire Smart

Date: 13/02/2017

TO BE REVIEWED ANNUALLY
UPDATE REQUIRED WHEN FULL FLOOR PLANS AVAILABLE

FACILITY DETAILS

This plan is for:

The proposed Restaurants at Port Rockingham, Rockingham Beach Road, Rockingham and has been designed to assist management to protect life and property in the event of a bush fire. This Plan outlines procedures for both sheltering in place and actively defending and evacuation to enhance the protection of occupants from the threat of a bush fire.

The Primary Action to follow under normal bush fire conditions is to EVACUATE

Contact Person: TBA

Position: MANAGER

Phone number: TBA

Type of Facility: Restaurant

Number of Occupants with Support needs: Nil

PORT ROCKINGHAM – BUSHFIRE EMERGENCY EVACUATION PLAN

Roles and Responsibilities

The following outlines who has the responsibility of implementing the emergency procedures in the event of a bush fire.

Position	Name of Person	Area of Responsibility	Mobile Phone number
Facility Manager	TBA	Implement Plan, identify duties and responsibilities of others. Ensure all employees and occupants are aware and trained to deal with Bush Fire Emergency. Regular Review of the plan. Monitor fire conditions.	TBA
Restaurant Manager(s)	TBA	Monitor fire conditions. Ensure all employees are aware of the plan and suitably trained.	TBA
Warden	TBA	Monitor fire conditions, coordinate evacuation procedures. Note: this position may be filled by number of suitably trained people	TBA

Emergency Contacts

Name	Contact	Phone number
Fire, Police, Ambulance	-	000
Department of Fire and Emergency(DFES) – Info Line	-	13 3337
SES	-	132 500

Evacuation Procedures

Evaluation of the safety of employees and patrons has determined that it would be safer for ALL persons to evacuate in case of a bush fire event.

DFES advice is to be followed to ensure road closures and escape routes are known and communicated to restaurant patrons and staff.

In the absence of any advice from authorities. The following route is advised:

Exit the Port area
Proceed East or west on Rockingham Beach road away from the bushfire threat
or
South along Railway Terrace

PORT ROCKINGHAM – BUSHFIRE EMERGENCY EVACUATION PLAN

Transportation Arrangements

It is expected that the majority of patrons will arrive in private transport and will be able to leave in private transport.

It is the responsibility of the marshal on duty to ensure all patrons have suitable transport to evacuate.

If the transport patrons arrived in is not suitable for evacuation, then alternative transport is to be arranged through the use of taxis or private transport companies.

A list of appropriate companies is to be researched and provided at the beginning of each fire season as per section: Before and at the commencement of the Bush Fire Danger Period

Bush Fire Action Statements and triggers

Evacuation Triggers

The following will trigger an evacuation:

- See or smell smoke
- See a fire
- If you receive a warning
- Receive other advice that a bush fire is nearby.
- Hearing Sirens or water bombers

DFES advice

The following device advisory notices via DFES website or other media will also trigger evacuation procedures:

Fire Danger Index	DFES warning level and action required		
	Advice	Watch and Act	Emergency Warning
Catastrophic	EVACUATE	EVACUATE	EVACUATE
Extreme	EVACUATE	EVACUATE	EVACUATE
Severe	EVACUATE	EVACUATE	EVACUATE
Very High	Monitor	EVACUATE	EVACUATE
High	Monitor	EVACUATE	EVACUATE
Low-Moderate	Monitor	Monitor	EVACUATE

Before and at the commencement of the Bush Fire Danger Period:

- Ensure that the staff are prepared in accordance with the Bush Fire Emergency Management and Evacuation Plan.
- Ensure that all persons are informed of the evacuation procedures.
- Ensure building and areas around buildings are prepared and maintained.
- Ensure any firefighting equipment (hoses etc.) is serviceable and available.
- Update contact details of staff and occupants.
- Contact and update emergency services with the premises' contact details.
- Contact refuges for potential use during a bush fire emergency.
- Contact transport suppliers for potential use during a bush fire emergency.

In the event of a bush fire in the surrounding area, occupants of the premises shall follow the procedure outlined below:

When aware of the bush fire in the local area:

- Consult the DFES website, 13DFES, smart phone applications and local firefighting resources for fire situation and updates.
- Inform staff and patrons of the fire situation.
- Ensure that the person in charge, ie. Warden, has a mobile phone and is contactable.
- Advise the local emergency services that the restaurant is operating.
- Make arrangement for transportation (for evacuation).

In the event of an approaching bush fire threatening the premises the primary action to evacuate will take place, staff and occupants of the premises shall follow the procedure outlined below:

- Designated Fire Warden will take control of the situation.
- Remain calm and explain to the occupants what is happening.
- Staff to ensure all doors and windows closed within the premises.
- Ensure all persons are accounted for (use bookings/table allocations).
- After all the occupants have been evacuated, nominated staff will commence a full check to ensure no patrons remain.
- Maintain situational awareness through radio, DFES website, 13 DFES, smart phone applications and local firefighting resources.

PORT ROCKINGHAM – BUSHFIRE EMERGENCY EVACUATION PLAN

Evacuation

- The Fire Warden (or person responsible) is to advise the local emergency service (000) that the centre is being evacuated (include how many people and where they are going).
- Arrange for vehicles (if required) to meet at designated assembly point for pickup of persons.
- Move all persons to the assembly point for evacuation.
- Ensure all persons are accounted for prior to departure (use listing of occupants).
- Ensure all site buildings have all doors and windows closed prior to leaving site.
- Maintain situational awareness through radio, DFES website, 13 DFES, smart phone applications and local firefighting resources.

Forced evacuation – as a result of bush fire in the surrounding area and due to its severity, fire authorities require occupants to be evacuated to a refuge.

- Fire Warden (or person responsible) to liaise with the police/ emergency service giving evacuation orders and provide them with the number of persons and any support needs that are to be considered for transportation (if no on-site transportation is available).
- Arrange for vehicles to meet at designated assembly point for pickup of persons.
- The Fire Warden (or person responsible) is to advise the local emergency service (include phone number) that the centre is evacuating due to police direction (include how many people and where they are going).
- Move all persons to the assembly point for evacuation
- Ensure all persons are accounted for prior to departure (use listing of occupants).
- At refuge, move all persons inside and ensure all persons are accounted for and safe.
- The Fire Warden (or person responsible) is to advise the local emergency service (include phone number) that the all persons have been evacuated and are accounted for and safe at the refuge. After all the occupants are accounted for and safe at the refuge, nominated staff will commence contacting relevant families affected.
- Maintain situational awareness through radio, DFES website, 13 DFES, smart phone applications and local firefighting resources.

When the bush fire threat has passed and the area is deemed safe by emergency services:

- No person should re-enter any evacuated building until advised by the emergency service.

Evacuation Diagram

Building Evacuation diagrams to be inserted here once final floor plans have been determined. These are to include muster points, locations of fire fighting equipment and other elevent information.

PORT ROCKINGHAM – BUSHFIRE EMERGENCY EVACUATION PLAN

Sheltering in Place and Actively Defending

Sheltering in place and actively defending requires:

- The property to be well maintained and all preparation taken to minimise risk.
- Sufficient emergency water supplies and equipment.
- Good health, both physical and mental, to allow for active defence.

Prior to fire front arriving.

- Follow evacuation plan to relocate all patrons and members of staff and any others not required to actively defend.
- Check water supply and equipment to ensure ability to defend.
- Monitor fire front and extinguish spot fires and embers.
- Ensure appropriate clothing is worn, including long sleeves and trousers, hats, gloves and eye protection.
- Close all doors and windows.
- Remove all flammable door mats and other materials around the perimeter of the building particularly on the outside of doors and windows.
- Fill outside gutters with water by blocking downpipes.
- Soak blankets in water, fill buckets of water and keep handy.
- Run sprinklers in the BPZ around the property.

Sheltering during a bushfire.

- Turn off electricity and gas supplies
- Stay in the property while the fire front passes.
- Systematically check rooms and roof space, if safe, for spot fires.
- Shelter in the kitchen as this has water supply and 2 exits.
- If the property catches fire, evacuate to an area already burnt, open area nearby, on jetties over water, if safe to do so.
- Clothing should be long sleeves, long trousers, leather boots/ shoes.

After the fire front passes.

- Go outside once safe.
- Check for and put out small spot fires and embers including in roof space, under floor boards, under the house, on verandahs and decks, on window ledges and door sills, in roof gutters and valleys, in garden beds in wood heaps, in outdoor furniture, in sheds and garages.
- Remain at the property until the surrounding area is clear of fire.
- Monitor DFES announcements and wait for all clear.

It is strongly recommended that DFES Bushfire Homeowners Survival Guide is read thoroughly and referenced on a regular basis.

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Appendix F

Coastal Adaptation Plan

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m p rogers & associates pl ABN 14 062 681 252
consulting engineers specialising in coastal, port and marine projects

Form 001 10/01/14

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Our reference: K1444:TSH/ADC:Letter 18029 Rev 0
Enquiries: Trent Hunt, direct line: 9254 6616

11 June 2018

Mr Chris Parlane
City of Rockingham

Dear Chris

RESPONSE TO COMMENTS ON PORT ROCKINGHAM COASTAL ISSUES

We refer to your comments on the Development Application for Port Rockingham and particularly the coastal and marine items. These were summarised in the table received from the City on 17 May 2018. Where relevant, the item numbers referred to in this letter are taken from that summary table.

A number of the comments have been addressed via incorporation into a revised CAP report. This letter aims to provide additional information and responses to items that are not relevant to the CAP report, but have been raised in the City's response.

Construction Methodology

It is proposed that further and complete information on the construction methodology will be provided at a later date, informed by the detailed design of the relevant structures. However, some additional information is provided here to address queries and concerns raised at items 27 – 30 and 105.

It is proposed that the offshore breakwater is constructed from limestone armour rock, over a limestone core material. The size of the armour rock and core will be determined by detailed design but it will involve a grading of material, from approximately 50 mm up to 2 m in size overall. The core material would likely be end tipped from trucks, prior to being shaped, while the armour rock would be progressively placed over the core material.

Turbid Plumes

This construction method will result in turbid plumes from time to time, particularly during end tipping of core material. Considerable effort went into considering the impacts of this turbid plume during the PER investigations, to demonstrate that they could be appropriately managed, and ultimately this was approved by the EPA. Figure 1 presents a figure of the total indicative area which may be affected by turbidity during the works, which was prepared and presented during the PER investigations. This is based on experience at other harbour constructions as well as specific turbidity modelling completed by APASA during the PER process.

It is important to note that the turbidity is likely to be short lived in duration and only persist during the end tipping operations. The source would be the tipping location at the head of the breakwater, which will move as construction progresses. It is likely to extend in the dominant wind and current direction at the time and would not affect the whole area shown at once.

Figure 1 Indicative Turbidity Area

This is a conservative estimate based on standard core and breakwater designs. Turbidity monitoring during the works would manage the actual operations.

There are additional ways to limit turbidity caused by armour and core rock placement. These include the following:

- Limiting the proportion of fines in the core material. This reduces the amount of source material for turbid plumes.

- Appropriate construction management and control to limit fines to appropriate levels.

Both of these are proposed for the works.

Rocks on the Beach & Marine Environment

Rock fragments and small rock on the beach following construction works have historically been an issue with similar works around Western Australia. The City has experienced this following works at the Kwinana Headlands, among others, and the City of Fremantle still deals with this issue from historic works.

This issue was confirmed during the PER process and taken seriously in consideration of the concept design and construction methodology. Traditional construction methods would suggest construction of a temporary core or rock access to the breakwater, which would be removed following the works. This would likely be in place for up to 12 months and provides a large opportunity for spreading of this material along the beach, resulting in the issues raised.

It was for this reason that a sand bund to provide construction access was proposed. The sand bund would require some protection (potentially geotextile, sand bags or even larger armour) to ensure it remains in place to provide access, but provides a considerably reduced opportunity for spreading of rock along the beach.

In addition, rather than requiring placement then removal and disposal of the material off site, the sand bund would be re-used as pre-nourishment for the downdrift beaches to the south-west. This was considered and summarised within the PER document and provides the following benefits:

- Reduced opportunity for rock spreading along the shoreline.
- Additional buffer of sand in the marine environment.
- Pre-nourishment of the downdrift beaches as part of the coastal management requirements.

This provides a net benefit to the City's beaches.

The source and type of material used in the sand bund would be certified clean and of a quality and specification to ensure it is appropriate for placement on the beaches. This is standard coastal design practice and would be completed during the detailed design and documentation.

With use of a sand bund through the inshore area, the remaining potential for rock on the beach comes from poor construction management practices. The Contractor will be required to manage the works appropriately, monitor the QA of the works and monitor the shorelines for rock on the beach. This again is standard design and construction practice with similar works and further details will be provided with the detailed design and construction management plans.

Coastal Monitoring & Management

As per our previous discussions and liaison with the City, the Proponent is committed to a coastal monitoring and management program, which they are responsible for, to meet Ministerial Condition 8-1. We have prepared an Adaptive Coastal Management Plan to address this and are seeking the City input and approval of this plan. This outlines the requirements for monitoring and management, but further details are provided here for context and completeness.

Monitoring

A monitoring program has already been commenced, surveying 31 profiles across 5 km of shoreline around the proposed development. This covers far beyond the predicted extent of shoreline change as a result of Port Rockingham. The monitoring has been commenced prior to development to establish baseline existing conditions and estimate natural fluctuations and changes, prior to development. This will be used to establish trigger values and natural scale of changes. The extent of the monitoring program is shown in Figure 2.

Detailed shoreline change monitoring was completed for the PER investigations and approved by the EPA. However, we note that shoreline change modelling is not perfect and is a useful tool rather than an exact predictor. It is for this reason an Adaptive Coastal Management Plan was proposed with the PER and has been required by the approval. This will use real movements of the shoreline to guide the required coastal management operations. This is acknowledged by the EvoCoast review. It will show areas which are changing and where management is required, as well as the scale. This plan is presently in preparation and MRA are separately liaising with the City on this.

The Adaptive Coastal Management Plan will include specific triggers for further assessment and bypassing. There is a suggestion in the schedule of 1 m of shoreline change, but we feel this is unrealistic and impractical. Shoreline's change on a seasonal basis and due to individual events. These conditions exist prior to Port Rockingham and need to be separated from the change caused by the development.

On the basis of the seasonal surveys which have already been completed, there was up to 3 m change on the shoreline under ambient, summer conditions. This is a pre-development and summer change. It does not account for storm erosion, of which recent storms have caused up to 5 m change in a single event on the Perth Metropolitan coastline. We believe a trigger in the order of 5 m is more appropriate

and would be in keeping with similar triggers at other locations near coastal developments. This can be discussed further with the City in consideration of the Adaptive Coastal Management Plan.

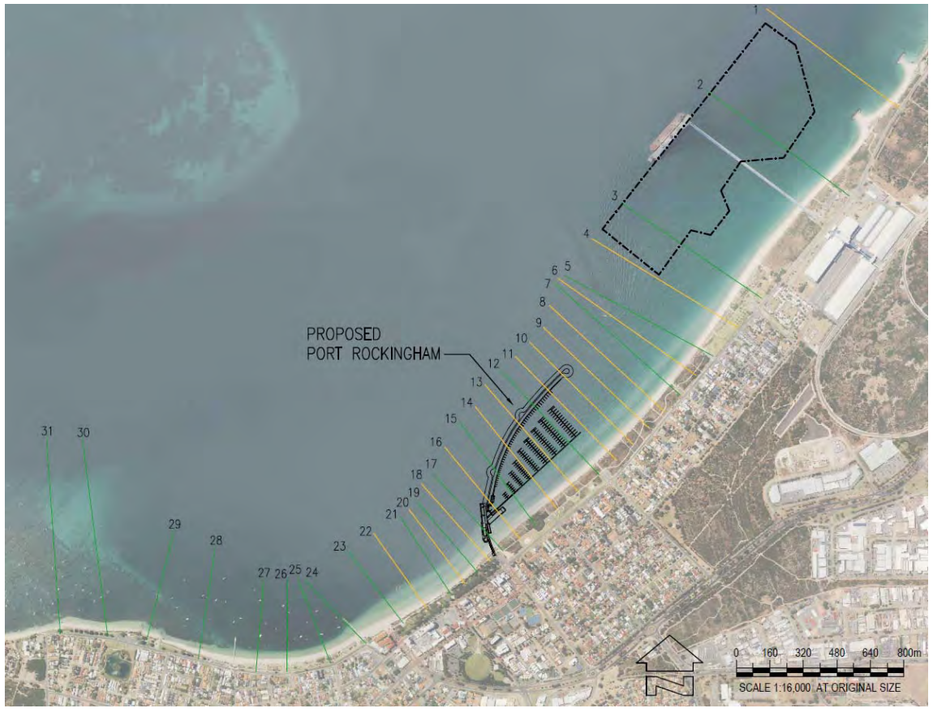

Figure 2 – Monitoring Survey Locations

Management – Sand Bypassing

The Ministerial condition includes a requirement for the Proponent to complete sand bypassing to manage the coastal processes. The amount of sand bypassing is relatively small and will be guided by the monitoring. There is a very clear commitment by the Proponent to complete this.

Sand bypassing can be completed in a number of ways, using a lot of different plant and equipment and methods. It is a reasonably standard operation which is completed around the State and world using a range of methods and is well established. It is therefore not appropriate at this stage to state exactly how the works will be completed and limit the operations. It is more appropriate to provide a general approach and opportunity, to allow flexibility in the operations. This will allow the most cost effective and low impact methodology to be selected at the appropriate time.

However, to provide confidence to the City that the works can be completed the following outline is provided.

- An appropriate quantity of material for bypassing will be estimated from the coastal monitoring. Areas of both extraction and placement of material will be identified. It is expected that this will be removal (excavation) of material behind the breakwater and placement of material to the west of the jetty. However, material can be taken from or placed in other areas as determined and required.
- Both the extraction and placement areas could be varied to suit the City's needs. As an indication, if 5,000 m^3 is required for bypassing, this could be placed over 25 m from the beach berm to the dunes, 1.5 m in height and approximately 130 m in length. This could be varied to suit the City's

needs and requirements at the time. For instance it could be spread over a longer area, into the water, at the back of the beach or other locations.

- At all times the works would require completion under appropriate construction management plans. These would be completed by the Contractor for the specific works and ensure public safety and management. This would include safe slopes and areas at completion during and after the works, isolation of working areas, pedestrian and traffic management among other things.

- Vehicle access is proposed down to the beach on both sides of the jetty, as shown in the landscape concept plan. This provides flexibility for the operations and access to areas as required. The access has also been moved away from the jetty to separate the works from users of the jetty and breakwater.

- It is likely that material will be excavated from the beach and inshore area with excavators and temporarily stockpiled on the beach. It may be moved by loaders or other machinery and dependent on the areas of removal and disposal, either transported straight along the beach or up and down the access tracks.

- The clearance of the jetty (approximately 3 m at the shoreline) will allow plant to pass under the deck. It is noted that not all plant will be able to pass under the jetty. The individual operations and selected plant will determine whether the Contractor passes under the jetty or around. Either route will require traffic and pedestrian management.

- The timing of operations would be determined with the City. It is recommended they are completed outside the peak use beach times, typically January to March. There may benefit in completing the works over winter – when beach use is lowest, or spring, immediately before the peak use season.

- To move 5,000 m^3 would indicatively take 1-2 weeks of beach operations. However, this would be vary based on time of year the works are completed, limitations imposed on the works and individual Contractors preferences and methodologies.

We stress again that this provides an indication of how bypassing could be completed and demonstrates it can be done. The actual operations will be determined based on monitoring data and individual Contractor's preferences.

Dredging

There is not proposed to be any dredging completed during the capital works associated with Port Rockingham. However, it is acknowledged and was stated within the PER that over time there may be a need for maintenance dredging. This would likely be a result of one or both of the following:

- Sedimentation of the marina pens, causing navigation issues.

- Accretion of sediment behind the breakwater and inshore of the pens, resulting in a general shallowing of the area.

The final pen layout will be determined based on Australian Standards and will require approval by Department of Transport. This will include consideration of navigable depths for the design vessels within the pens. The navigable depth will include an allowance for siltation, which will allow some sedimentation before dredging is required. Indicatively it is envisaged that maintenance dredging may be required every 10 years and volumes are expected to be reasonably low. This material could either be used as sand nourishment for the adjacent beaches (preferable) or removed and disposed of off-site. It would be subject to a separate approval process.

Should the monitoring surveys indicate significant shallowing within the inshore area behind the breakwater, causing concern, there may be consideration given to dredging. Again, the dredge spoil could either be used as sand nourishment for the adjacent beaches (preferable) or removed and disposed of off-site. It would also be subject to a separate approval process.

Other Items

There were several other items raised by DoT within the received comments. These are addressed below.

Several of the comments in item 104 and 105 relate to design and construction of the marina and structures. It is noted that the following will be completed through the design and construction process:

- Harbour tranquillity or wave penetration modelling will be completed to guide the marina design. This will be in accordance with AS3962.

- Marine structures will be designed by an engineer with suitable experience. These will be approved by the Department prior to construction, and as-constructed drawings provided following construction.

- Navigation aids will be required and are to be approved by the Department through the design process.

It is also confirmed that the responsibility for coastal monitoring and management lies with the Proponent and is linked to operations of the marina and facilities.

Yours sincerely

for and on behalf of
m p rogers & associates pl

m p rogers & associates pl ABN 14 062 681 252
creating better coasts and ports

R927 Rev 2

June 2018

Aureus Commercial Pty Ltd

Port Rockingham
Coastal Adaptation Plan

marina
boat harbours
canals
breakwaters
jetties
seawalls
dredging
reclamation
climate change
waves
currents
tides
flood levels
water quality
siltation
erosion
rivers
beaches
estuaries

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K1444, Report R927 Rev 2
Record of Document Revisions

Rev	Purpose of Document	Prepared	Reviewed	Approved	Date
A	Draft for MRA review	A Clapin	T Hunt	T Hunt	13/07/2017
0	Issued for Client use	T Hunt	C Doak	T Hunt	14/08/2017
1	Minor revisions and reissued	T Hunt	C Doak	T Hunt	27/10/2017
2	Updated following City comments	T Hunt	AClapin	T Hunt	15/06/2018

Form 035 18/06/2013

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m p rogers & associates pl

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1. Introduction

1.1 General

The Port Rockingham Marina development proposal is for a marina in the southern portion of Cockburn Sound. The development would adjoin the coast at the intersection of Wanliss St and Rockingham Beach Road, Rockingham.

The location of the proposed development is presented in Figure 1.1.

Figure 1.1 Proposed Port Rockingham Marina Development Location

The proposal development is predominantly offshore, with a jetty extending approximately 200 m out from the shoreline at Wanliss St, to connect to an offshore breakwater. The offshore breakwater provides protection to the proposed 500 pen marina. There will be proposed commercial activities located on the jetty structures. A small onshore component to the development is proposed around the existing car park at Wanliss St. This will primarily include extension to the car parking to provide adequate provision for the development.

1.2 Background & History

There is a recognised shortage of recreational moorings and anchorages in Perth's southern Metropolitan waters, particularly in Cockburn Sound. The closest marinas to Rockingham are Mandurah Ocean Marina, approximately 27 km to the south, and the Fremantle Yacht Club / Challenger Marina, 20 km to the north. The Port Rockingham development is proposed to address this strong demand for recreational boat pens in the area.

The proposal was referred to the EPA in the Port Rockingham Marina Environmental Scoping Study (RPS BBG 2008) and the level of assessment was set by the Environmental Protection Authority (EPA) at Public Environmental Review (PER).

The investigations for the PER were completed over a number of years and outlined in RPS (2009). As part of these investigations M P Rogers & Associates Pty Ltd (MRA) were engaged to complete an assessment of the impacts of the proposed Port Rockingham Marina development on coastal processes and recommend monitoring and management requirements. These investigations were presented in MRA (2008) and incorporated into the PER (RPS 2009).

Following the advertisement of the PER, subsequent responses and revisions, the EPA recommended conditional approval of the Port Rockingham Marina proposal (EPA 2009). Condition 8-1 (Coastal Processes) states that:

"The proponent shall ensure that construction and operation of the proposal does not cause changes to shoreline movements, width of beach and beach profiles, in excess of that predicted shown in Figure 3 and listed in Table 1 of this statement."

Table 1 notes the following:

"Minor changes to the shoreline and sand sheet morphology may occur. The predicted amount of sand bypassing that may be required is 5,000 to 6,000 m^3 per annum."

Following the environmental approval of the project, the proponent was granted Development Application (DA) approval. Development did not commence at that time and the approval has since lapsed. Aureus Commercial Pty Ltd are now seeking a new DA approval to proceed with the development.

Since the previous DA approval, the State Planning Policy No. 2.6 - State Coastal Planning Policy (SPP 2.6; WAPC 2013) has been revised. The revisions include requirements for Coastal Hazard Risk Management and Adaptation Planning (CHRMAP), specifically outlined in the CHRMAP Guidelines (WAPC 2014).

This Coastal Adaptation Plan (CAP) reviews previously completed CHRMAP for the area of the Port Rockingham Marina development and assesses the impact of the development on the CHRMAP. In accordance with those documents it covers the following key items:

- Establishment of the context.
- Coastal hazard assessment.
- Risk analysis and evaluation.
- Risk management and adaptation planning.
- Monitoring and review.

The CAP, including assessment of assets and the required coastal monitoring and management regime has been developed in accordance with the extensive consultation completed for the project.

2. Context

2.1 Background

CHRMAP can be a powerful planning tool and can help provide clarity to existing and future developers, users, managers or custodians of the coastline. This is done by defining levels of risk exposure, management practices and adaptation techniques that the management authority considers to be acceptable in response to the present and future risks posed by coastal hazards.

SPP2.6 requires that the responsible management authority completes CHRMAP where an existing or proposed development may be at risk from coastal hazards over the planning timeframe. The main purpose of CHRMAP is to define areas of the coastline which could be vulnerable to coastal hazards and to outline the preferred approach to the monitoring and management of these hazards where required.

The City of Rockingham (City) and other stakeholders have previously undertaken CHRMAP of the shoreline on the Rockingham Beach Foreshore in the following projects:

- Cockburn Sound Coastal Alliance (CSCA) – Coastal Vulnerability & Flexible Adaptation Pathways Project.
- City – Rockingham Foreshore Masterplan CHRMAP.

These works are summarised in more detail below.

2.1.1 Coastal Vulnerability & Flexible Adaptation Pathways Project

This staged project has been completed by the CSCA, an alliance of the Cities of Fremantle, Cockburn, Kwinana and Rockingham. It covers the shoreline from Fremantle to Cape Peron, as well as the section of the Garden Island shoreline facing Cockburn Sound. The extents of the project are shown in Figure 2.1.

The project has been completed in stages, with the following stages completed to date:

- Stage 1 – Coastal Vulnerability Study (Coastal Zone Management 2013).
- Stage 2 – Values & Risk Assessment Study (BMT Oceanica 2014).
- Stage 3 – Coastal Adaptation Plan (GHD 2016).

The CSCA project has included significant and ongoing community and stakeholder consultation, at each stage. This is most clearly expressed in the Stage 2 works which completed significant stakeholder consultation through direct consultation and workshops.

The outcomes of the CSCA work sets a baseline for the vulnerability, values and hazards for the existing shoreline. The outcomes of this CHRMAP will be considered in the context of the proposed development.

Figure 2.1 Cockburn Sound Coastal Alliance Study Area

2.1.2 Rockingham Foreshore Masterplan CHRMAP

The City has undertaken a planning, design and community consultation process to assist with the re-development and enhancement of the Rockingham Beach Foreshore. This included CHRMAP work for Rockingham Beach to inform the design. The Rockingham Beach Foreshore study area is presented in Figure 2.2.

The Rockingham Beach Foreshore study area is a subset of the CSCA study area, entirely within the City of Rockingham. The CHRMAP completed for the Rockingham Beach Foreshore was therefore consistent with and taken from the CSCA work for the subject section of coast. The results of the CSCA work were applied to the Foreshore Masterplan area to give an indication of the potential vulnerability and risks associated with existing assets and proposed elements within the Masterplan.

Figure 2.2 Rockingham Beach Foreshore Study Area

The proposed Port Rockingham development is within the Rockingham Beach Foreshore study area. The specific coastal hazards and vulnerability from the Foreshore Masterplan CHRMAP will therefore be discussed in more detail in coming sections of this CAP.

2.2 Purpose

The proposed Port Rockingham development extends out from Rockingham Beach, at Wanliss Street. As identified in MRA (2008), the development will have an effect on the local shoreline, which will need to be managed by the Proponent. A key component of this risk analysis will therefore be to assess any changes to the CHRMAP work completed for the existing shoreline caused by the proposed development and outline proposed monitoring and management operations.

This plan reviews the coastal hazards within the study area identified in Figure 2.3. This is consistent with the section of coast assessed in the PER (RPS 2009) and within the Rockingham Beach Foreshore Study Area. Coastal adaptation measures should consider the overall sediment dynamics within the secondary sediment cell, which extends north to James Point and is also highlighted in Figure 2.3.

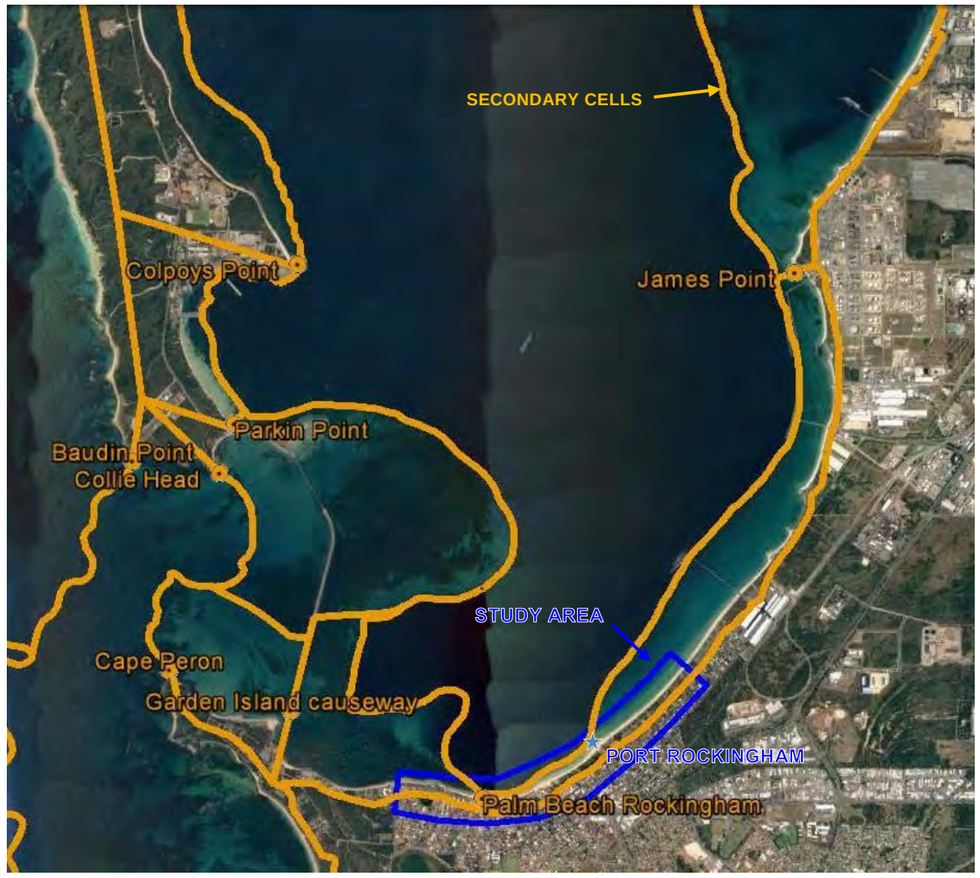


Figure 2.3 Study Area & Sediment Cells

2.2.1 The Port Rockingham Site

The development itself is proposed to extend out from Rockingham Beach at Wanliss Street and feature a jetty to provide pedestrian access to a 750 m breakwater running north parallel to the coastline. The concept design layout also features a carpark that extends approximately 100 m north of the existing Wanliss carpark. There are a number of proposed buildings on the jetty and nearby services that need to be assessed.

Photographs of the beach and dunes at the proposed development location are presented in Figures 2.4 to 2.6.

Figure 2.4 Typical Beach Section Facing North & South

Figure 2.5 Typical Beach Section Facing West

Figure 2.6 Rockingham Beach Access Ways

The photographs show a number of key items to note for the site, including the following:

- The low energy sandy beach with vegetated foredune for most of the site.
- The small vegetated foredune, indicating a typically stable or accreting shoreline.

- Minimal assets in the immediate area, limited to dune fencing and access ways.

RPS (2009) provides more extensive background to the existing environmental conditions at the site.

2.2.2 Project Specific Purpose

Specifically, the purpose of this CAP is to complete the following.

- Review the CHRMAP completed for the existing shoreline in the vicinity of the proposed Port Rockingham development.
- Assess the impact the Port Rockingham development will have on the proposed implementation.
- Establish the basis for present and future risk management and adaptation.
- Provide guidance on appropriate management and adaptation planning for the future, including monitoring.

Whilst the risks of coastal hazards are to be considered for different timeframes, the future behaviour of the coastline could vary for a number of reasons. As a result, the requirement to consider the implementation of future adaptation strategies should be informed by an ongoing coastal monitoring regime and an ongoing process of CHRMAP. A recommended monitoring regime is included with this report.

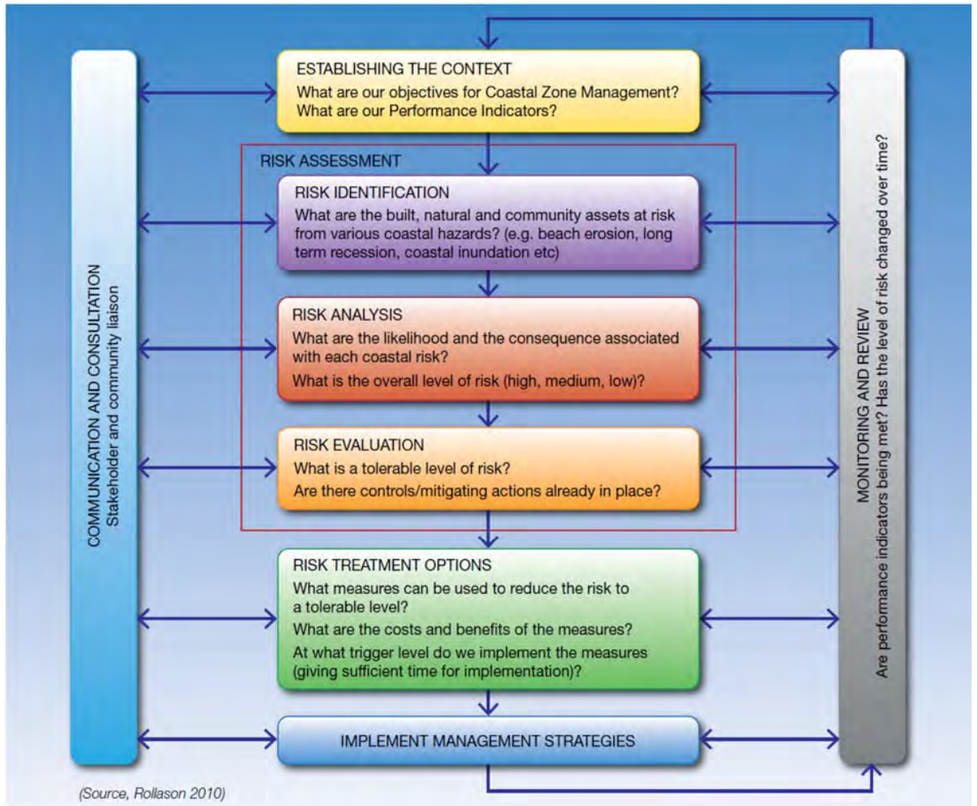
2.3 Scope of Project

The CHRMAP Guidelines (WAPC 2014) provide a specific framework for the preparation and implementation of CHRMAP. This is outlined in the flowchart presented in Figure 2.7 which shows the risk management and adaptation process.

The completion of a meaningful CHRMAP process requires a number of fundamental inputs. These inputs enable the assessment and analysis of risk to help shape the subsequent development and any required adaptation strategies. This process should ultimately be informed by input received from key stakeholders and the community, to help shape the subsequent adaptation strategies.

CHRMAP is generally completed by the authority responsible for managing that asset, in most cases the local authority. For the Rockingham Beach Foreshore, incorporating the proposed development site of Port Rockingham, this is the City of Rockingham. The first iteration of CHRMAP for the existing assets, including consultation with key stakeholders and the community, has been completed by the City.

The Proponent for Port Rockingham is responsible for CHRMAP associated with the proposed development. This includes understanding the impact on, or changes to, the CHRMAP for Rockingham Beach caused by the proposed Port Rockingham development. These elements have been assessed in this project and are outlined in this report.



(Source, Rollason 2010)

Figure 2.7 Risk Management & Adaptation Process Flowchart

2.3.1 Scope of Coastal Hazard & Vulnerability Assessment

To properly assess the risk posed by coastal hazards, an assessment of the potential vulnerability of the coastline needs to be completed. Assessment of the coastal vulnerability and the resultant coastal hazard mapping is to be completed in accordance with the requirements of Schedule One of SPP2.6. This schedule provides a framework for the assessment of the potential impacts of coastal hazards on the coastline for a variety of coastal forms.

The extent of impacts caused by coastal hazards will vary with the coastal form and geomorphology, however for the general case the following factors need to be considered.

- (S1 Erosion) Allowance for the current risk of storm erosion.
- (S2 Erosion) Allowance for historic shoreline movement trends.
- (S3 Erosion) Allowance for erosion caused by future sea level rise.
- (S4 Inundation) Allowance for the current risk of storm surge inundation.

The results of the assessment of these allowances forms the basis of the assessment of coastal hazard risk.

The CSCA Vulnerability Study (CZM et al 2013, BMT Oceanica 2014) considered the potential impacts of each of the elements outlined above for planning horizons Present Day, 2070, 2110 and 2110+. The Rockingham Masterplan CHRMAP (MRA 2015) used the outcomes from the CSCA work to provide demarcation of areas potentially at risk for finer interim planning horizons - 25, 50, 75 and 100 years. This corresponded to the years 2040, 2065, 2090 and 2110.

This CHRMAP for the proposed Port Rockingham development will consider the potential risks posed by coastal hazards over a range of timeframes. To maintain consistency with previously accepted outcomes from CZM (2013), BMT Oceanica (2014) and MRA (2015), the timeframes used for this assessment include Present Day, 2040, 2065, 2090 and 2110.

Based on the results of the risk assessment, risk mitigation strategies will be developed, where required, in order to provide a framework for future management. However, it is important to realise that the risk assessment will be based on the outcomes of the coastal vulnerability assessment, which, by their nature, are justifiably conservative. This is due to the uncertainty around coastal dynamics when predicting impacts over long timeframes. As a result, the framework for future risk management strategies should be considered to be a guide of future requirements.

The actual requirement for implementation of these management actions should ultimately be informed by a coastal monitoring regime. The purpose of this coastal monitoring regime would be to identify changes in the shoreline or sea level that could alter, either positively or negatively, the risk exposure of the proposed infrastructure. A recommended coastal monitoring regime has been provided within this plan.

2.3.2 Community & Stakeholder Consultation

The coastline within the study area contains significant assets and infrastructure within close proximity of the shoreline. The vast majority of these assets are managed by the City.

For the Rockingham Beach Foreshore CHRMAP, the City undertook extensive consultation with key stakeholders and the community. The information and consultation strategy involved the following elements:

- Community Surveys.
- Elected Member Workshops.
- Business & Community “drop in” day.
- “Place Make” in the Park Event.
- Direct and indirect Communication including posters, flyers, media releases, website and information pages and community paper advertisements.

Over 850 survey responses were received through the stakeholder and community consultation process, summarised in ConsultWG (2015). A series of design parameters were proposed from the consultation for the separate precincts of the foreshore. These were incorporated into the development of the Rockingham Beach Foreshore Masterplan, CHRMAP and subsequent design work.

Ongoing stakeholder consultation has been continued throughout the design and development of specific elements of the Master Plan. This consultation has been completed with a Stakeholder

Reference Group comprised of selected members of the local community to represent a range of different user and interest groups.

In addition to the specific consultation completed for the Rockingham Beach Foreshore and CHRMAP, the Proponent for Port Rockingham has also undertaken a significant community and stakeholder information and consultation process, prior to, during and after the PER. This has included the following:

- Information sessions and Workshops with the City and Elected Members.
- Community information sessions.
- Public advertisement of the Proposal.

All of this consultation included discussion of the coastal processes, the impacts of those processes and the proposed management of coastal processes required by the proposed development. This ultimately led to the accepted PER and the proposed coastal management strategies.

2.4 Success Criteria

The success criteria for the CAP will ultimately be as follows.

- To understand the potential/likelihood of infrastructure within the proposed Port Rockingham development to be impacted by coastal hazards over each planning horizon.
- To understand the consequences of infrastructure being exposed to the different coastal hazards.
- To determine appropriate allowances for the future action of coastal processes and inundation.
- Development of an acceptable risk management and adaptation strategy for the proposed development whilst considering the existing infrastructure.
- Development of a coastal monitoring strategy to review the actual changes in risk levels over time.
- To meet the condition of the PER, Condition 8-1: 'The Proponent shall ensure that construction and operation of the proposal does not cause changes to shoreline movements, width of beach and beach profiles, in excess of that predicted.'

3. Key Assets

The study area covered under this assessment includes the section of coastline immediately around and impacted by Port Rockingham. The coastline considered in the Rockingham Beach Foreshore Masterplan (MRA 2015), between the Garden Island Causeway and Governor Road, has been reproduced in this CAP.

The extent of the CAP and description of each section of shoreline is displayed in Figure 3.1. The key assets within each section of shoreline are listed following in Table 3.1.

The risk assessment will focus on these sections of shoreline and key assets in order to identify their vulnerability and consequently the requirements for risk management. The changes to risks in these areas caused by Port Rockingham will be assessed.

Figure 3.1 Coastline Sections & Description of Assets

m p rogers & associates pl

Table 3.1 Key Assets Vulnerable to Coastal Hazards

Key Assets
Environment
Beach
Coastal dunes
Trees and vegetation within foreshore reserve
Hymus Street Foreshore West of Palm Beach Boat Ramps
The Esplanade
Residential housing
Palm Beach boat ramps
Foreshore amenities
Carpark
The Esplanade & Adjacent Development (East of Palm Beach Boat Ramps)
The Esplanade
Val Street Jetty
Palm Beach Jetty
Residential housing
Monument
Bell & Churchill Parks Foreshore
Restaurants
Boardwalk area
Cruising Yatch Club
Foreshore amenities (existing and proposed)
Carparks
Wanliss Street to Governor Road
Foreshore amenities

Carparks
Naval Memorial Park
Proposed Port Rockingham Development Assets
Offshore Breakwater
Jetties and marina pens
Carpark at Wanliss Street
Beach
Dunes
Foreshore assets, including public infrastructure (shared pathways, lighting, playgrounds, shelters etc)
Foreshore area (currently undeveloped)

For the purposes of classifying the assets, the “dunes” are those foreshore areas seaward of the foreshore path. The “undeveloped foreshore areas” are assessed as those areas landward of the foreshore path.

4. Coastal Hazard & Vulnerability Identification

The Coastal Hazard and Vulnerability assessment for this section of shoreline, for the existing situation prior to the implementation of Port Rockingham, has previously been assessed in line with SPP2.6 (CZM et al 2013, BMT Oceanica 2014 & MRA 2015). The hazards and vulnerability of the shoreline from these assessments are consistent and have been accepted and adopted by the City and community.

The coastal hazard and risk assessment for the existing shoreline from the previous CHRMAP work will be reproduced in this section to set the baseline for the case prior to Port Rockingham. The impacts of the development, risks of assets associated with the development and additional adaptation measures can then be assessed.

4.1 Coastal Hazard Mapping

Coastal hazard lines for the study area have previously been determined for coastal erosion and coastal inundation. These hazards are discussed in more detail below.

4.1.1 Coastal Erosion Hazards

Pre Development

The coastal erosion hazard mapping for Rockingham Beach shows the areas that could be vulnerable to coastal erosion over the designated timeframes. The mapping for the existing, “Pre Development,” case has been reproduced from MRA (2015) and shows the vulnerability lines for the present day (2017), 2040, 2065, 2090 and 2110. The “Pre-Development” coastal erosion hazard maps are presented in Appendix A.

The coastal erosion hazard lines include the following allowances in line with SPP2.6 (CZM 2013).

- Acute storm erosion.
- Future chronic shoreline movement.
- Erosion caused by sea level rise.
- Factor of safety.

For each timeframe the potential for a storm event with an annual encounter probability (AEP) of 1%, or in other words a 100 year ARI event, has been included in the hazard assessment. This should be considered when reviewing the vulnerability lines in the context of assessing the potential future risk.

Based on the coastal erosion hazard mapping a number of areas and key assets, both existing and proposed, could be vulnerable to coastal change. These items will therefore be considered as part of the risk analysis. It should be noted that beach amenity could also be impacted by coastal change, however this will be considered in the context of potential loss caused by any adaptation or remedial actions associated with the protection of the identified assets. For instance protection of The Esplanade, if required, could be completed in ways that could either retain or remove the existing beach, therefore the potential loss of the beach would need to be considered when assessing the proposed management action. These items were outlined in MRA (2015).

Post Port Rockingham Development

The proposed Port Rockingham development includes a significant offshore breakwater to provide protection to the assets located in its lee. The breakwater, maintained in an appropriate condition, will therefore reduce the potential coastal erosion behind it.

MRA (2008) demonstrated that unless mitigated, there may be longer term shoreline accretion in the lee of the breakwater, and erosion to the south following construction of the breakwater. As a result, the development was approved with an environmental condition to ensure the long term changes to the shoreline were managed (with proposed sand bypassing).

As part of this study, MRA has reviewed and updated the coastal processes assessment for Port Rockingham. This assessment is included in Appendix B. The updated coastal processes assessment confirms that:

- The trends in shoreline and sediment movement in the area of the proposed development are generally consistent with those in MRA (2008).
- The proposed strategy of coastal monitoring and management is still appropriate.
- Coastal management would be in the form of sand bypassing. This would be adaptive and likely to be in the order of 6,000 m^3 per year.

On the basis of the protection offered by the offshore breakwater and the proposed coastal management, the existing coastal hazard lines have been modified in the area behind the breakwater to account for the following:

- S1 allowance for storm erosion – reduced to 0 m. The offshore breakwater, maintained in an appropriate condition, will provide protection from acute storm erosion.
- S2 allowance for longer term shoreline movement – no change. The development condition to limit long term changes will ensure this.
- S3 allowance for erosion due to sea level rise – no change.
- Factor of safety – no change.

Coastal erosion hazard maps have therefore been developed for the “Post Development” case and are attached in Appendix C. The hazard areas have been reduced directly behind the breakwater in line with the above notes, but importantly there is no change to coastal hazard areas for the remainder of the Rockingham Beach shoreline.

The area of the reduced storm erosion allowance behind the breakwater has been determined based on the key wave directions of the severe storm event based on wave modelling completed with the PER. An extract of this modelling showing the peak wave heights and directions in the Cockburn Sound are presented in Figure 4.1.

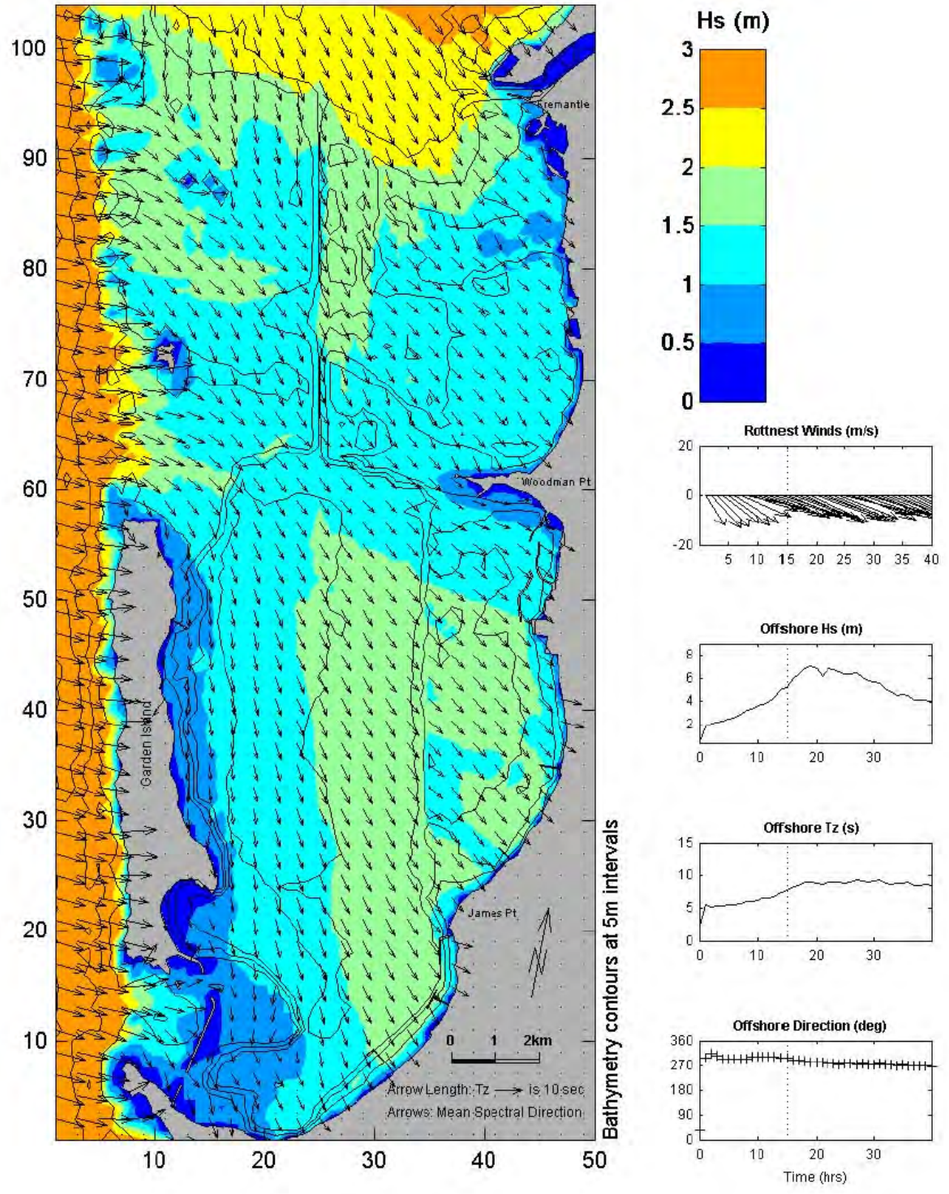


Figure 4.1 Peak Wave Conditions Under Severe Storm Events

Wave diffraction calculations using the methods of Goda (2015) were completed around the head of the breakwater to provide estimated wave heights on the behind the offshore breakwater. This suggested that wave heights and conditions had reduced sufficiently at a point approximately 150 m from the head of the breakwater to be consistent with a strong sea breeze event. This was

used to determine the appropriate extent of storm erosion behind the breakwater. The allowance was transitioned from the full allowance to 0 m over 150 m behind the breakwater.

Figure 4.1 shows that the peak wave directions under severe storm events will be from the north to north-west. At the southern end of the breakwater, there is the potential that a lack of sediment supply from the north may create a longshore gradient that puts increased erosion pressure on the area at the southern end of the breakwater. To allow for this in the assessment, the full severe storm erosion allowance has been included to approximately 50 m north of the jetty. In reality, this area will be offered some protection by the offshore breakwater. This provides a conservative estimate of change through this area.

It is noted that there could be some localised differences, as with all shorelines. These will be managed through the implemented coastal management program.

The coastal erosion hazard lines are dependent on the appropriate coastal management being completed, in line with EPA condition 8-1 placed on the development. This is discussed in the coastal processes report attached in Appendix B and in later sections of this plan.

4.1.2 Coastal Inundation Hazards

With respect to coastal inundation, SPP2.6 requires that development consider the potential effects of an event with an AEP of 0.2% per year. This is equivalent to an inundation event with an ARI of 500 years.

Assessment of the inundation level requires consideration of peak storm surge, including wave setup. A storm surge occurs when a storm with high winds and low pressures approaches the coastline (refer Figure 4.1). The strong, onshore winds and large waves push water against the coastline (wind and wave setup) and the barometric pressure difference creates a region of high water level. These factors acting in concert create the storm surge. The size of the storm surge is influenced by the following factors:

- Wind strength and direction;
- Pressure gradient;
- Seafloor bathymetry; and
- Coastal topography.

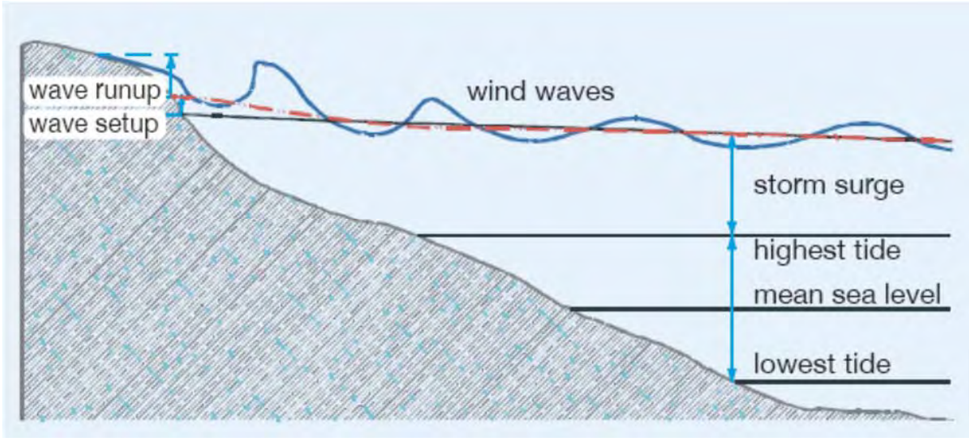


Figure 4.1 Storm Surge Components

MRA (2015) assessed the coastal inundation risk for the Rockingham Beach Foreshore. The determined coastal inundation levels for the various timeframes are presented in Table 4.1.

It should be noted that these levels do not include the potential effects of wave run-up, which may need to be considered for infrastructure located close to the beach face and on structures such as the offshore breakwater.

Table 4.1 Coastal Inundation Hazard Levels

Component	2015	2040	2065	2090	2110
500 year ARI water level in Fremantle Fishing Boat Harbour	1.44 mAHD	1.44 mAHD	1.44 mAHD	1.44 mAHD	1.44 mAHD
Allowance for nearshore setup (wind and wave)	0.8 m	0.8 m	0.8 m	0.8 m	0.8 m
Allowance for Sea Level Rise	0.00 m	0.15 m	0.36 m	0.64 m	0.9 m
Total Water Level	**2.24 mAHD**	**2.39 mAHD**	**2.60 mAHD**	**2.88 mAHD**	**3.14 mAHD**

These inundation levels have also been used to create Coastal Inundation Hazard Maps for the Present Day (2017), 2040, 2065, 2090 and 2110 timeframes. These are presented in Appendix D.

Due to the open nature of the proposed offshore breakwater associated with Port Rockingham, which has openings at both ends, there are likely to only be minor reductions in the inundation levels in the lee of the breakwater following development. The hazard areas are therefore not expected to change significantly with the proposed Port Rockingham development. To maintain a level of conservatism it is therefore assumed that the existing Coastal Inundation Hazard areas will remain following development.

It is noted that the structures associated with Port Rockingham will need to take into account these inundation levels in their design.

5. Risk Analysis

In accordance with WAPC (2014) a risk based approach has been used to assess the hazards and required mitigation and adaptation options for the proposed Port Rockingham development. As coastal hazards are the focus of this assessment, it is the likelihood and consequences of these coastal hazards that need to be considered.

The updated coastal processes assessment and the updated coastal hazards have confirmed that, provided the development complies with EPA Condition 8-1, there is no change to the risk of coastal hazards outside the immediate Port Rockingham area. These existing assets, risk levels and mitigation actions are therefro consistent with MRA (2015) and will not be reproduced further here. It is noted that the City is undertaking further CHRMAP for their shoreline shortly.

The areas affected by the proposed Port Rockingham development and the assets associated with Port Rockingham will be updated or added in this assessment.

Generally, the risk assessment for each of the coastal hazards (erosion and inundation) should be assessed separately, as the hazard areas and types of impact are different. Impacts on an asset from erosion are generally permanent or irreversible. For instance, if a car park was undermined, it would be permanently lost. In contrast, coastal inundation would result in flooding of a car park, but it could still be used once the water receded. The impact in that case is therefore temporary.

However, over much of the proposed Port Rockingham area, the inundation hazards are minimal and there is no predicted change from the pre-development case. As a result, it is recommended that the proposed Port Rockingham development be constructed in such a way that any coastal inundation is avoided and accommodated.

The focus of the remainder of this report will be on the potential coastal erosion, which may have a greater impact and be more difficult to manage.

5.1 Likelihood

Likelihood is defined as the chance of something happening (AS/NZS ISO 31000:2009). WAPC (2014) defines likelihood as the chance of erosion or storm surge inundation occurring or how often they impact on existing and proposed future assets and values. This requires consideration of the frequency of the event and probability of the event occurring over a given horizon.

The probability of an event occurring is often provided by the AEP or related ARI. The use of AEP to define impacts of coastal hazards over the planning timeframe assumes that events have the same probability of occurring each year. In the case of climate change, of which sea level rise is a significant part of the defined coastal hazard for the study area, this is not true. In addition, there is insufficient data available to properly quantify the probability of occurrence. A scale of likelihood is therefore developed, which follows the Australian Standard Risk Management Principles and Guidelines (AS/NZS ISO 31000:2009). This is presented in Table 5.1.

Table 5.1 Scale of Likelihood

Rating	Description / Frequency
Almost certain	There is a high possibility the event will occur as there is a history of frequent occurrence. 80-100% probability of occurring over the timeframe.
Likely	It is likely the event will occur as there is a history of casual occurrence. 60-80% probability of occurring over the timeframe.
Possible	The event may occur. 40-60% probability of occurring over the timeframe.
Unlikely	There is a low possibility that the event will occur. 20-40% probability of occurring over the timeframe.
Rare	It is highly unlikely that the event will occur, except in extreme / exceptional circumstances. 0-20% probability of occurring over the timeframe.

The scale of likelihood has been applied to each of the different areas and assets identified previously, for each of the planning horizons. This assessment of likelihood has been based on where the assets sit in relation to the vulnerability lines. With regard to the present (2017) timeframe, the assessment has been completed to consider the coming 5 year period and the potential for impacts over this period. Consideration of 2017 as a single year is unlikely to be meaningful, given the variability of the natural system with particular regard to storminess.

The resultant assessment of likelihood therefore refers to the chance that each asset is exposed to coastal hazards within each timeframe. This level of exposure in independent of and does not pre-suppose any level of consequence associated with the exposure. The assessment of consequence is outlined in Section 5.2.

Table 5.2 Assessment of Likelihood of Coastal Hazard

Timeframe	Present	2040	2065	2090	2110
Shoreline Sections					
Proposed Port Rockingham Marina & Jetty	Almost certain	Almost certain	Almost certain	Almost certain	Almost certain
Proposed Port Rockingham Breakwater	Almost certain	Almost certain	Almost certain	Almost certain	Almost certain
Beach	Almost certain	Almost certain	Almost certain	Almost certain	Almost certain

Dunes	Almost certain	Almost certain	Almost certain	Almost certain	Almost certain
Carpark at Wanliss St	Possible	Possible	Likely	Almost certain	Almost certain
Foreshore assets, including public infrastructure	Unlikely	Possible	Likely	Almost certain	Almost certain
Foreshore Area (undeveloped)	Unlikely	Unlikely	Possible	Likely	Likely

The likelihood of hazards outside the Port Rockingham area are consistent with the CHRMAP work completed for the Rockingham Beach Foreshore project.

5.2 Consequence

The second part of the risk assessment is determining the consequence of the coastal hazards on the impacted areas. A scale of consequence has been developed which provides a range of impacts and is generally consistent with AS/NZS ISO 31000:2009.

Table 5.3 Scale of Consequence

Rating	Social	Economic	Environment
Catastrophic	Loss of life and serious injury. Large long term or permanent loss of services, employment wellbeing, finances or culture (75% of community affected), international loss, no suitable alternative sites exist.	Damage to property, infrastructure or local economy > $20M.	Major widespread loss of environmental amenity and progressive irrecoverable environmental damage.
Major	Serious injury. Medium term disruption to services, employment wellbeing, finances or culture (<50% of community affected), national loss, limited alternative sites exist.	Damage to property, infrastructure or local economy > $5M to $20M.	Severe loss of environmental amenity and a danger of continuing environmental damage.
Moderate	Minor injury. Major short or minor long term disruption to services, employment wellbeing, finances or culture (<25% of community affected), regional loss, many alternative sites exist.	Damage to property, infrastructure or local economy > $500,000 to $5M.	Isolated but significant instances of environmental damage that might be reversed with intensive efforts. Recovery may take several years.
Minor	Small to medium disruption to services, employment wellbeing, finances or culture (<10% of community affected), local loss, many alternative sites exist.	Damage to property, infrastructure or local economy > $50,000 to $500,000.	Minor instances of environmental damage that could be reversed. Consistent with seasonal variability, recovery may take one year.
Insignificant	Minimal short-term inconveniences to services, employment, wellbeing, finances or culture (<5% of community affected), neighbourhood loss, many alternative sites exist.	Damage to property, infrastructure or local economy < $50,000.	Minimal environmental damage, recovery may take less than 6 months.

The consequence of erosion of each of Port Rockingham assets has been assessed and is presented in Table 5.4.

Table 5.4 Existing Consequence to Identified Assets

Asset Description	Consequence (Erosion)
Proposed Port Rockingham Marina & Jetty	Moderate
Proposed Port Rockingham Breakwater	Moderate
Beach	Moderate
Dunes	Moderate
Carpark at Wanliss St	Moderate
Foreshore assets, including public infrastructure	Minor
Foreshore Area (undeveloped)	Minor

The assessment demonstrates that there would be a moderate consequence to the assets associated with the proposed Port Rockingham development without appropriate design, monitoring, maintenance and adaptation.

It is noted that while the probability of the potential impact changes for the varying timescales, the consequence of that potential impact is unchanged.

It should also be noted that while the consequence of erosion to those foreshore assets located in the Port Rockingham marina area is minor to moderate, the risk of erosion is decreased, or time to erosion increased, with the construction of the offshore breakwater. The breakwater provides protection to those assets behind it.

6. Risk Evaluation

6.1 Risk Evaluation Matrix

The risk rating from a risk assessment is defined as “likelihood” x “consequence.” A risk matrix defining the levels of risk from combinations of likelihood and consequence has therefore been developed for the coastal hazards. This risk matrix is generally consistent with WAPC (2014).

Table 6.1 Risk Matrix

RISK LEVELS		CONSEQUENCE				
		Insignificant	Minor	Moderate	Major	Catastrophic
LIKELIHOOD	Almost Certain	Low	Medium	High	Extreme	Extreme
	Likely	Low	Medium	Medium	High	Extreme
	Possible	Low	Medium	Medium	Medium	High
	Unlikely	Low	Low	Medium	Medium	Medium
	Rare	Low	Low	Low	Low	Low

A risk tolerance scale assists in determining which risks are acceptable, tolerable and unacceptable. The risk tolerance scale used for the assessment is presented in Table 6.2.

Table 6.2 Risk Tolerance Scale

Risk Level	Action Required	Tolerance
Extreme	Immediate action required to eliminate or reduce the risk to acceptable levels	Intolerable
High	Immediate to short term action required to eliminate or reduce risk to acceptable levels	Intolerable
Medium	Reduce the risk or accept the risk provided residual risk level is understood	Tolerable
Low	Accept the risk	Acceptable

The risk tolerance scale shows that the extreme and high risks need to be managed.

6.2 Risk Assessment

The risk assessment for the study area has been completed in accordance with the recommendations of AS5334-2013, which requires a detailed risk analysis include a vulnerability analysis to thoroughly examine how coastal hazards and climate change may affect the asset. This includes consideration of the adaptive capacity and vulnerability of an asset.

Based on the results of the risk analysis completed previously, Table 6.3 presents the risk levels for each of the different areas and assets.

Table 6.3 Preliminary Assessment of Risk Levels

Rating	Present	2040	2065	2090	2110
Proposed Port Rockingham Marina & Jetty	High	High	High	High	High
Proposed Port Rockingham Breakwater	High	High	High	High	High
Beach	High	High	High	High	High
Dunes	High	High	High	High	High
Carpark at Wanliss St	Medium	Medium	Medium	High	High
Foreshore assets, including public infrastructure	Low	Medium	Medium	High	High
Foreshore area (undeveloped)	Low	Low	Medium	Medium	Medium

The risk tolerance scales suggest that consideration needs to be given to risk mitigation for the specific assets proposed in the Port Rockingham development - the marina, jetty and offshore breakwater and the expanded car park. These elements are the responsibility of the Proponent and will require appropriate design, monitoring, maintenance and adaptation strategies.

Existing assets including the beach, dunes, foreshore assets and undeveloped foreshore areas also require consideration for risk mitigation. These assets have previously been identified as requiring risk mitigation. The timing of this mitigation is either unchanged or delayed by construction of the development and in particular the offshore breakwater.

Later in the planning timeframe, the onshore facilities behind the breakwater will require adaptation.

7. Risk Adaptation & Mitigation Strategies

SPP2.6 outlines a hierarchy of risk adaptation and mitigation options, where options that allow for a wide range of future strategies are considered more favourably. This hierarchy of options is reproduced in Figure 7.1.

Figure 7.1 Risk Management & Adaptation Hierarchy

These options are generally outlined below.

- Avoid – avoid new development within the area impacted by the coastal hazard.
- Retreat – the relocation or removal of assets within an area identified as likely to be subject to intolerable risk of damage from coastal hazards.
- Accommodate – measures which suitably address the identified risks.
- Protect – used to preserve the foreshore reserve, public access and public safety, property and infrastructure.

The assessment of options is generally done in a progressive manner, moving through the various options until an appropriate mitigation option is found.

The Port Rockingham Marina proposal meets an identified demand for recreational boating facilities in the southern section of Cockburn Sound. The marina has an inherent need to be located in the coastal zone to be operable and is an exemption to SPP2.6 under item 7.4 (Industrial and commercial development). The Avoid strategy is therefore not an option.

7.1 Potential Mitigation Strategies

The decision regarding potential adaptation strategies depends on the key assets in the foreshore and the requirement, or otherwise, to retain a beach in certain areas. For the proposed Port Rockingham development, the following flowchart is applicable for considering the potential mitigation strategies.

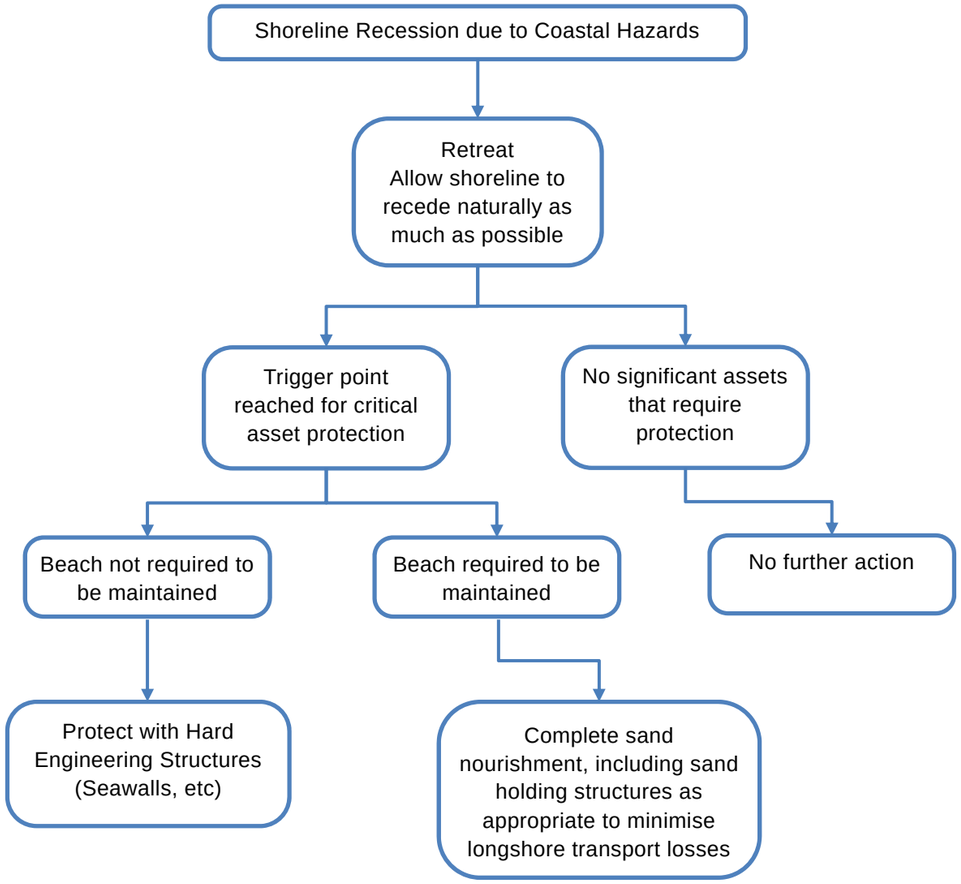


Figure 7.2 Indicative Flowchart for Assessment of Coastal Hazard Response

7.2 Port Rockingham Mitigation & Adaptation Strategies

Each of the key assets associated with the proposed Port Rockingham development would require mitigation and adaptation to ensure the risk of coastal impacts is at an appropriate level. The responsibility for the implementation of these mitigation and adaptation strategies will be with the Proponent of the development.

7.2.1 Marina

The marina incorporates a group of assets which require risk management to address the impacts of coastal hazards. The 500 marina pens and associated infrastructure (walkways, access etc) within the marina will be floating structures. To meet the relevant Australian Standards for design and construction of these marina pens, it is important to recognise that they **require protection**. This protection is required to reduce the wave climate to an appropriately low level. None of the other risk management approaches demonstrated in Figure 7.1 allow these requirements to be met.

MRA (2008) and RPS (2009) outline the objectives which were used to determine the appropriate protection option for the marina and assets. To achieve the environmental and social objectives required by the project, an offshore breakwater was selected as an appropriate protection option. This is reiterated by EPA (2009), which notes that the offshore breakwater has been designed with an open ended pier component to allow natural coastal processes to continue once the structure has been completed.

Implementation Actions

To ensure protection for the marina assets, the offshore breakwater will be appropriately designed and constructed. The breakwater will need to be designed to meet relevant Australian Standards and to withstand the action of the ocean and coastal hazards and changes to these conditions over the design life. This will ultimately be the responsibility of the Proponent. This will be discussed further below.

The marina pens will also need to be designed and constructed to meet relevant Australian Standards and to withstand the action of the ocean and coastal hazards and changes to these conditions over the design life. This will ultimately be the responsibility of the Proponent.

Following construction, a monitoring and maintenance program for the marina elements will be required to confirm that they continue to adequately manage and mitigate the risks.

7.2.2 Jetties

The proposed jetties and associated fixed structures (including buildings) are not directly protected by the offshore breakwater and require risk management and adaptation to reduce their risks of impact to an appropriate level.

Implementation Actions

The jetties and associated infrastructure will be designed to sit above the 500 year ARI coastal inundation levels, including an appropriate allowance for climate change. This will ensure that they **avoid** the risk of coastal inundation.

The jetties have a demonstrated need to be in the coastal erosion hazard area to provide access to the offshore breakwater and marina pens and are unable to avoid this risk. However, to **accommodate** these risks they will be designed and constructed in accordance with relevant Australian Standards. This includes designing the piles for the design environmental conditions (including waves, water levels and currents), design loads and making allowances for scour and sea level rise for the duration of the design life. This will reduce the risk of impacts to an appropriate level.

Following construction, a monitoring and maintenance program for the jetties will be required to confirm that they continue to adequately manage and mitigate the risks.

The responsibility for these implementation actions will rest solely with the Proponent.

7.2.3 Offshore Breakwater

The offshore breakwater has a demonstrated need to be located in an area subject to the action of the ocean and coastal hazards. It performs a function to reduce the risk of impact of coastal hazards on the marina pens. It will therefore require risk management and adaptation to reduce the risks of impact to an appropriate level.

Implementation Actions

The breakwater will be designed to **accommodate** the risks of coastal erosion and inundation to reduce the risk of impacts to an appropriate level. This will include the following actions:

- Design and construction of the breakwater to allow for coastal inundation to the appropriate 500 year ARI level.
- Associated infrastructure on the breakwater (eg roads and walkways) would be elevated above the 500 year ARI coastal inundation levels, including an appropriate allowance for climate change. This will ensure that they **avoid** the risk of coastal inundation.
- The breakwater would be designed to accommodate the appropriate design storm conditions, in accordance with relevant Australian Standards and best practice.
- An appropriate monitoring and maintenance program for the breakwater to ensure it continues to provide protection to the development.

The offshore breakwater will provide sheltering to the water and the shoreline in its lee. This will be considered in the design of all marine structures.

The responsibility for these implementation actions will rest solely with the Proponent.

7.2.4 Beach & Dunes

The beach and dunes are natural assets that provide significant recreational value to the local community. The proposed Port Rockingham development will have an impact on the surrounding shoreline, including the beach and dunes. These impacts, especially if left unmanaged, were assessed in MRA (2008) and RPS (2009). These documents outlined the required coastal management strategy which was endorsed by the EPA (2009). This has been updated and confirmed in the updated coastal processes assessment (Appendix B).

The coastal management strategy, to manage shoreline movement downdrift of the breakwater, will be completed as part of an adaptive management strategy. It will be determined in conjunction with the City, who manage the shoreline in the greater area. The whole beach adaptive management strategy will include the following:

- Coastal monitoring, including surveys, analysis and reporting.
- Sand bypassing.

Indicative details of these operations are outlined in Appendix B. The detailed strategy will be determined in conjunction with the City. It is important to note that the implementation of the monitoring and sand bypassing will be completed in conjunction with the City, but will be the sole responsibility of the Proponent.

The coastal management will be completed to offset those impacts as a result of Port Rockingham. It is important to note that the coastal management will not halt all the erosion of the shoreline over the longer term that is associated with sea level rise and the like. This shoreline erosion would have occurred even without the construction of the marina. In the longer term this may affect the onshore facilities, including car parks and other infrastructure. To address this, the following should be implemented:

- In the short term, the shoreline movement should be monitored as part of the coastal monitoring program.
- Based on the coastal monitoring, coastal management operations will be completed.
- A strategy of managed retreat of infrastructure in the area.

Through an integrated managed retreat strategy for the greater foreshore area, the function of the beach and dunes will remain. While there will be loss of dune area, this will be slowed in the area of the Port Rockingham development.

7.2.5 Expanded Car Park

The development proposal includes an upgraded and expanded car park at Wanliss St, extending along the foreshore to the north-east (Figure 7.3). This area will be behind the offshore breakwater and as such offered a degree of protection compared to existing foreshore assets. However, in the longer term it will require mitigation of the risk of coastal erosion.

Figure 7.3 Proposed Car Park at Wanliss St

The Figure shows the 25 year erosion hazard line and indicates that the western most portion may be susceptible to erosion hazards prior to 2040. This area of car park also provides the access to the jetty and offshore breakwater. In order to appropriately design the approaches to the jetty and reduce the risk of scour or damage under design events, a jetty abutment would typically be constructed. This is a form of protection and would typically be constructed similar to a seawall. Similar jetty abutments have been constructed recently within the City at Val St and Palm Beach jetties, among others. The likely abutment area is indicated in the Figure 7.3.

The abutment is proposed to be extended along the foreshore to protect the area of car park at immediate risk of coastal erosion. The design of the abutment and extents will be resolved with the City through the detailed design of the jetty and other structures.

The remaining car park areas are shown to be at a greatly reduced risk of erosion, as they are provided increased protection behind the offshore breakwater. It is proposed that should the coastal monitoring indicate sections of the car park are at risk of coastal erosion, a managed retreat strategy is implemented. This would involve potential modification to the constructed carpark layout and provision of additional car parking facilities on a replacement basis. This could involve expansion of car parking facilities near Rockingham Beach Road near Alexandra St. This area would also be offered some protection behind the offshore breakwater associated with Port Rockingham.

It should be noted that the managed retreat of these facilities is not expected until latter stages of the planning period (75 years +). While indicative managed retreat for a replacement number of bays is considered, it is entirely possible that transport patterns and parking requirements will have dramatically evolved in that time.

7.2.6 Foreshore Assets & Undeveloped Areas

The remaining foreshore assets and infrastructure indicated to be at risk within the relevant timeframes are generally only minor in nature (paths, small structures etc). Management of these items will be completed consistently with the presented strategy of:

- In the short term, the shoreline movement should be monitored as part of the coastal monitoring program.
- Detailed design of the foreshore infrastructure associated with the development should be recognisant of the coastal hazard lines. Where possible, the infrastructure should avoid the risk of coastal erosion in the design life of the asset.
- In the longer term and as dictated by the coastal monitoring, onshore assets should be relocated or removed by way of planned or managed retreat. Due to the relatively low value assets proposed in these areas and the available space in the foreshore reserve behind the breakwater, it is likely that the majority of assets could be relocated outside the coastal erosion hazard areas at the end of their design life.

A summary of the proposed risk mitigation approaches for the proposed Port Rockingham assets is shown in Figure 7.4 below.

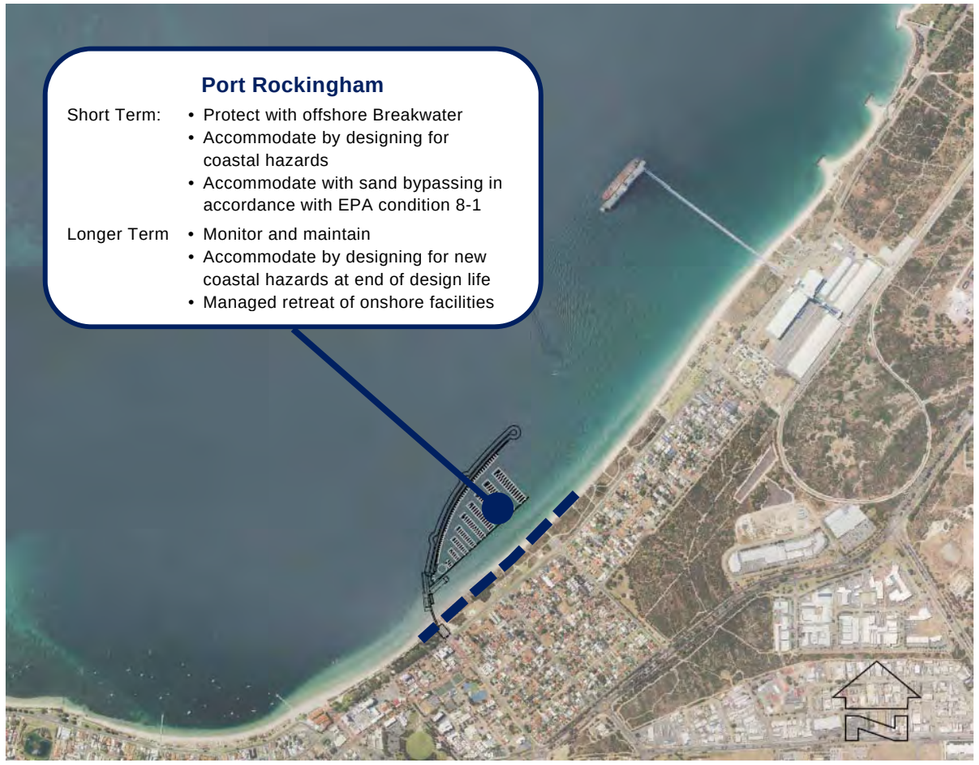


Figure 7.4 Summary of Proposed Risk Mitigation for Port Rockingham

7.3 Risk Mitigation Actions &Triggers

The completed risk assessment and proposed adaptation, has been used to develop risk mitigation actions as well as triggers for when these mitigation strategies should be enacted. An initial assessment of these priorities and triggers is presented in Table 7.1. The party responsible for each of the risk mitigation or adaptation actions is also clearly identified.

Table 7.1 Risk Mitigation Actions, Triggers & Responsibilities

Asset	Risk Mitigation & Adaptation	Trigger	Responsible
Port Rockingham Marina & Jetty	Protected by offshore breakwater Designed to accommodate sea level rise and avoid coastal inundation Designed to meet Australian Standards Monitoring and maintenance program	During design and construction	Proponent
Port Rockingham Breakwater	Designed to accommodate storm events. Designed to avoid coastal inundation Designed to meet Australian Standards Monitoring and maintenance program	During design and construction	Proponent
Beach & Dunes	Monitoring program Sand bypassing to maintain coastal processes Longer term – managed retreat to allow retention of beach and dunes	Construction	Proponent (Port Rockingham) for coastal management & City (managed retreat)
Port Rockingham Foreshore	Monitoring program Protect (sand bypassing) to maintain coastal processes Longer term – managed retreat	Construction As determined by monitoring and in line with EPA condition 8-1	Proponent (Port Rockingham) & City (City assets)
Existing Assets	As per Rockingham Beach Masterplan	As per Rockingham Beach Masterplan	City
All	Review and update CAP and strategies		Proponent (Port Rockingham) & City (City assets)

It is proposed a single entity will be responsible for managing the assets at Port Rockingham, including the breakwater, jetty and marina. They will also be responsible for the relevant coastal monitoring and management associated with the development. A clear link will therefore be maintained between the assets and the management responsibility. The monitoring and maintenance works will be completed in consultation with the City and would require City approvals.

The City would still be responsible for managing City assets, such as the foreshore through the area.

7.4 Updated Risk Assessment

The risk assessment completed in Section 6 has been updated to allow for the mitigation actions outlined above.

As the mitigation actions include design and construction elements (ie designing to meet appropriate standards and reduce damage) as well as future adaptation, both the likelihood and consequences are revised. The updated likelihood and consequence assessments are presented in Tables 7.2 and 7.3.

Table 7.2 Likelihood of Coastal Hazard after Mitigation

Timeframe	Present	2040	2065	2090	2110
Shoreline Sections					
Proposed Port Rockingham Marina & Jetty	Rare	Rare	Rare	Rare	Rare
Proposed Port Rockingham Breakwater	Rare	Rare	Rare	Rare	Rare
Beach	Possible	Possible	Possible	Possible	Possible
Dunes	Possible	Possible	Possible	Likely	Likely
Carpark at Wanliss St	Possible	Possible	Possible	Possible	Possible
Foreshore assets, including public infrastructure	Possible	Possible	Possible	Possible	Possible
Foreshore area (undeveloped)	Possible	Possible	Possible	Possible	Possible

Table 7.3 Consequence to Identified Assets after Mitigation

Asset Description	Consequence (Erosion)
Proposed Port Rockingham Marina & Jetty	Minor
Proposed Port Rockingham Breakwater	Minor
Beach	Minor
Dunes	Minor
Carpark at Wanliss St	Minor
Foreshore assets, including public infrastructure	Minor
Foreshore area (undeveloped)	Minor

Based on the updated likelihood and consequence assessments, the risk levels for each of the assets has been updated. The updated assessment is presented in Table 7.3.

Table 7.4 Assessment of Risk Levels after Mitigation

Rating	Present	2040	2065	2090	2110
Proposed Port Rockingham Marina & Jetty	Low	Low	Low	Low	Low
Proposed Port Rockingham Breakwater	Low	Low	Low	Low	Low
Beach	Medium	Medium	Medium	Medium	Medium
Dunes	Medium	Medium	Medium	Medium	Medium
Carpark at Wanliss St	Medium	Medium	Medium	Medium	Medium
Foreshore assets	Medium	Medium	Medium	Medium	Medium
Foreshore areas	Medium	Medium	Medium	Medium	Medium

Table 7.4 shows that with the implementation of appropriate actions, the risk of coastal hazards impacting the development can be reduced to acceptable levels.

8. Monitoring & Review

8.1 Coastal Monitoring

The previous assessments (MRA 2008 and RPS 2009) recommended an adaptive and integrated beach management plan, including monitoring, with the City to ensure that natural littoral sand drift is maintained. The Rockingham Foreshore Masterplan CHRMAP (MRA 2015) also made recommendations for a number of different monitoring strategies for the existing Rockingham Beach shoreline.

It is essential that a monitoring and review program is implemented in order to track changes to the shoreline over time. This has been confirmed and an indicative program outlined in the updated coastal process assessment included in Appendix B. While the coastal hazard mapping and sediment budget presented in this report provide an indication of the potential changes to the shoreline over time, the system is inherently complex and the actual shoreline response could be different to that presented. Triggers should therefore be based on the observed coastal response, determined by the monitoring program.

To implement the 'whole beach' management strategy outlined in Section 6, the Proponent will be responsible to monitor and review shoreline change through profile monitoring and shoreline surveys. It is important that this is done in conjunction with the City and their coastal monitoring program.

8.2 Structure Monitoring

The Proponent will also be responsible for monitoring and maintaining assets constructed as part of the proposed Port Rockingham development. This would include regular inspections of the breakwater and jetty structures and assessment of condition.

8.3 Adaptation Plan Review

As well as the proposed coastal and asset monitoring program, review of the proposed risk mitigation and CAP actions should be completed on approximately 10 yearly intervals. This would confirm the trends in movement and the risk assessment and recommendations of the CHRMAP. Based on the outcomes of the review and the coastal monitoring, an update to the proposed strategy and actions may be required.

9. Conclusion

This Coastal Adaptation Plan has assessed the impacts of the proposed Port Rockingham development on previously assessed coastal hazard areas along the Rockingham shoreline. It has been developed on the basis of the extensive investigations and consultation completed through the PER and previous CHRMAP work completed in the area.

The assessment has shown that outside of the immediate proposed Port Rockingham development area, there will be no change to the coastal hazard areas previously determined by the City. This is on the basis that the Proponent adequately completes coastal management in the form of sand bypassing, consistent with the project's environmental conditions. It is currently proposed that a single entity will be responsible for management of the Port Rockingham assets, including the breakwater, jetty and marina and the coastal monitoring and management requirements.

Appropriate risk mitigation and adaptation actions have been identified, as well as the responsible party. The strategy and proposed actions vary for the various assets. The Proponent will implement the 'whole beach' coastal management strategy in conjunction with the City, including monitoring and reviewing shoreline change through profile monitoring and beach surveys. With appropriate risk mitigation, the risk of impact from coastal hazards can be reduced to acceptable levels.

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11. Appendices

Appendix A **Pre-Development Coastal Erosion Hazard Maps**

Appendix B **Port Rockingham Coastal Processes Report**

Appendix C **Post-Development Coastal Erosion Hazard Maps**

Appendix D **Coastal Inundation Hazard Maps**

Appendix A **Pre-Development Coastal Erosion Hazard Maps**

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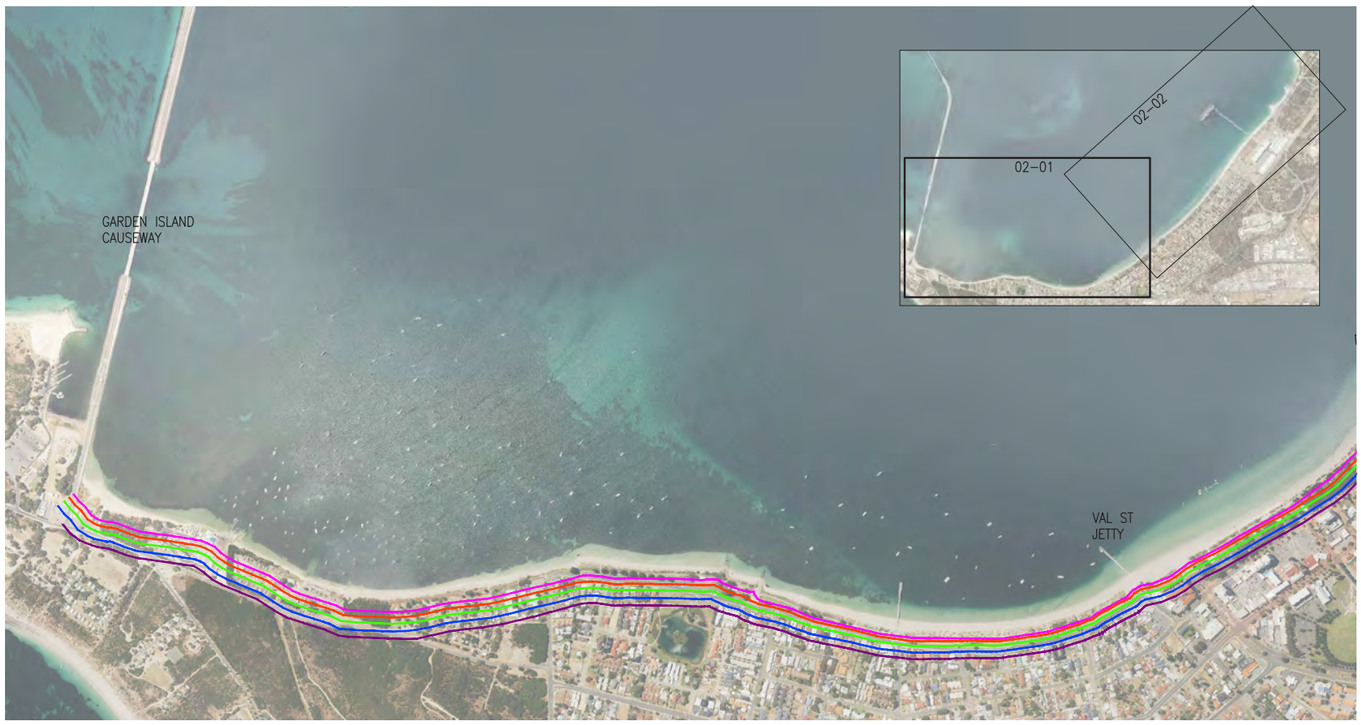

GENERAL NOTES:

1. LINES FROM CSCA CVS AND ROCKINGHAM FORESHORE MASTER PLAN
2. AERIAL PHOTOGRAPH SUPPLIED BY LANDGATE, TAKEN IN FEBRUARY 2017.

0 100 200 300 400 500m

SCALE 1:10,000 AT ORIGINAL SIZE

N

PRESENT EROSION HAZARD LINE
2040 EROSION HAZARD LINE
2065 EROSION HAZARD LINE
2090 EROSION HAZARD LINE
2110 EROSION HAZARD LINE

AT CORRECT SCALE THIS IS 100 mm

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COASTAL HAZARD LINES PRE DEVELOPMENT

PORT ROCKINGHAM

SCALE AT A3 10,000

AUGUST 2017

SK–1444–02–01

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AT CORRECT SCALE THIS IS 100 mm

GENERAL NOTES:

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2. AERIAL PHOTOGRAPH SUPPLIED BY LANDGATE, TAKEN IN FEBRUARY 2017.

0 100 200 300 400 500m

SCALE 1:10,000 AT ORIGINAL SIZE

N

PRESENT EROSION HAZARD LINE
2040 EROSION HAZARD LINE
2065 EROSION HAZARD LINE
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2110 EROSION HAZARD LINE

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COASTAL HAZARD LINES PRE DEVELOPMENT

PORT ROCKINGHAM

SCALE AT A3 10,000

AUGUST 2017

SK–1444–02–02

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Appendix B Port Rockingham Coastal Processes Report

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K1444, Report R949 Rev 1
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1	Minor revisions and reissued for Client use	T Hunt	A Clapin	T Hunt	27/10/2017

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1. Introduction

1.1 General

The Port Rockingham Marina development proposal is for a marina in the southern portion of Cockburn Sound. The development would adjoin the coast at the intersection of Wanliss St and Rockingham Beach Road, Rockingham.

The location of the proposed development is presented in Figure 1.1.

Figure 1.1 Proposed Port Rockingham Marina Development Location

The proposed development is predominantly offshore, with a jetty extending approximately 200 m out from the shoreline at Wanliss St, to connect to an offshore breakwater. The offshore breakwater provides protection to the proposed 500 pen marina. There are proposed commercial activities located on the jetty structures. A small onshore component to the development is proposed around the existing car park at Wanliss St. This will primarily include extension to the car parking and provision of marina services.

1.2 Background & History

There is a recognised shortage of recreational moorings and anchorages in Perth's southern Metropolitan waters, particularly in Cockburn Sound. The closest marinas to Rockingham are Mandurah Ocean Marina, approximately 27 km to the south, and the Fremantle Yacht Club / Challenger Marina, 20 km to the north. The Port Rockingham development is proposed to address this strong demand for recreational boat pens in the area.

The proposal was referred to the EPA in 2007 (RPS BBG 2007) and the level of assessment was set by the Environmental Protection Authority (EPA) at Public Environmental Review (PER).

The investigations for the PER were completed over a number of years and outlined in RPS (2009). As part of these investigations M P Rogers & Associates Pty Ltd (MRA) were engaged to complete an assessment of the impacts of the proposed Port Rockingham Marina development on coastal processes and recommend monitoring and management requirements. These investigations were presented in MRA (2008) and incorporated into the PER (RPS 2009).

Following the advertisement of the PER, subsequent responses and revisions, the EPA recommended conditional approval of the Port Rockingham Marina proposal (EPA 2009). Condition 8-1 (Coastal Processes) states that:

"The proponent shall ensure that construction and operation of the proposal does not cause changes to shoreline movements, width of beach and beach profiles, in excess of that predicted shown in Figure 3 and listed in Table 1 of this statement."

Table 1 notes the following:

"Minor changes to the shoreline and sand sheet morphology may occur. The predicted amount of sand bypassing that may be required is 5,000 to 6,000 m^3 per annum."

Following the environmental approval of the project, the proponent was granted Development Application (DA) approval. This has since lapsed. Aureus Commercial Pty Ltd are now seeking a new DA approval to proceed with the development.

This report presents an update of the previous coastal processes assessment completed for Port Rockingham. Specifically, it provides the following.

- An updated shoreline movement assessment.
- An updated sediment budget for the area.
- An updated assessment of the appropriate bypassing volumes for the development to meet EPA Condition 8-1.
- An indicative monitoring and management program.

2. Site Conditions

The development extends out from the Rockingham Beach shoreline at Wanliss Street in the form of a jetty, connecting to a 750 m long offshore breakwater. The onshore development consists of an expansion to the existing car park at Wanliss St and other marina associated services.

Photographs of the beach and dunes at the proposed development location are presented in Figures 2.1 to 2.3.

Figure 2.1 Typical Beach Sections Facing North & South

Figure 2.2 Typical Beach Section Facing West

Figure 2.3 Rockingham Beach Access Ways

The photographs show a number of key items of note for the site, including the following:

- The wide sandy beach and foredune, indicating a stable or moderately accreting shoreline.
- The low elevation vegetated dunes.

These features are consistent along the proposed development location.

3. Shoreline Movement

3.1 Historical Shoreline Movement

MRA (2008) completed an assessment of the historic shoreline movement for the study area from 1942 to 2004. The coastal processes and dynamics of the area were significantly changed when the Garden Island Causeway was completed in 1973. MRA (2008) therefore analysed the shoreline movement in detail and prepared a sediment budget for the period following construction of the Causeway, from 1976 to 2004.

This analysis included assessment of the position of the coastal vegetation line from the following times.

- 1976.
- 1988.
- 1989.
- 1998.
- 2000.
- 2004.

This assessment was used in the PER (RPS 2009) and formed the basis of EPA Condition 8-1, to manage the coastal processes for the development.

To update the shoreline movement analysis and sediment budget to the present day, recent coastal vegetation lines were obtained from the Department of Transport (DoT). Where unavailable, aerial photographs were purchased from Landgate and the shorelines mapped by MRA in accordance with the DoT methodology and specification for mapping (DoT, 2009). Coastal vegetation lines from the following years were added to the assessment.

- 2008.
- 2012.
- 2017.

The shoreline has therefore been mapped at approximately 5 yearly intervals from 1976 to 2017. The accuracy of the position of these vegetation lines is believed to be in the order of ±5 m, depending on the resolution of the aerial photographs and the rectification process. A shoreline movement plan presenting the previous vegetation lines and recently mapped vegetation lines is presented in Appendix A. The chainages for the shoreline used in the assessment are presented in Figure 3.1.

Figure 3.1 Shoreline Movement Assessment Chainages

The position of the shoreline relative to 1976 was determined at 100 m intervals within the study area. The shoreline movement assessment is presented in Figure 3.2.

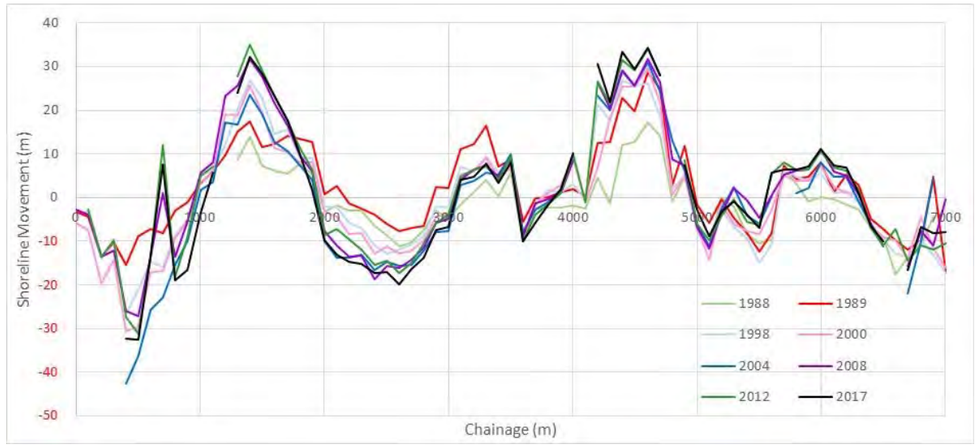

Figure 3.2 Relative Shoreline Movements 1976 – 2017

The trends in shoreline movement in recent years appear consistent with those presented for earlier years in MRA (2008). The shoreline sectors generally exhibit the same trends of accretion or erosion as before. The only notable change is the slowing of erosion and minor recovery near Kwinana Beach (Ch 7,000m), where coastal management has been completed in the form of offshore headlands and sand nourishment in the past decade.

3.2 Sediment Budget

Using the shoreline movement data between 1976 and 2017, a sediment budget was estimated for the study area. The figures and rates of movement were calculated assuming a typical beach profile shape over the area of active movement and are consistent with MRA (2008) and RPS (2009). Areas of active movement (ie active height and closure depth) were consistent with MRA (2008) and determined from Cockburn Sound monitoring surveys (DALSE 2003).

The City provided MRA with records of sand nourishment completed across the study area between 2001 and 2017. This was accounted for in the assessment and included approximately 26,150 m³ in sand nourishment placed at Kwinana Beach between 2001 and 2003 (DPI 2004). The estimated sediment budget for the area is presented in Appendix B.

The sediment budget and transport directions are consistent with the previously presented sediment budget (MRA 2008). Sectors have maintained their historic trends of accretion and erosion and volumes of transport per year are within the same order of magnitude.

At the proposed development location, the net sediment transport to the south has reduced from approximately 6,800 m^3/yr for the period 1976 – 2004, to approximately 4,300 m^3/yr for the period 1976 – 2017. This suggests that the transport past the development has slightly decreased over the past decade. This is most likely due to the stabilisation of the shoreline at Kwinana Beach.

There is likely to be a large natural variability in the sediment fluxes from one year to another due to fluctuation in weather conditions and the resultant wave climate. However, the consistency of the estimated sediment budgets between MRA (2008) and this updated assessment indicate that the trends in shoreline movement are consistent. This provides confidence that the analysis and predictions of MRA (2008) in terms of shoreline movement are appropriate.

Based on this updated sediment budget, the outcomes of the modelling completed by MRA (2008) are assessed to be appropriate. The following impacts on the shoreline can therefore be concluded if the coastal processes were unmitigated:

- The offshore breakwater proposed for the Port Rockingham development is predicted to have an effect on sediment movement behind the structure.
- In the 5 years after the construction of the proposed Port Rockingham breakwater, the shoreline behind the proposed breakwater is predicted to accrete by approximately 10 m.
- In contrast, the shoreline to the south-west (‘downdrift’) of the breakwater is predicted to erode by approximately 10 m.
- The accretion on the shoreline in the wave shadow of the breakwater is estimated to be around 4,000 - 6,000 m³/yr.

These impacts therefore still need to be mitigated (through sand bypassing) to meet the requirements of EPA Condition 8-1.

4. Coastal Management Strategy

The proposed development will change the local sediment movement on Rockingham Beach. Left unmanaged, there may be a large accretion of sediment in the lee of the breakwater and erosion due to the deficit down-drift, on Rockingham Beach. The PER proposed annual sand bypassing operations to manage the coastal processes and this was accepted and required by the EPA with Condition 8-1. The coastal management strategy proposed by the PER (RPS 2009) is therefore still appropriate and recommended for implementation.

The Proponent will be responsible for the adaptive coastal management strategy to be implemented. This should be determined in conjunction with the City and be consistent with their greater coastal monitoring and management program for Rockingham. This 'whole beach' adaptive management strategy should involve the following:

- A coastal monitoring program to monitor changes to the shoreline in the vicinity of the proposed development.
- Excavation of sand from areas of accretion for transport and placement in regions of sediment erosion (sand bypassing).

4.1 Coastal Monitoring Program

A coastal monitoring program is recommended to monitor changes to the shoreline in the vicinity of Port Rockingham. This would take the form of the following:

- Surveyed beach profiles.
- Inspections, including photographic monitoring.
- Assessment and reporting.

4.1.1 Surveyed Beach Profiles

The surveyed beach profiles would extend either side of the development to capture shoreline changes caused by the offshore breakwater. To date the City has a targeted approach to coastal monitoring in areas of infrastructure or observed change. There is no regular and consolidated coastal monitoring program which covers the proposed development shoreline. This is currently being considered by the City in isolation and under their membership of the Peron Naturaliste Partnership.

Historic coastal monitoring profiles of the shoreline are available which cover the proposed development area. Some of these lines have been recorded as far back as 1974, while others commenced in 2003. Figure 4.1 presents the existing profile locations in Cockburn Sound.

For consistency and to allow comparison of changes with historic datasets, these profiles should generally be retained.

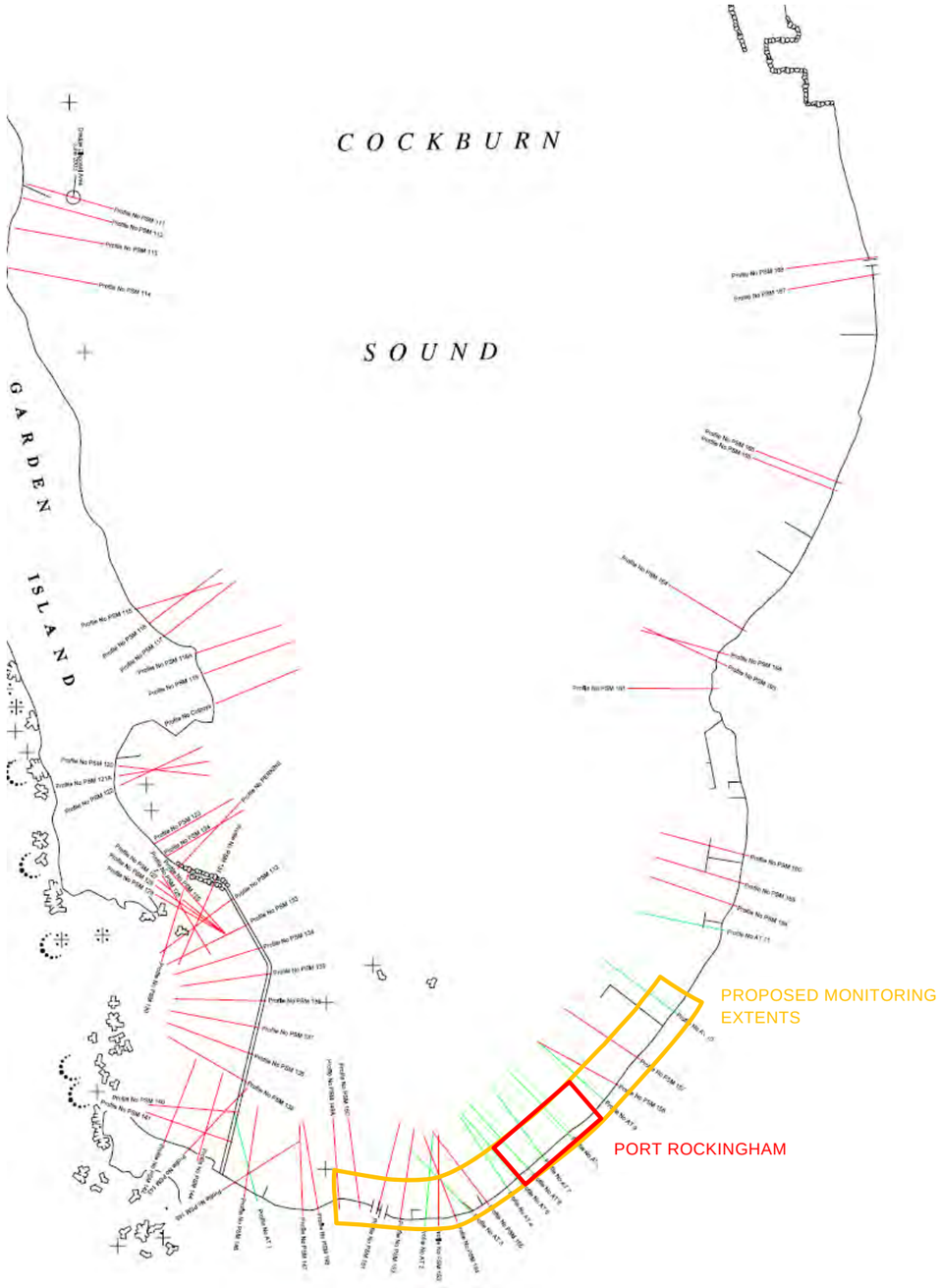

Figure 4.1 Historic Coastal Profile Monitoring Locations

The figure shows that the proposed development sits between profiles AT5 and AT9. It is recommended that the monitoring for the development extend from approximately AT10 to PSM149A. The extents of the proposed monitoring are approximately:

- The southern headland at Kwinana Beach in the north.
- Hymus Street at the south / western end.

These areas extend well outside the predicted areas of change and past the predicted point of convergence at Rockingham Beach. This covers approximately 17 monitoring profiles, which should extend from behind the primary dune, to approximately 500 m offshore. This will allow changes across the entire active zone of the profiles to be reviewed.

The monitoring profiles should be completed prior to construction of the offshore breakwater (ideally one year prior) and then twice annually for the first 5 years after construction. The surveys should be completed at the end of summer (around March) and end of winter (around October) each year. Completing the surveys twice annually will allow seasonal changes to be assessed.

It is recommended that following the first 5 years of monitoring after construction, the program is reviewed. Should the program and coastal management (bypassing) be operating efficiently and to plan, the frequency of monitoring may be able to be reduced to once per year or as agreed with the City.

Overall, it is recommended that the monitoring for Port Rockingham is completed in conjunction with the greater monitoring program of the City.

4.1.2 Inspections & Photographic Monitoring

Inspections of the shoreline should be completed at the same time as the seasonal surveys. This will allow an opportunity to ground truth the surveys and confirm the changes to the shoreline. Photographic monitoring locations should be established along the shoreline and photographs taken during each inspection.

Photographic monitoring allows a visual history of the changes to the shoreline to be developed. This can provide context and clarity to assessment of measured changes in surveyed profiles. An example of seasonal photographic monitoring from a nearby location at the northern end of Cockburn Sound is presented in Figure 4.2.

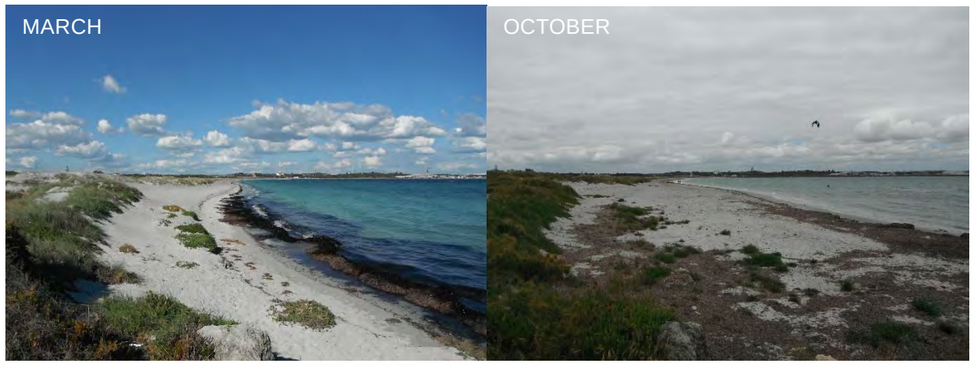

Figure 4.2 Example of Seasonal Photo Monitoring

4.1.3 Assessment & Reporting

An annual analysis and assessment of the monitoring data should be completed by experienced coastal engineers and summarised in a monitoring data report. The annual monitoring data report would provide discussion and analysis of the collected data and recommendations for the required coastal management (sand bypassing).

The monitoring data report would need to relate the changes to the EPA (2009) Condition 8-1 to confirm that changes to the shoreline are within the required limits.

4.2 Sand Bypassing

The EPA (2009) Condition 8-1 requires sand bypassing to be completed to manage the coastal processes at the development. The updated sediment budget presented in this report has confirmed that the processes remain consistent with MRA (2008). Detailed modelling completed in MRA (2008) suggested that the amount of sand requiring bypassing at the development will be in the order of 4,000 to 6,000 m^3 per year. For budgeting and assessment purposes it is therefore recommended to allow to bypass 6,000 m^3 per year.

The sand bypassing would likely be completed by simply excavating accreted sand from within the development, loading into offroad dump trucks and transporting the material to the south of the development. It would then be placed on the beach at appropriate locations to allow transport and re-distribution of the sand along the shoreline. This process is shown indicatively in Figure 4.3.

Figure 4.3 Indicative Sand Bypassing Operation

It is recommended that the actual extraction and disposal locations are determined based on the coastal monitoring. This would highlight appropriate areas of accretion behind the breakwater (appropriate for extraction) and erosion downdrift (appropriate for placement). In line with the adaptive management strategy proposed by MRA (2008), the sand bypassing may be completed once or twice per year. This will be determined in conjunction with the City on review of the coastal monitoring data.

Additional targeted survey of these areas is likely to be required immediately prior to and following the bypassing operations. This would confirm appropriate quantities of sand has been bypassed and could be incorporated into the bypassing contract.

The appropriate sand bypassing operations would need to be confirmed and approved by the City of Rockingham.

4.3 Monitoring & Management Costs

Indicative annual cost estimates for the coastal monitoring and management works have been prepared, based on the works outlined above. These are summarised in Table 4.1.

Table 4.1 Indicative Monitoring & Management Costs

Activity	Annual Cost
Coastal monitoring, including seasonal surveys, inspections, photo monitoring, assessment and reporting	$45,000
Sand Bypassing (1 – 2 operations annually)	$80,000

These estimated costs are high level only for budgeting purposes and would be refined once the program has been established. Once the works are shown to be operating successfully (say after the first 5 years) the monitoring may be able to be reduced. Costs are also likely to be reduced as the bypassing works become more efficient.

5. Conclusion

This report has presented an updated assessment of the impact of the proposed Port Rockingham Marina development on the coastal processes on Rockingham Beach.

The updated shoreline movement assessment and estimated sediment budget showed that the trends in shoreline and sediment movement over the past decade are consistent with those since construction of the Garden Island Causeway. There have been no significant changes in trends or quantum of movement in recent years.

Net sediment transport past the development over the period can be expected to be in the order of 4,000 - 6,000 m^3/year, consistent with the results of (MRA 2008). As proposed by the PER and recommended by the EPA, natural sand transport will be maintained by the Proponent. This will be in the form of sand bypassing. Consideration has been given to the variability of sediment fluxes and it has been recommended that an adaptive strategy is implemented to manage coastal processes.

The Proponent is expected to implement the ‘whole beach’ management strategy in conjunction with the City, including monitoring and reviewing shoreline change through profile monitoring and beach surveys. Indicative initial costs for budgeting purposes have been provided.

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RPS, 2009. *Public Environmental Review. Port Rockingham*. Report number M06279:3 prepared for Rosewood Grove Pty Ltd.

7. Appendices

Appendix A **Shoreline Movement Plan**

Appendix B **Sediment Budget**

Appendix A Shoreline Movement Plan

AT CORRECT SCALE THIS IS 100 mm

GENERAL NOTES:

1. VEGETATION LINES FROM ROCKINGHAM FORESHORE MASTERPLAN CHRMAP (MRA 2015) AND MAPPED FOR 2012 AND 2017.
2. AERIAL PHOTOGRAPH SUPPLIED BY LANDGATE, TAKEN IN FEBRUARY 2017.

0 100 200 300 400 500m

SCALE 1:10,000 AT ORIGINAL SIZE

- 1976 VEGETATION LINE
- 1988 VEGETATION LINE
- 1989 VEGETATION LINE
- 1998 VEGETATION LINE
- 2000 VEGETATION LINE
- 2004 VEGETATION LINE
- 2008 VEGETATION LINE
- 2012 VEGETATION LINE
- 2017 VEGETATION LINE

N

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DRAWN	ADC	SHORELINE MOVEMENT PLAN		AUGUST 2017
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GENERAL NOTES:

1. VEGETATION LINES FROM ROCKINGHAM FORESHORE MASTERPLAN CHRMAP (MRA 2015) AND MAPPED FOR 2012 AND 2017.
2. AERIAL PHOTOGRAPH SUPPLIED BY LANDGATE, TAKEN IN FEBRUARY 2017.

0 100 200 300 400 500m

SCALE 1:10,000 AT ORIGINAL SIZE

- 1976 VEGETATION LINE
- 1988 VEGETATION LINE
- 1989 VEGETATION LINE
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- 2000 VEGETATION LINE
- 2004 VEGETATION LINE
- 2008 VEGETATION LINE
- 2012 VEGETATION LINE
- 2017 VEGETATION LINE

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SHORELINE MOVEMENT PLAN
PORT ROCKINGHAM

SCALE AT A3 10,000

AUGUST 2017
SK-1444-00-02

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GENERAL NOTES:

1. VALUES SHOWN ARE IN M^3/YEAR.
2. AERIAL PHOTOGRAPH SUPPLIED BY LANDGATE, TAKEN IN FEBRUARY 2017.
3. SAND NOURISHMENT WORKS COMPLETED BY THE CITY OF ROCKINGHAM HAVE BEEN INCLUDED IN THE SEDIMENT VOLUMES.

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PORT ROCKINGHAM
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AUGUST 2017
SK-1444-01-01

P:\MRA Paying Jobs\K1444 Port Rockingham CHRMAP\5 MRA Dwgs\Sketches\170704 SK1444-01 Sediment Budget

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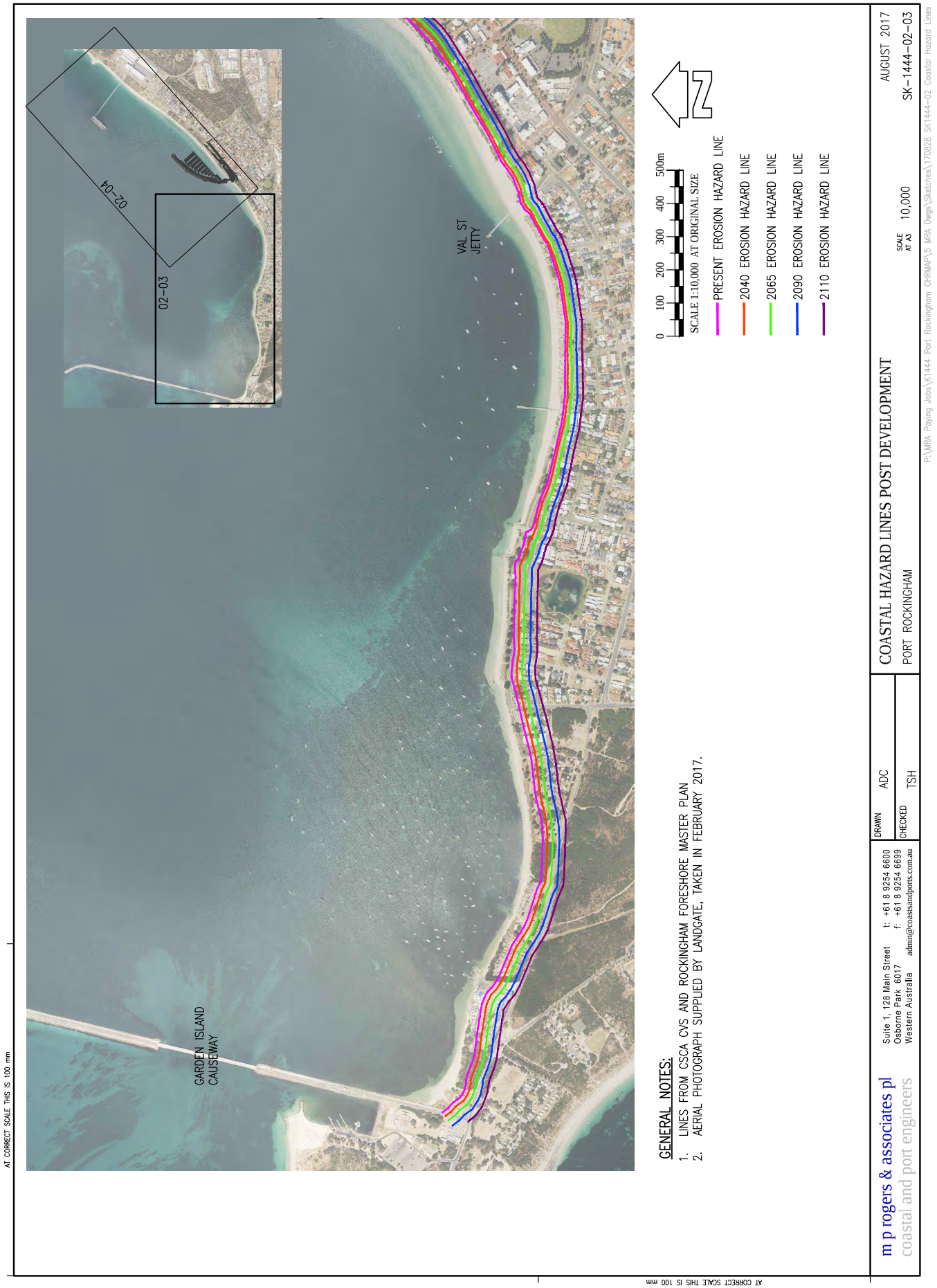
Appendix C Post-Development Coastal Erosion Hazard Maps



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GENERAL NOTES:

1. LINES FROM CSCA CVS AND ROCKINGHAM FORESHORE MASTER PLAN
2. AERIAL PHOTOGRAPH SUPPLIED BY LANDGATE, TAKEN IN FEBRUARY 2017.

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SCALE 1:10,000 AT ORIGINAL SIZE

PRESENT EROSION HAZARD LINE
2040 EROSION HAZARD LINE
2065 EROSION HAZARD LINE
2090 EROSION HAZARD LINE
2110 EROSION HAZARD LINE

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COASTAL HAZARD LINES POST DEVELOPMENT

PORT ROCKINGHAM

SCALE AT A3 10,000

AUGUST 2017

SK-1444-02-04

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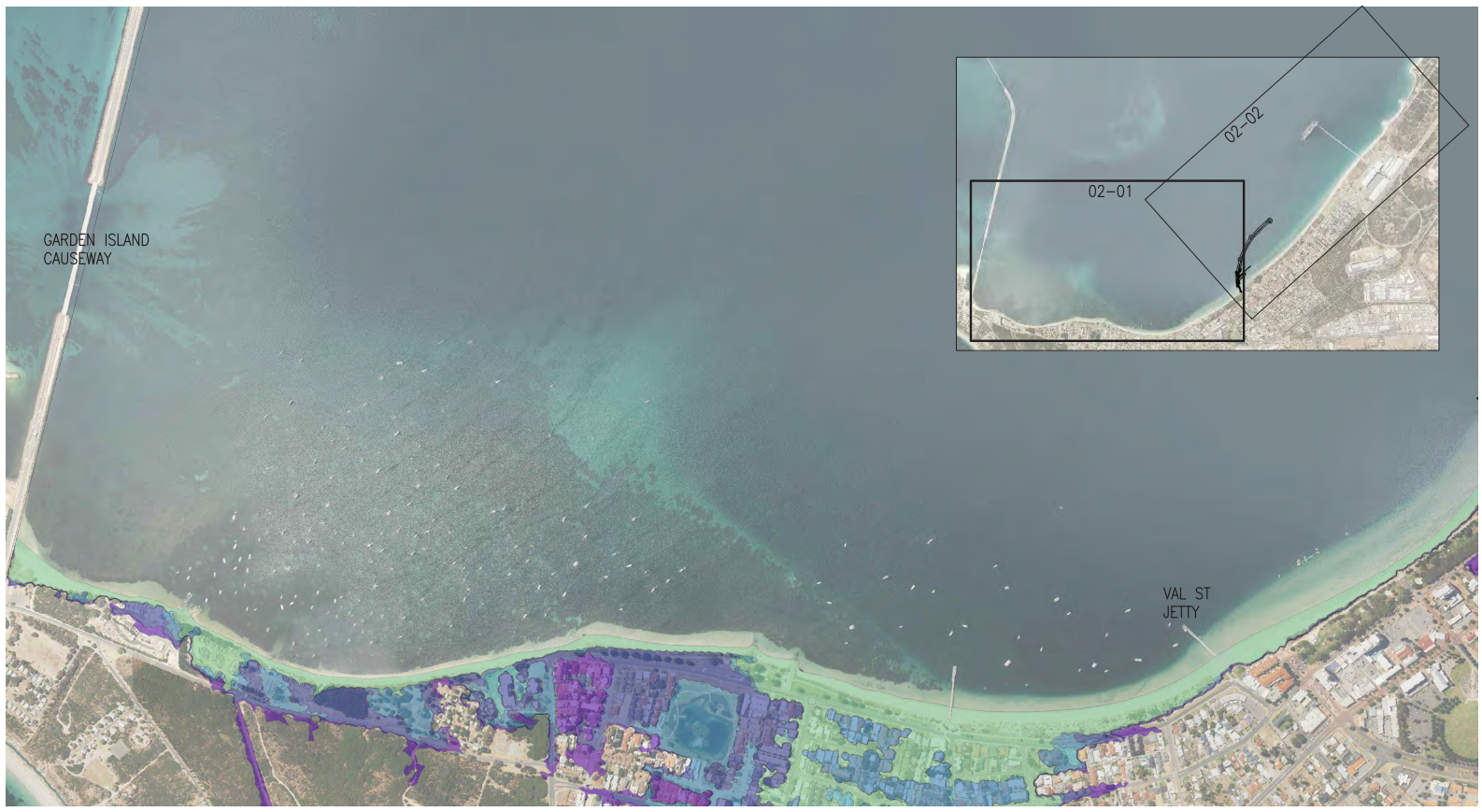

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GENERAL NOTES:

1. AERIAL PHOTOGRAPH SUPPLIED BY LANDGATE, TAKEN IN FEBRUARY 2017.
2. INUNDATION LEVELS FROM MRA (2015) ROCKINGHAM FORESHORE MASTERPLAN CHRMAP.
3. TOPOGRAPHICAL INFORMATION FROM DoP 2009 LIDAR SURVEY.

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SCALE 1:10,000 AT ORIGINAL SIZE

PRESENT INUNDATION HAZARD
2040 INUNDATION HAZARD
2065 INUNDATION HAZARD
2090 INUNDATION HAZARD
2110 INUNDATION HAZARD

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COASTAL INUNDATION HAZARD MAP
PORT ROCKINGHAM
SCALE AT A3 10,000
JUNE 2018
SK-1444-03-01

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AT CORRECT SCALE THIS IS 100 mm

GENERAL NOTES:

1. AERIAL PHOTOGRAPH SUPPLIED BY LANDGATE, TAKEN IN FEBRUARY 2017.
2. INUNDATION LEVELS FROM MRA (2015) ROCKINGHAM FORESHORE MASTERPLAN CHRMAP.
3. TOPOGRAPHICAL INFORMATION FROM DoP 2009 LIDAR SURVEY.

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SCALE 1:10,000 AT ORIGINAL SIZE

PRESENT INUNDATION HAZARD
2040 INUNDATION HAZARD
2065 INUNDATION HAZARD
2090 INUNDATION HAZARD
2110 INUNDATION HAZARD

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COASTAL INUNDATION HAZARD MAP
PORT ROCKINGHAM
SCALE AT A3 10,000
JUNE 2018
SK-1444-03-02

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Appendix G

Foreshore Management Plan

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Port Rockingham Marina

Foreshore Management Plan

Prepared for
TPG WA
by Strategen

May 2018

Port Rockingham Marina

Foreshore Management Plan

Strategen is a trading name of
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May 2018

Client: TPG WA

Report Version	Revision No.	Purpose	Strategen author/reviewer	Submitted to Client	
				Form	Date
Preliminary Draft Report	A	For client review	D White / M Brook	Electronic	6 Nov 2017
Final Report	B	For submission	D White / M Brook	Electronic	6 Nov 2017
Fina l Report	0	For submission	C Turner	Electronic	29 May 2018

Filename: TPG17198_01 R001 Rev 0 - 29 May 2018

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1. Introduction

1.1 Background

Aureus Commercial Pty Ltd (the Proponent) propose to construct and operate the Port Rockingham Marina (the Project). The Project is located approximately 40 km south of Perth at the intersection of Wanliss Street and Rockingham Beach Road, Rockingham and extends approximately 200 m offshore in Cockburn Sound. The Project area is shown in Figure 1.

The Project has been developed in response to the acute shortage of boat mooring facilities in the Perth metropolitan area. The onshore component of the Project is to extend the existing car park at Wanliss Street approximately 100 m north.

The Project aims to deliver:

- an open pile pier extending northwards from the shoreline for approximately 200 m
- breakwater extending northeast for approximately 700 m
- 500 boat pens through the installation of a boardwalk jetty to the east of the open pile pier
- 600 car bays within the Wanliss Street Public Car Park and within the Rockingham Beach Road reserve
- dwelling units that include a retail precinct that comprises 4000 m^2 and a major hotel.

The City of Rockingham (CoR) has requested that the Proponent prepare a Foreshore Management Plan (FMP) to demonstrate that the Project can be managed effectively to mitigate impacts (both environmental and amenity) to Rockingham Beach.

1.2 Purpose and scope

The purpose of this FMP is to guide the management of the coastal foreshore land of the Port Rockingham Marina. The FMP has been prepared in consideration of the following key guidelines and planning instruments:

- *Guidance Statement 33: Environmental Guidance for Planning and Development* (EPA 2008)
- *Perth Coastal Planning Strategy*
- *Visual Landscape Planning in Western Australia - a manual for evaluation, assessment siting and design* (WAPC 2007)
- *State Environmental (Cockburn Sound) Policy 2015* (GoWA 2015)
- *Rockingham Beach Foreshore Master Plan Part One and Part Two* (CoR 2015)
- *State Planning Policy 2.6: State Coastal Planning* (WAPC 2013a) and *State Coastal Planning Policy Guidelines* (WAPC 2013b).

1.3 Document structure

This FMP provides an overview of the proposed foreshore development and outlines key management measures to be implemented to protect values of the Project area.

The FMP has been set out with the following structure in accordance with section 5.10 (v) in SPP 2.6:

- Overview of Project (Section 2)
- Statutory and policy context (Section 3)
- Foreshore development, design and function (Section 5)
- Coastal planning strategy (Section 6
- Foreshore management considerations (Section 7)
- Management framework and responsibilities (Section 8).

Source: MRA (2017b)

Figure 1: Port Rockingham Marina

2. Overview of Project

2.1 Project offshore and onshore elements

2.1.1 Offshore elements

To facilitate construction of the breakwater, a temporary earthen bund will initially be constructed which will be replaced by the 'open pile' pier. The pier component of the marina has been designed to optimise the natural flushing capability of the marina water body and to minimise the level of impact on natural coastal processes such as longshore drift.

The width of the breakwater base (on the seabed) will be up to approximately 60 m while the above water width of the pier will vary from 20 to 60 m wide. The offshore component of the marina footprint will be approximately 9 ha of the near shore marine environment with 3.8 ha of seabed being covered by the breakwater. A further 5.3 ha of seabed will be shaded by the pier, boardwalk jetty, finger jetties and the floating boat pens.

A maximum of 500 boat pens will be provided through the installation of a boardwalk jetty to the east of the pier and a series of finger jetties and floating pens that branch off from the main jetty to accommodate the boat pens. The pier will accommodate the retail precinct of approximately 4500 m^2, with short stay accommodation above.

The plan for the offshore components is provided in Appendix 1.

2.1.2 Onshore elements

The onshore component of the Project is for the expansion and upgrade of the existing Wanliss Street car park from 82 bays to 216 bays.

The onshore component of the marina footprint will cover approximately 0.8 ha of the foreshore with most of this land comprising an existing car park, road verges and already cleared areas. The Project will require approximately 0.2 ha of foredune vegetation to be cleared to accommodate the proposed onshore elements. The proposed expansion of the Wanliss Street carpark is provided in Appendix 1.

2.2 Approval background

The Project was referred to the Environmental Protection Authority (EPA) in May 2007 and the level of assessment was set at Public Environmental Review (PER) with a six-week public review period under Part IV of the *Environmental Protection Act 1986* (EP Act). The public review period commenced on 6 April 2009 and closed on 15 May 2009. The EPA identified the following key environmental factors relevant to the Project:

- Marine Environmental Quality
- Benthic Communities and Habitat
- Coastal Processes.

The EPA concluded that "*it is unlikely that the EPA's objectives would be compromised, provided there is satisfactory implementation by the proponent of the recommended conditions'* (EPA Report 1583; dated September 2016).

The Minister for Environment approved the Project under Statement 826 in February 2010. In November 2016 the Minister for Environment approved (under Statement 1041) an extension to the time limit to substantially commence the Project until 2020. Statement 1041 also updated Condition 6-1 that requires the establishment of a Marina Waterways and Management Plan (MWMP) to achieve the Environmental Quality Objectives (EQOs) and associated Levels of Ecological Protection (LEP) as specified in the *State Environmental (Cockburn Sound) Policy 2015* (it had previously referenced the 2005 version of that policy). The MWMMP is provided in Appendix 3.

3. Statutory and policy context

Statutory planning and policy context relevant to the Project includes a range of strategies, policies, guidelines and plans to ensure current and future use of Port Rockingham Marina is undertaken in a planned and consistent manner. Key statutory and policy documents are described in detail in the following sections.

3.1 Strategic context

The requirement to prepare and implement an FMP is established by the following statutory and policy mechanisms at the Australian, State and Local government levels:

- *State Coastal Planning Policy 2.6*
- *Perth Coastal Planning Strategy*
- *State Environmental (Cockburn Sound) Policy 2015*
- *Rockingham Beach Foreshore Master Plan Part One and Part Two.*

These statuary and policy mechanisms are further described in detail in sections 3.2–3.4.

3.2 State government

3.2.1 State Coastal Planning Policy 2.6

State Coastal Planning Policy 2.6 (SCPP 2.6) applies to all planning proposals from broad structure planning through to detailed development proposals along the coast throughout Western Australia. The objectives of SCPP 2.6 are to:

- protect, conserve and enhance coastal values, particularly in areas of landscape, nature conservation, indigenous and cultural significance
- provide for public foreshore areas and access to these on the coast
- ensure the identification of appropriate areas for the sustainable use of the coast for housing, tourism, recreation, ocean access, maritime industry, commercial and other activities
- ensure that the location of coastal facilities and development takes into account coastal processes including erosion, accretion, storm surge, tides, wave conditions, sea level change and biophysical criteria.

Coastal land is required to be set aside for public use including conservation, management, public access and recreation, in accordance with SCPP 2.6. SCPP 2.6 also states that coastal Foreshore Management Plans or strategies are required at the appropriate time for the reserved land and any adjacent freehold land with conservation value.

To reduce the risk of damage as a result of coastal processes, SCPP 2.6 outlines the requirements in terms of the application of coastal foreshore reserves and development setbacks from coastal features or physical processes.

SCPP 2.6 recognises that in some circumstances development may need to occur in areas potentially impacted by physical coastal processes within certain planning time frames. These circumstances may include:

- public recreation facilities with finite life spans
- coastally dependent and easily relocatable development
- industrial and commercial development
- coastal nodes
- surf life saving clubs.

The proposed works for the Project are consistent with four of the circumstances listed above. Development in these cases should only be considered once adequate management and adaption planning measures have been included, which are consistent with the Avoid–Planned or managed retreat–Accommodate–Protect hierarchy.

A Coastal Adaption Plan for the Project was undertaken in accordance with SCPP 2.6 by MP Rogers & Associates (MRA 2017). The Coastal Adaptation Plan examined the 100 year projections for current risk of storm erosion, historic shoreline movement trends, future sea level rise and current risk of storm surge inundation to assess potential vulnerability of the coastline over the next 100-year period in relation to the location of the Project. The assessment concluded that outside of the proposed Port Rockingham development area, there will be no change to the coastal hazard areas previously determined by CoR. This is on the basis that the Proponent adequately completes coastal management in the form of sand bypassing, consistent with the Project's environmental conditions.

The proposed works for the Project have been developed consistent with the policy provisions of SCPP 2.6 (WAPC 2013a), as detailed in section 5 and section 6).

3.2.2 State Environmental (Cockburn Sound) Policy 2015

The environmental quality management framework for Cockburn Sound was first established in January 2005 with the release of the State Environmental (Cockburn Sound) Policy (SEP). Since it was established, the framework has resulted in significant improvements in the environmental and social values of Cockburn Sound, and has been recognised nationally for its success.

The SEP culminated from EPA strategic advice provided in 1998 (EPA Report 907) in relation to the cumulative environmental impact of marine-related infrastructure proposals on Cockburn Sound.

The SEP establishes the framework within which Cockburn Sound and the adjacent land (the Cockburn Sound catchment) are to be managed to protect environmental quality in the Sound. The SEP establishes a risk based approach to environmental management, which is underpinned by Environmental Values (EVs) and EQOs that were identified and spatially defined through consultation with the community. There are also ecological and social (EVs) and (EQOs) defined in the Cockburn Sound SEP. For each EQO, a set of benchmarks called Environmental Quality Criteria (EQC) have been established.

The EQC are used to evaluate the environmental monitoring data collected in Cockburn Sound and determine whether the EQOs are being achieved or if management action is required to improve environmental quality such that the EQOs could be achieved in the future.

The EQO for the Wanliss Street area of Cockburn Sound established by the SEP is that a High LEP should be achieved. This 'level of protection' allows for small changes in the quality of water, sediment or biota (i.e. small changes in contaminant concentrations with no resultant detectable changes beyond natural variation in the diversity of species and biological communities, ecosystem processes and abundance/biomass of marine life).

The Cockburn Sound SEP also empowers the Cockburn Sound Management Council (CSMC) to report publicly on the findings of environmental monitoring in Cockburn Sound. The CSMC presents a 'report card' on the quality of Cockburn Sound to Parliament each year.

3.2.3 Perth Coastal Planning Strategy

The *Perth Coastal Planning Strategy* (PCPS) was developed to encourage better planning and protection of the Perth Metropolitan Coastline. The strategy promotes integrated coastal zone management and provides guidance for the location, scale and density of developments appropriate for the Perth coastline over the next 10 to 15 years.

The strategy applies to the coastal zone in the MRS from Two Rocks to Singleton, extending from 500 m offshore to the first main road running parallel to the coast. The WAPC endorsed amendments to the PCPS in January 2010 and resolved to endorse PCPS as an input into the next phase of Directions 2031, including structure planning, ensuring the centres contained within PCPS precincts are appropriate and complementary to the Directions 2031 activity centres hierarchy. The Project area is located within Precinct 42 and Precinct 43 of the PCPS and earmarked as 'open space'.

3.3 Local government

3.3.1 Metropolitan Region Scheme

The foreshore area is zoned 'Parks and Recreation' (PRR) and the ocean is reserved 'Waterways' under the MRS (January 2006). Established residential and industrial development abuts the foreshore.

For any development proposed within land zoned as PRR, the Proponent is required to seek approval from the WAPC, ensuring a clear planning and development approvals pathway is applied.

MRS zoning for Rockingham facilitates the intended future land use of the area, including commercial development, residential development and conservation areas.

In 1996, the WAPC endorsed MRS Amendment No.967/33 which changed certain zones and reservations under the Metropolitan Region Scheme and included additional land within the CoR Central City Area Zone.

3.3.2 Master Plan

In July 2015, Council adopted the Rockingham Beach Foreshore Master Plan Part One and Part Two (Master Plan) to provide guidance and direction to how the foreshore in Rockingham will evolve over coming years.

The structural and design elements of the proposed Master Plan that supports this FMP has been developed based on the following key considerations:

- demand associated with regional and local context of the Project
- coastal hazard and risk management
- environmental site characteristics, including vegetation, flora, fauna, topography and landform function
- management considerations.

The 'foreshore' in the Master Plan constitutes the foreshore parks from Hymus Street in the west to Governor Road in the east including the core area of Bell and Churchill Parks. It also contains recommendations that influence a number of local streets adjacent to the foreshore. Three study areas constitute the Master Plan:

- Area One: Bell and Churchhill Parks including the Broadwalk, Rockingham Beach Road and Railway Terrace
- Area Two: Palm Beach and Esplanade including Palm Beach Jetty and Val Street Jetty
- Area Three: Wanliss Street to Governor Road including Naval Memorial Park.

The Project is located within Area Three of the Master Plan, and encompasses the Wanliss Street carpark extension.

The Master Plan was identified in the *Economic Development Strategy 2014–2017* (CoR 2014), which recognized the existing attributes of the foreshore and aimed to improve its quality to increase public visitation and investment in the CoR.

The Master Plan commenced in late 2014 when CoR engaged with local stakeholders to determine the factors that should inform the design of the Master Plan. Following a strong community response, design parameters were produced to inform Master Plan. The Master Plan was refined to incorporate a range of specialist inputs from environmental, planning and social groups.

In April 2015, Council endorsed the release of a draft Master Plan to seek public comment. The Council adopted the Master Plan in July subject to various modifications following the public submissions.

Foreshore design, development and function, including structural considerations and asset management in the Master Plan is detailed in section 5.

Coastal vulnerability assessment

A Coastal Vulnerability Assessment (CVA) was undertaken by MRA in 2015 for the Rockingham foreshore area as a component of the Master Plan. The CVA was to assess the risks associated with existing assets and elements proposed in the Master Plan. Once these risks have been assessed adaptation strategies were developed to help mitigate the risks.

The 2015 CVA assessed coastal vulnerability and provided resultant coastal hazard mapping in accordance with SPP2.6. The following factors were considered by MRA (2015) over timeframes to 2040, 2065, 2090 and 2110:

- (S1 Erosion) Allowance for the risk of storm erosion
- (S2 Erosion) Allowance for historic and future shoreline movement trends
- (S3 Erosion) Allowance for erosion caused by future sea level rise
- (S4 Inundation) Allowance for the risk of storm surge inundation.

The Project area was identified as low risk, given that there are no significant assets, existing or proposed, that are considered to be vulnerable to coastal hazards over the given timeframes (MRA 2015). The CVA outlined that the shoreline between Wanliss Street and Governor Road should therefore be left to adapt to future shoreline changes without intervention. Consistent with this approach, any future development in this area should seek to avoid the risks posed by coastal hazards by ensuring that they are located landward of the relevant coastal hazard line (MRA 2015).

The existing CVA was reassessed in 2017 by MRA to determine if there are changes to coastal vulnerability based on the provision of the proposed Port Rockingham Marina as part of the Project. As identified in MRA (2008), the Project will have an effect on the local shoreline, which will need to be managed by the Proponent. Coastal Hazard Risk Management and Adaptation Planning (CHRMAP) was developed by MRA (2017a) based on the existing CVA to identify changes to vulnerability from the Project.

Findings from the CHRMAP is outlined in section 6.3.

3.3.3 City of Rockingham Foreshore Strategy 2012–2017

Key considerations in the *Rockingham Foreshore Strategy 2012–2017* (CoR 2012) include the following:

1. Respond to the vision and objectives for Coastal Management set within the Foreshore Strategy.
1. Consider the range of legislation, policy and guidelines which apply to the foreshore area e.g. SEP.
2. Provide management considerations for the biophysical components of the foreshore e.g. climate change, erosion/sediment transport, impact of the garden island causeway, site vegetation.
3. Consider the identified Aboriginal Heritage Site in the Rockingham foreshore area.
4. Respond to existing land use planning including recommended development types and planned future development.
5. Consider the existing and future recreational use of the foreshore area and provide management responses for future sustainable recreational use.

3.3.4 City of Rockingham Economic Development Strategy 2014–2017

Key considerations of the *City of Rockingham Economic Development Strategy 2014–2017* (CoR 2014) include the following:

1. Create a masterplan design that will be conducive to community events/gatherings.
2. Incorporate the latest technology/ infrastructure (facilities).
3. Strengthen links between Bell Park and Palm Beach Jetty.
4. Consider existing/future development.
5. Develop a name for the general area.
6. Facilitate contemporary/innovative design; best practice design and materials.
7. Respond to the uniqueness of the site.
8. Improve pedestrian activation, alfresco, interaction and enjoyment.
9. Opportunity to improve linkage between shopfronts, streetscapes, reserves and existing/future activities.
10. Reduce impact of vehicular traffic and parking.
11. Create a safe and shared streetscape.
12. Opportunity for an ocean pool (form, scale and location).

3.3.5 City of Rockingham Planning Policy 3.2.5 – Waterfront Village Sector

Key considerations in *Planning Policy 3.2.5–Waterfront Village Sector* include responding to the development plan and policies for the proposed Waterfront Village Sector. This comprises of the following:

- relevant residential and mixed use building typologies
- proposed residential density and building heights
- frontage types
- proposed car parking
- precinct policies; desired character and uses.

3.4 Foreshore planning and environmental approvals

This FMP will require the approval by CoR. Any proposed development works within the Project area will be subject to the following planning and environmental approvals:

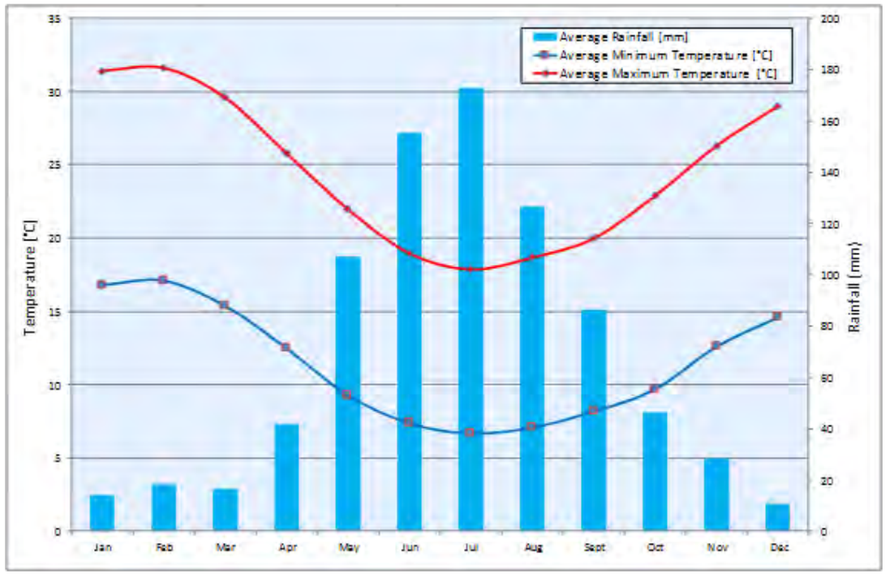
1. Development Application (CoR).
2. Engineering/landscape construction design drawings (CoR).

4. Existing environment

4.1 Physical environment

4.1.1 Climate

The Rockingham locality experiences a Mediterranean climate characterised by mild, wet winters and warm to hot, dry summers. The nearest Bureau of Meteorology (BoM) weather station at Jandakot Aero weather Station (Station No. 9172) provides average monthly climate statistics for the Rockingham locality (Figure 2). Average annual rainfall recorded at Rockingham since 1972 is 823.5 mm (BoM 2017). Rainfall may occur at any time of year; however, most occurs in winter in association with cold fronts from the southwest. Highest temperatures occur between December and March, with average monthly maximums ranging from 29°C in December to 31.6 in February (BoM 2017). Lowest temperatures occur between June and September, with average monthly minimums ranging from 6.7°C in July to 8.2°C in September (BoM 2017).



Source: Monthly climate statistics sourced from BoM (2017)

Figure 2: Average monthly statistics for Jandakot Aero (Station No. 9172)

4.1.2 Geology, landform and soils

The Project area is located on the Swan Coastal Plain Bioregion, on the Quindalup Dune System. The proposed marina will be located on the eastern shoreline of Cockburn Sound. The Quindalup dunes are described as coastal dunes with dominant calcareous deep sand, with shallow calcareous sand and yellow or brown sand.

The foreshore environment of the Project area consists of a narrow and relatively stable shoreline, reflecting the low energy regime of Cockburn Sound (RPS 2009). The sandy beach is approximately 20 to 30 m wide, and the foreshore reserve behind the beach varies from 40 to 80 m and comprises of vegetation foredunes bellowing to the Quindalup Dune System.

The Swan Coastal Plain is characterised by a low-lying coastal plain.

The Swan Coastal Plain comprises two main geological units, the Tamala Limestone and the Safety Bay Sand, both belonging to the early Pleistocene to Holocene Kwinana Group (Playford et al. 1976). The Tamala Limestone consists of coarse to medium-grained calcarenite composed mainly of foraminifera and mollusc fragments with some detrital quartz sand (Playford et al. 1976). The Tamala Limestone was formed from the cementation of the Spearwood Dune system by calcium carbonate (Playford et al 1976).

The Safety Bay Sand overlies the Tamala Limestone from the Holocene era and comprise of shell fragments with quartz and feldspar. The Safety Bay Sands is divided into a number of units based on physical and mechanical characteristics (Playford et al. 1976).

Soil mapping undertaken for the Perth Metropolitan Region (Gozzard 1982) for Rockingham 1:50 000 Environmental Geology Series, identified one soil type within the Project area:

- S_{13} – CALCAREOUS SAND: white medium grained rounded quartz and shell debris well sorted of eolian origin.

The geomorphological classification identified for the Project area is represented below:

- Er_1: Relic foredune plain, high level, Holocene.

Acid Sulfate Soils

ASS are naturally occurring, iron-sulphide rich soils, sediments or organic substrates, formed under waterlogged conditions. If exposed to air, these sulphides can oxidise and release sulphuric acid and heavy metals. This process can occur due to drainage, dewatering or excavation.

A search of the Swan Coastal Plain ASS risk map (Landgate 2017) (search conducted 9 June 2017) indicates no mapped risk of ASS occurring within 3 m of natural soil surface of the Project area.

4.1.3 Hydrology

Surface and groundwater

The Project is immediately west to the Indian Ocean.

Groundwater in the region is comprised of unconfined, semi-confined and confined aquifers that exist as separate layered systems (CoR 2016). The aquifers, in order of increasing depth, include:

- Superficial and Rockingham Sand Aquifers (Safety Bay Mound) (unconfined)
- Leederville Aquifer (semi-confined to confined)
- Yarragadee Aquifer (confined).

A review of the Department of Water (DoW) Perth Groundwater Mapping indicates that groundwater flows in a westerly direction towards the coastline. Groundwater in the Project area ranges from 0 m Australian Height Datum (AHD) along the coastline to a maximum of 1 mAHD within the eastern portion of the Project area (DoW 2017).

Groundwater quality from historical monitoring of groundwater in the Safety Bay Mound demonstrate elevated concentrations of nutrients (RPS 2009).

Cockburn Sound water quality

Cockburn Sound has a long history of widespread groundwater and surface water contamination from industrial discharge from 1950 to 1970s. A wide range of land uses exist along the coastline including heavy industry, light/supporting industry, transport infrastructure, agriculture, urban and commercial centre. The area also includes remnant bushland, and undeveloped coastal dunes. Each of these land uses generates a number of sources of contaminants.

Environmental licensing and improved industrial practices and waste treatments since the 1990's and have reduced the contaminant inputs from industry. Many wastes flows are now treated and the quantities have been reduced and are now discharged into the Sepia Depression Ocean Outfall Line (SDOOL) resulting in lower contaminant loads entering the Cockburn Sound and Owen Anchorage (GHD 2013).

Industrial discharge of metals and organic contaminants such as pesticides and petroleum products) has decreased, however, there is widespread contamination of sediments and mussels with tributyltin (TBT).

Wetlands

The Geomorphic Wetlands Swan Coastal Plain dataset (Landgate 2017) classifies wetlands in the Swan Coastal Plain by type, based on the characteristics of landform and water permanence. The Swan Coastal Plain wetlands have also been evaluated and assigned a management category that is used by the EPA and Department of Planning (DoP) and Infrastructure as a basis to guide planning and decision making.

No natural drainage lines or geomorphic wetlands were identified to occur within the Project area. The nearest wetland is a Resource Enhancement wetland (UFI: 6317) is approximately 500 m east of the Project area from Governor Road.

Becher Point Wetlands, recognised as an internationally significant Ramsar site, located near the Project area (CoR 2016).

4.1.4 Flora and vegetation

Regional vegetation

Vegetation of the region has been mapped at a broad scale as part of regional mapping undertaken since the 1970s, notably as part of Beard (1990) mapping. The Beard mapping has formed the basis of several regional mapping systems, including physiographic regions defined by Beard (1981) which led to the delineation of botanical districts as described in Beard (1990); the biogeographical region dataset (Interim Biogeographic Regionalisation for Australia [IBRA]) for Western Australia (DEE 2017) and System 6 Vegetation Complex mapping undertaken by Heddle *et al.* (1980).

The Project area is located within the Swan Coastal Plain bioregion, which is dominated by woodlands of Banksia and Tuart on sandy soils, Sheoaks on outwash plains and Paperbarks in swampy areas (McKenzie *et al*. 2003).

The vegetation within the Project area consists of one vegetation type (ROCKINGHAM_3048) identified using Beard vegetation mapping (Beard 1981).

- 3048: Shrublands; scrub-heath on the Swan Coastal Plain.

System 6 mapping refers to vegetation mapping undertaken at a Vegetation Class scale by Heddle *et al*. (1980). The Project area occurs within the:

- Quindalup Complex:
  - coastal dune complex consisting mainly of two alliances–the strand and foreshore alliance and the mobile and stable dune alliance; local variations include the low closed forest of *M. lanceolate–Callitris preissii* and the closed scrub of *Acacia rostellifera.*

The vegetation within the Project area is inferred to be Floristic Community Type (FCT) S14 – *Spinifex longifolius* grassland and low shrublands (RPS 2009). Bush Forever does not list this FCT as threatened (RPS 2009).

Threatened and Priority flora

A desktop survey for Threatened and Priority flora that may potentially occur within 40 km of the Project area was undertaken by Ecoscape (2010) using NatureMap (Ecoscape 2010).

One conservation significant flora species was recorded *Dodonaea hackettiana* (Hackett's Hopbush) listed as Priority 4 under the *Wildlife Conservation Act 1950* (WC Act) was identified to occur within the 40 km search area.

No threatened or priority flora species were recorded in the Project area.

Threatened Ecological Communities

Four Threatened Ecological Communities (TEC) and Priority Communities listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and *Wildlife Conservation Act 1950* (WC Act) were identified within 5 km of the Project area:

- SCP 19 *Sedgelands in Holocene dune swales of the southern SCP*–Endangered under the EPBC Act
- SCP 30a *Callitris preissii (or Melaleuca lanceolate)* forest and woodlands, SCP–Critically Endangered under the WC Act
- *Thrombolite like microbialite community of coastal freshwater lakes*–Endangered under the EPBC Act
- SCP 24 *Northern Spearwood shrublands and woodlands*–Priority 3 under the WC Act.

No TEC or Priority Community was identified within the Project area (RPS 2009).

Local vegetation

Vegetation types

Four vegetation types (VTs) were defined and mapped within the Project area (RPS 2009). Vegetation types within the Project area are summarised in Table 1.

The dominant native VT within the Project area was VT 4 which can be broadly described as Stable Dune (Table 1).

Table 1: Vegetation types within the Project area

Vegetation Type	Description
1	***Foredune:*** *Spinifex longifolia* Open Grassland over **Tetragona decumbens* and **Euphorbia paralias* Open Herbland.
2	**Swale:** *Spinifex longifolia* Open Grassland over *Pelargonium capitatum* and **Tetragona decumbens* Herbland.
3	**Secondary Dune:** *Acacia cyclops* Shrubland over *Lepidosperma gladiatum* Open Sedgeland over **Pelargonium capitatum* Open Herbland and **Lagurus ovatus* and **Bromus diandrus* Open Grassland.
4	**Stable Dune:** *Acacia cyclops* and *Spyridium globulosum* Closed Heath over *Clematis pubescens* Open Herbland and **Lagurus ovatus* and **Bromus diandrus* Open Grassland.

Source: Ecoscape (2010)

Vegetation condition

The Project area shows signs of having been degraded for a long period of time due to the widespread extent of weeds and human disturbance (e.g. trampling dune vegetation for access to the beach). As such, vegetation condition for native vegetation within the Project area ranged from 'Degraded' to 'Very Good' in accordance with the Keighery (1994) vegetation condition scale.

Introduced (exotic) taxa

A total of 21 introduced (exotic) taxa were recorded within the Project area. None of these species are Declared Plant species in Western Australia pursuant to s 22 of the *Biosecurity and Agriculture Management Act 2007* (BAM Act) according to the Western Australian Department of Agriculture and Food (DAFWA 2017).

4.1.5 Fauna and fauna habitat

No native fauna was observed in the Project area Ecoscape (2010). Shoreline surveys conducted in April and May 2008 (RPS 2009) identified that the degraded habitat of the marina supports a depauperate fauna. The constant disturbance of human activities is expected to preclude regular use of the Project area by migratory shorebirds (RPS 2009). Bird activities on the foreshore was typical of any urban foreshore with most abundant marine species being:

- Silver gulls *(Larus novaehollandiae)*
- Crested turns *(Sterna bergii)*
- Australian pelicans (*Pelicanus conspicillatus)*
- Australian oystercatchers (*Haematopus longirostris).*

Conservation significant species

A Naturemap search within a 40 km radius of the Project area was undertaken by Ecoscape (2010) to determine Threatened and Priority Fauna species known to occur in the broader area.

Seven conservation significant fauna species were identified by Ecoscape (2010) to potentially occur within the Project area. These conservation species are presented in Table 2.

Table 2: Conservation significant species with the potential to occur within 40 km of the Project area

Species	Common name	Status under Federal legislation	Status under State legislation	Likelihood of occurrence within the Project area
Calyptorhynchus latirostris	Carnaby's black cockatoo	Endangered	Endangered	**Unlikely.** The species is likely to be an irregular non-breeding visitor to the Project area. It is known to feed on seeding Banksia and Eucalyptus as well as proteaceous heaths, which does not occur in the Project area. The coastal heathland present within the Project area provides minimal foraging value for the species. No evidence of this species was recorded during the Ecoscape (2010) site inspection. Based on the lack of suitable habitat, this species is not expected to occur within the Project area.
Caretta caretta	Loggerhead turtle	Endangered	Endangered	**Possible.** Noted by Ecoscape (2010) that this species may frequent or inhabit the dunes within the Project area.
Diomedea exulans subsp. exulans	Wandering Albatross	Vulnerable and Migratory	Vulnerable and Migratory	**Possible.** Noted by Ecoscape (2010) that this species may frequent or inhabit the dunes within the Project area.
Falco peregrinus	Peregrine Falcon	-	Other specially protected fauna	**Unlikely.** This species is known to occur over a wide range of environments across Australia. Preferred nesting locations include a range of elevated locations with steep topography such as rocky hills, breakaways, cliffs and high artificial structures. The Peregrine Falcon may be a regular foraging visitor to the Project area, but the area would represent a very small proportion of a pair's range.
Lerista lineata	Perth Slider	-	Priority 3	**Possible.** Noted by Ecoscape (2010) that this species may frequent or inhabit the dunes within the Project area.

Species	Common name	Status under Federal legislation	Status under State legislation	Likelihood of occurrence within the Project area
Neelaps calonotos	Black-striped snake	-	Priority 3	**Possible.** The Black-striped Snake is restricted to the west coast from just north of Lancelin to Mandurah and, although locally common in some environments on the Swan Coastal Plain, its persistence is threatened by continuing loss of habitat due to urban development throughout its range. The species was not recorded in Ecoscape (2010).
Isoodon obesulus fusciventer	Quenda	-	Priority 4	**Unlikely.** The Quenda occurs in the south-west coast from Guilderton north of Perth to east of Esperance. This species previously occurred north to Geraldton but like many mammals in the region has undergone a large range reduction. It is commonly associated with dense, low wetland vegetation. As this habitat was not recorded in Ecoscape (2010) and there was no evidence (diggings or tracks) of the species, this species is not expected to occur within the Project area.

No conservation significant fauna species are expected to occur within the Project area as fauna habitat required for these species to occur was not recorded within the Project area.

Introduced fauna species

Introduced fauna species that pose a threat in the Rockingham Beach foreshore reserve include:

- European rabbit (*Oryctolagus cuniculus*): grazes on native vegetation, may impact on revegetation efforts as well as leading to dune erosion
- European red fox (*Vulpes vulpes*): preys on native fauna species, competes with native fauna for food, habitat and other resources
- feral cat (*Felis catus*): preys on native fauna species, competes with native fauna for food, habitat and other resources
- European bee (*Apis mellifera*): competition with native fauna species for tree habitat.

No pest fauna have been recorded within the Project area (Ecoscape 2010), however, introduced mammals such as mice, rats, cats, foxes and rabbits may inhabit the coastal area (Ecoscape 2010). The rabbit (*Oryctolagus cuniculus)* has been identified to pose the most serious threat to the natural area as this species heavily grazes on vegetation, and can establish large warrens that further degraded the dunes (Ecoscape 2010). The European red fox (*Vulpes Vulpes*) may also pose a serious threat as they may kill native fauna (Ecoscape 2010).

Wrack

The coastal waters within CoR support a range of marine habitat types, including regionally significant seagrass meadows which primarily consist of *Posidonia* spp, *Amphibolis* spp and *Halophila ovalis*, which are a vital component of the marine food web and provide essential habitat for many coastal species. This seagrass, along with other aquatic vegetation, deposits on the beach and forms banks known as wrack, particularly in protected areas such as Palm Beach and Safety Bay. As wrack breaks down it can smell unpleasant but it is this decomposition process which releases nutrients such as carbon and nitrogen back into the ecosystem, which are important for coastal productivity.

4.2 Coastal processes

Cockburn Sound is a large-low energy coastal waterway on a moderate to high energy carbonate coast (RPS 2009). A series of islands, offshore ridges and depressions, which extend from Garden Island in the north to Long Point in the south, provide protection from swell and limiting offshore sediment feeds (CoR 2016).

The Project is located on the sand-sheet on the south eastern margin of Cockburn Sound, south of James Point. This area is characterised by narrow sand banks (less than 500 m wide) where the water depth shoals rapidly to a couple of meters (RPS 2009). The sand-sheet gently slopes from the shoreline of Cockburn Sound to a water depth of approximately 6 m. The edge of the sand-sheet drops off to the flow of Cockburn Sound in approximately 18 m of water. The drop-off is more pronounced at Wanliss Street in the south and is less pronounced in the north.

These coastal processes are detailed in sections 4.2.1–4.2.6.

4.2.1 Winds

In the summer months, wind patterns are characterised by strong south to south westerlies which can result in significant longshore movement of sediment (CoR 2016). Winter winds are generated from both the northwest and southwest (RPS 2009). North westerly winds dominate due to the movement of low pressure systems. While strong, these winds generally result in less sediment movement than the summer winds as the duration is shorter and the sand is usually wet. Differing wind regimes generally result in northward longshore sediment transport in summer and southward sediment transport in winter (RPS 2009).

4.2.2 Water circulation and flushing

Horizontal wind pressure gradients, tides, waves, atmospheric pressure, changes in water density, and continental shelf waves influence the water circulation within Cockburn Sound (RPS 2009).

Circulation is primarily affected by wind in summer, atmospheric pressure gradients in autumn and pressure gradients and storm wind in winter and spring (RPS 2009).

4.2.3 Waves and tides

Tides

Tides are caused by the gravitational pull of the sun and moon on the earth. When the sun and moon are aligned, the tidal bulge is large and this is known as a spring tide. When the sun and moon are perpendicular, the tidal bulge is small and this is known as a neap tide. The tidal environment in Rockingham is known as microtidal, with a range of less than 2 m between high and low tides (CoR 2016).

Tides in the region are predominantly diurnal in form, with high and low tide each day. Semidiurnal components do occur during certain lunar phases resulting in two high and two low tides per day (CoR 2016).

Waves

Cockburn Sound is protected from Indian Ocean swells by Garden Island to the west, and Point Peron and the Garden Island Causeway to the southwest (RPS 2009). The wave climate in Cockburn Sound is dominated by less than eight second local wind-generated waves that are less than 1.3 m high. However, wave heights over 2.5 m may occur during north-westerly storm events (RPS 2009). Wave modelling was completed by MRA (2008) as part of the PER process for the Project. Four key wave scenarios were identified for Cockburn Sound, these scenarios are summarised in Table 3.

Table 3: Wave scenarios within Cockburn Sound

Wave scenarios	Description
Typical swells	Light, variable winds and a westerly swell with significant wave height southwest offshore of Rottnest Island of greater than 2 m. Model demonstrated a reduction in wave heights caused by Garden Island and the series of islands and reefs to the north and south. The significant wave height at the Project area is less than 0.5 m, and the wave direction is from the northwest.
Sea breeze	Strong south-westerly winds and significant wave heights of up to 2.8 m off Rottnest Island. Model demonstrated significant wave height of less than 0.5 m at the Project area and wave direction is from the southwest.
Moderate storm	Northerly storm with significant wave heights in excess of 2.5 m off Rottnest Island (peaking at 3.7 m), and wind swinging from the northwest to the south as the cold front passes overhead. Model demonstrates that despite the storm, wave heights are still reduced by Garden Island and the series of island and reefs to the north and south. Significant wave height at the Project area is between 0.5–1.0 m, with waves arriving from the north.
Severe storm	Northerly storm similar to the Moderate storm scenario, but with greater intensity, with significant wave heights in excess of 4.0 m off Rottnest Island, strong winds swinging from the northwest to the south. Model demonstrates that the significant wave heights at the Project area are between 1.5–2.0 m, with waves arriving from the northwest.

Source: Adapted from information provided in RPS (2009)

4.2.4 Sea level

The beaches of the Warnbro and Cockburn Sound are largely protected from offshore wave energy by a chain of islands and offshore reef and; therefore, an increase in sea level can enable the transfer of more wave energy over the reef and into the nearshore environment (CoR 2016). This wave energy can have a significant impact on the coast particularly when combined with strong winds as result of storm surge or sea breeze, further illustrating the potential consequence of interaction between coastal processes.

In this regard, long term projected increases in sea level as result of climate change may result in subsequent exacerbation of existing coastal processes.

4.2.5 Current

The marine ecology in Western Australia is predominantly driven by the Leeuwin Current, which travels south along the continental shelf transporting warm water from the north. Closer to shore, localised currents caused by winds and tides are responsible for the longshore transport of sediment and are therefore a key consideration for coastal management. These currents can result in a range of erosion or accretion impacts along the shore. The level of these impacts is dependent on a number of factors, including high and low energy zones in the water column and interaction with other coastal processes (CoR 2016).

4.2.6 Coastal vulnerability

Garden Island Causeway (Causeway) has a significant impact on the shoreline movements within Rockingham (CoR 2016).

Historically, sediment was transported east along Point Peron towards Rockingham beach; however, the largely impermeable nature of the Causeway disrupted this natural sediment flow resulting in a significant build-up of sand at the Point Peron Boat Ramp. To manage this accretion, a 200 m long groyne was built 100 m to the west shortly after the construction of the causeway. In 1986, an almost 90 degree angled, 65 m groyne extension was added, with the addition of a 50 m spur groyne in 1990 (CoR 2016).

The area between these groynes in known as the Point Peron Sand Trap, from which approximately10 000 m^3 of sand is excavated every year to prevent sedimentation of the boat launching facility. The sand trap area has accreted of the order of 90 m since the installation of the Causeway, with 50 m of this occurring since the installation of the spur groyne extension to the sand trap in 1990. The accretion of this sand trap indicates that the net sediment transport into the trap area has been greater than the volumes excavated over time (CoR 2016).

The Causeway has also resulted in areas of erosion adjacent to the Point Peron Camp School and Hymus Street. Many revetment structures have been installed and undertaken by CoR to mitigate erosion including:

- Geotextile Sea Container (GSC) groyne
- rough limestone armour seawall
- timber groyne
- beach renourishment.

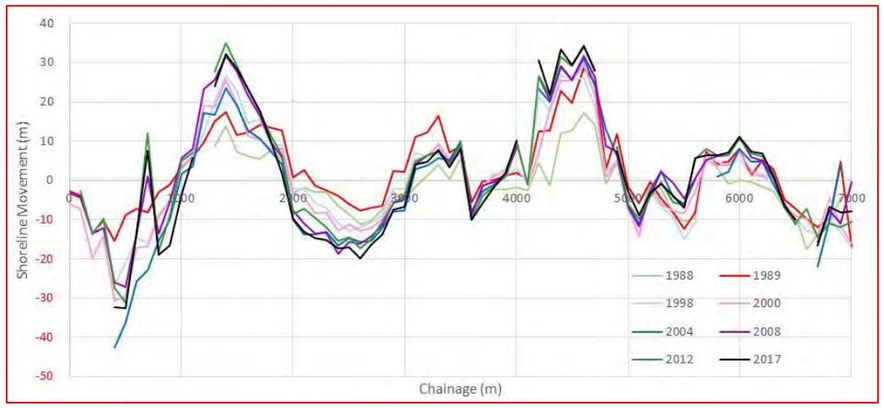
A summary of historical shoreline movement for the Project area from 1976 to 2004 is provided below (RPS 2009):

- net erosion up to 40 m of the shoreline between Kwinana Wreck and the Cooperative Bulk Handling (CBH) facility
- net accretion up to 20 m in the immediate facility of the CBH facility
- net erosion up to 15 m between Weld Street (south of the CBH facility and Alexandra Street)
- shoreline has been relatively stability in the vicinity of Wanliss Street, with minimal erosion and accretion.

Shore line movement to date (2008–2017) demonstrate similar trends to historical movements between 1976–2004 (MRA 2017b; Figure 3). The only notable change is the slowing of erosion and minor recovery near Kwinana Beach, where coastal management has been completed in the form of offshore headlands and sand nourishment in the past decade (MRA 2017b).

The Project area has been characterised by MRA (2017a) as the following:

- low energy sandy beach with vegetated foredune for most of the site
- presence of a small vegetated foredune, indicating a typically stable or accreting shoreline
- minimal assets in the immediate area, limited to dune fencing and access ways.



Source: MRA (2017b)

Figure 3: Relative shoreline movement (1976–2017)

4.2.7 Sediment budget

Longshore sediment transport along the Cockburn Sound coastline is driven by oblique waves arriving at the shoreline, resulting in a net sediment transport to the south. A sediment budget was estimated for the Project area using shoreline movement data between 1976 and 2017.

At Project area, the net sediment transport to the south has reduced from approximately 6800 m^3 per year for the period 1976–2004, to approximately 4300 m^3 year for the period 1976–2017. This suggests that the transport past the development has slightly decreased over the past decade. This is most likely due to the stabilisation of the shoreline at Kwinana Beach (MRA 2017b).

There is likely to be a large natural variability in the sediment fluxes from one year to another due to fluctuation in weather conditions and the resultant wave climate. However, the trends in shoreline movement from 1976–2017 are consistent (MRA 2017b).

4.3 Social environment

4.3.1 Land use history

Broadly, the marine water body of Cockburn Sound has been used for commercial and recreational fisheries. There are two commercial fisheries licenced to fish partly within Cockburn Sound, and four fisheries licenced to fish entirely within it. Fisheries make up the total commercial landings for finfish, cephalopods, crabs and baitfish within Cockburn Sound (RPS 2009). Recreational fishing is predominately shore-based and is localised in the northern portion of Cockburn Sound, in the vicinity and offshore of Woodman Point (RPS 2009). The eastern foreshore of Cockburn Sound supports many large scale industrial developments including Western Power, BP Refinery, Tiwest Joint Venture, Wesfarmers CSBP and Millennium Chemicals (RPS 2009). The CBH facility is located on Cockburn Sounds eastern shore, and is closest to the Project area. Infrastructure associated with these industries include:

- terminals
- jetties
- wharfs
- dredged channels.

HMAS Stirling is located approximately 6 km northwest of the Project area, on the south-eastern shore of Garden Island (RPS 2009).

Cockburn Sound is one of the most popular recreational waterbodies in Western Australia due to its protected nature and easy accessibility (RPS 2009). Activities within Cockburn Sound comprise of the following:

- water-based activities such as recreational fishing, swimming, sailing and boating
- nature-based eco-tourism such as wildlife cruises (dolphins and penguins) operated from the jetty at the Rockingham Yacht Club
- land-based activities such as walking, running, dog walking and socialising at the foreshore parks.

The land use history for the Project area was investigated through the review of historical aerial imagery dated from 1953 to 2017. Land use has remained consistent across this time with the Project area being used for recreational activities such as walking, surfing, swimming, recreational fishing and for other beach usage such as picnic and playground areas.

The Project area is located on the outskirts of the Rockingham town centre and is used less frequently than other beach areas in front of the town centre. Access to the Project area is currently through eight fenced paths and one unfenced path that traverse the dunal vegetation to access the beach. The paths vary in condition; with some paths in excellent condition, and others partially buried by beach sand, and weeds (Ecoscape 2010).

4.3.2 Heritage matters

Aboriginal heritage

A search of the DAA Aboriginal Heritage Inquiry System (DAA 2017) (search conducted 9 June 2017) identified no Registered Sites within the Project area. Nearest registered site is Rotary Park, Rockingham (ID 3471) located approximately 1.4 km west of the Project area

No other Heritage Places were identified within the Project area. The nearest Other Heritage Place is Lake Richmond (also recognised as a Registered Aboriginal heritage site) (ID 352; Status: Stored data/ Not a site) located 2 km southwest of the Project area.

Non-indigenous heritage

A search of the HCWA website identified two state registered European heritage sites and 31 places within Rockingham (HCWA & SHO 2017). The nearest Heritage Place is 'Rockingham Cairn' (#18488) immediately north of the Project area from Governor Road, and 'Bell & Churchill Parks, Rockingham Beach' immediately south of the Project area from Wanliss Street.

4.3.3 Social values

Population growth

The Master Plan has been developed with the following community aspirations from the *Economic Development Strategy 2014–2017* (CoR 2014) for environment and land use:

1. Climate change: planning systems, infrastructure standards and community awareness programs that serve to acknowledge and mitigate the impacts of climate change.
2. Coastal and bushland reserves: coastal and bushland reserves that are well utilised and managed in a way that will preserve them for future generations to enjoy.
3. Land use and development control: planning for population growth to ensure future development and land uses contribute to a sustainable city that provides for a genuinely desirable lifestyle.
4. Carbon footprint and waste reduction: carbon footprint reduction and waste minimisation programs centred upon public awareness and the use of new technologies.

CoR have experienced sustained population growth with the population expanding from 32 845 to 104 105 in the 25 years between 1986 and 2011. This represents an annual growth rate of approximately 2850 persons per year (CoR 2014).

This growth has strengthened more recently with the population growing by an average of 5% per annum over the last two years. Projections from the WAPC forecast Rockingham's population to increase to 171 300, or a further 57.1% over the 15 years to 2026. The Estimated Resident Population within CoR was 120 859 as of 30 June 2013.

The *Economic Development Strategy 2014–2017* provides a guiding framework for the detailed urban design and development of the Waterfront Village and broader Rockingham Beach foreshore. Potential was identified in this strategy for significantly more developments of the type and scale of the existing multi-storey apartment developments. The location of a major "branded" hotel in the Project area would raise investment interest in the area. Rate revenues, pedestrian activation and commercial and retail sales would all benefit from increased development in the area. Increased car parking bays, and public transport services were also identified as an opportunity to maximise social and commercial potential in the area.

The population growth in Rockingham will create many opportunities for the Project and the broader Rockingham area. The introduction of appropriate facilities and infrastructure will enhance the social and recreational use within the Project area, providing commercial, tourism and recreational possibilities. However, the increase in Rockingham's population and the use of the Project area has the potential to increase pressure on the natural environment. The potential increased levels of infrastructure and facilities may result in damage to the environment and conflict between groups of recreational users. Additionally, actions such as unauthorised access, the introduction of weeds, illegal littering and pollution have the potential to damage the natural environment.

Recreation use

Currently, the Project area is utilised by residents for recreational activities including swimming, walking, and its scenic value. Existing community hotspots and places of significance include:

- picnic areas which provide beach access and recreation activities
- Naval Memorial Park which provides memorials and interpretation
- Dog beach which provides recreational activities.

Anticipated future beach use

To facilitate the future recreational demands on the Project area, the types of activities likely to occur must be determined and required infrastructure and facilities planned for. This will ensure the future recreational demands can be met and the natural environment is conserved. Potential recreational activities likely to occur within the Project area include:

- swimming, sunbathing, snorkelling and wading
- surfing, boogie boarding and bodysurfing
- windsurfing and kitesurfing
- walking, jogging, dog exercising, exercising
- picnicking, viewing scenery and environmental and heritage education.

The above activities can be enhanced by infrastructure and facilities of some description to cater for the increasing population. Potential infrastructure and facilities include beach access, car parking space, toilets, grassed areas, ball sport and youth facilities, picnic and playground areas.

The proposed development within the Project area aims to provide appropriate infrastructure and facilities to meet the future recreational demands while protecting the natural environment.

Project details within the Master Plan are outlined in section 5.

5. Existing Rockingham Beach Foreshore management framework

5.1 Master Plan

5.1.1 Design vision

The main focusses of the Master Plan are to:

- produce a detailed design for the development of a vibrant, well connected and pedestrian friendly foreshore
- encourage visitors from within and outside of Rockingham to visit the foreshore
- stimulate opportunities to support the local economy and business
- create a place that is sensitive to the natural features and unique foreshore environment and its many uses.

The Master Plan aims to manage the coast in a sustainable way; recognising the dynamics of coastal processes, the high conservation and asset value of the coast, the need to provide for a range of compatible recreational opportunities, and the requirements of planning for compatible land uses adjacent to the coast so that future generations can continue to enjoy the coast and its values.

5.1.2 Current foreshore and surrounding infrastructure

The Project area is within Area 3 of the Master Plan which comprises the turf areas east of Wanliss Street, the Foreshore dunes, Naval Memorial Park, and Governor Road Reserve.

Area 3 is the least developed stretch of the Rockingham beach foreshore reserve. The CBH Grain terminal is the dominant feature in this area, and contains a significant portion of remnant coastal vegetation and the parks and dual use path are set back from the coast behind the dunes (CoR 2016). The smaller parks between Wanliss Street and Victoria Street are well serviced with parking, gazebos, barbeque and playground facilities, and beach access, however, little shade is provided in this area due to a lack of mature trees. Similarly, Naval Memorial Park and Governor Road Reserve are well serviced but exposed and lacking in mature trees. A dog beach, is also accessible from the car parks and at regular intervals along the dual use path but is less visited than the other beaches within the Rockingham Beach foreshore reserve.

Area 3 has the following prominent characteristics:

- forms a key section of a continuous Rockingham Beach Foreshore Coastal Walk experience that extends all the way down to Hymus Street
- the Rockingham Foreshore Reserve to the west is a popular destination especially during summer
- the vegetated dunes provide a unique piece of a remnant nature
- Dog Beach access at Governor Road Reserve
- the Naval Memorial Park has a unique history and strong connection with community
- provides a casual exercise environment such as walking, jogging, and cycling
- Rockingham Beach Road has soft shoulders and no kerb on the beach side which gives it a very casual 'coastal town' feel.

5.1.3 Design concept – structural elements

The Master Plan was designed with consideration of potential future opportunities. The siting, location and design of the area also aligns with SPP 2.6 where the infrastructure provided along the foreshore is compatible with the coastal environment and consistent with respect to style and function.

Key structural design elements within the Project area identified in the Master Plan are:

- foreshore amenities
- Naval Memorial Park
- Wanliss street carpark extension
- offshore breakwater
- jetties and marina pens.

5.1.4 Proposed key facilities

Coastal Park

The existing large tracts of turf to the west of the Project area will be upgraded and designed to become a new park; effectively the third park in sequence of Bell and Churchill parks. The Coastal Park will be designed with the needs of locals and day-trippers in mind. New picnic nodes, seating areas, barbecue nodes, beach showers and several new shade structures will be located to provide a range of occupation options.

The quantity and overall quality of these items will be increased from existing infrastructure. New tree plantings will provide further shade and improved dune protection measures will be implemented. Beach access paths will also be improved. A small active ball sports node will be accommodated near the expanded Wanliss Street carpark.

Naval Memorial Park

The Naval Memorial Park will be consolidated and include strengthened tree planting, improved amenity and facilities for visitors and improved interpretation and signage elements. The shared path will be extended along the northern side.

Dog Beach Park

The small eastern most park will be upgraded to better cater for dog owners including watering and washing facilities and beach showers. Additional tree planting, improved shade structures and picnic/barbecue facilities will be provided. Existing toilet facilities will be retained and upgraded with the option for a seasonal kiosk. The carpark will be expanded with the possibility of RV and tour bus parking being accommodated.

Wanliss Street carpark extension

The following improvements were identified for the Wanliss Street carpark located within the Project area:

- increasing the carpark by 80 bays and increasing tree planting within the parking area for shade
- creation of a sloped lawn connecting the carpark to the beach directly
- significant shade structures, seating areas, beach kiosk, beach showers, and public toilet structure
- Nyungar artwork opportunity to link existing public art to the foreshore
- Pioneer Promenade connects directly the shared path continuing north to Governor Road
- improved universal access to carpark and beach.

Port Rockingham Marina

The Project was identified in the Master Plan. As outlined in section 1 the Project aims to deliver:

- an open pile pier extending northwards from the shoreline for approximately 200 m
- breakwater extending northeast for approximately 700 m
- 500 boat pens through the installation of a boardwalk jetty to the east of the open pile pier
- 600 car bays within the Wanliss Street Public Car Park and within the Rockingham Beach Road reserve
- dwelling units that include a retail precinct that comprises 4000 m^2 and a major hotel.

The offshore components of the Project (i.e. the breakwater) will provide protection to the assets located in its lee (MRA 2017a). Earlier predictions for coastal hazards demonstrated that that unless mitigated, there may be longer term shoreline accretion in the lee of the breakwater, and erosion to the south following construction of the breakwater.

5.1.5 Minor fixtures

A series of functional 'amenity nodes' are identified in the Master Plan within the Project area that cater to a specific purpose for end users of the Rockingham Beach Foreshore reserve and parklands. Each node is designed to perform a set function and is to be detailed to appear simple, robust and also appropriate within the coastal environment. Most nodes will involve the arrangement of purpose selected furniture and items, but many will also include ground surface treatments and will benefit from integration into the surrounding landscape.

All proposed minor fixtures are located within the 2110 coastal vulnerability lines, however, will be managed in accordance with the coastal planning strategy outlined in section 6.

The proposed amenity nodes within the Project area are presented in the Master Plan and are summarised in Table 4.

Table 4: Description of amenity nodes within the Project area

Type	Elements within the amenity node
Picnic node	• textured concrete pad • shade shelter with lighting • picnic table and bench seating (provision for wheelchair access where possible).
Beach amenity node	At each access point to the beach within the Project area, the following elements will be provided: • textured concrete pad with drainage • beach shower/foot wash • bubbler • grab rail • single bin enclosure.
Exercise node	Exercise nodes are to be provided at regular intervals along the shared path. Collectively the nodes will function as a 'complete' fitness circuit. Individually each node will focus on a grouping of complementary exercises. An exercise node consists of: • equipment from the same product family and appropriate to a coastal context • instructional signage • softfall where required • textured concrete pad where required • respite seat within 30 m; • bubbler within 30 m of exercise node if practicable • bike rack(s) within 30 m.

Source: Master Plan (CoR 2015)

5.1.6 Shade shelters

Picnic node shelters

The design of picnic node shelters is to be broadly consistent, however finishes/colours will relate to each area within the Rockingham Foreshore reserve. Picnic Node Shelters are to be lightweight battens over aluminium uprights; and battens are to be a colour gradient ombré or spectrum of tonal shades of mildly de-saturated colours reminiscent of “Rockingham”.

The colour spectrum for picnic node shelters within the Project area will comprise of powder coated aluminium batten in ombré shades from blueish to white (incorporating wedgewood blue) over charcoal powder coat aluminium upright (CoR 2015).

Playground shelters

Playground Shelters are to be uniquely designed for each play environment within the Project area.

5.1.7 Access paths and carpark

Paths are an important feature in providing access to the foreshore for recreation. Access needs to be managed to ensure uncontrolled vehicle and pedestrian access does not lead to the degradation of the foreshore reserves (CoR 2016). Paths within the Project area range from well-maintained concrete paths, to sandy beach access tracks.

SPP 2.6 requires the provision of public access to the coast that is consistent with the values and management objectives of the area including, the interests of security, safety and protection of coastal resources as well as the recreational opportunities, both on and offshore, of that section of coast. As such, beach access paths will utilise existing tracks where possible to minimise vegetation disturbance.

The Project area will comprise of two ’beach access types’ that have been identified in the Master Plan that cater to a specific purpose for end users of the Rockingham Beach Foreshore reserve and parklands. These consist of beach access types A and C. A summary of these beach access types within the Project area is provided in Table 5.

Table 5: Beach access types within the Project area

Beach access type	Description
Beach access type A	This is a high amenity beach access type which consists of: • a complimentary beach amenity node • a hardstand access to the beach incorporating universal and inclusive access • provision for universal access beach matting where possible/if required • provision of a grassed area where possible • fencing to dunes • inclusion of shade trees and/or shade structures • provision of additional amenity nodes adjacent or in the vicinity, including barbeque nodes, bin nodes, bike nodes and exercise nodes.
Beach access type C	Beach Access Type C is a fenced beach access which consists of: • informal sand path to the beach • fencing to dunes • provision of additional amenity nodes adjacent or in the vicinity, including barbeque nodes, bin nodes, bike nodes and exercise nodes where possible.

Source: Master Plan (CoR 2015)

5.1.8 Toilet facilities

Proposed toilet facilities are proposed to align with other commercial opportunities such as beach kiosks or cafes. The following principles are a guide as to the locations, materials, themes and functions of toilet facilities within the Rockingham Beach Foreshore area:

1. Toilet facilities are not to obstruct views and are to be in key locations only.
2. Integrated facilities with other uses such as beach kiosks/cafes and change rooms.
3. toilets are to be designed for universal accessibility.
4. to be designed to appear visually sympathetic to the coastal location.

5.2 City of Rockingham Foreshore Management Plan

An FMP for Rockingham Foreshore has been developed for 37 km of coastline, including all beaches and reserves in the CoR municipal boundary.

The Rockingham FMP outlines CoR commitment to the preservation of these environments, providing a framework for the ongoing use and management of CoR foreshore reserves.

The Rockingham FMP addresses both environmental and land use factors, with due consideration for physical coastal processes, proposed development, recreational infrastructure and the conservation of diverse coastal habitats through the removal of threatening processes, which act as a regional corridor for the movement of flora and fauna.

In addition to these factors, the Rockingham FMP acknowledges the challenges associated with managing a dynamic coastal environment, together with the need to balance environmental, social and economic values to ensure the long term sustainable use and management of CoR’s unique coastline.

The Rockingham FMP divides the 37 km of coastline into the following five sectors:

- Sector One: Rockingham
- Sector Two: Shoalwater, Safety Bay, Waikiki
- Sector Three: Warnbro, Port Kennedy
- Sector Four: Secret Harbour
- Sector Five: Golden Bay, Singleton.

The Project is located within Sector One for Rockingham.

The Rockingham FMP identifies management provisions to be implemented by CoR.

5.3 Consideration of proposed developments

The Master Plan (CoR 2015) has been developed to guide change within the Foreshore Precinct in both the short and long term, and to ensure future development responds to the principles and desired outcomes that the community values. This includes recreational facilities, landscaping, car parking and development opportunities, whilst also giving consideration to the significant cultural, heritage and environmental opportunities presented by this site.

The Master Plan is made up of numerous smaller projects that can be implemented in the short, medium and long-term, and these projects will be staged appropriately over time as funding becomes available.

The structures proposed for the Project involve a commercial jetty branching into Indian Ocean from the Wanliss Street carpark which aims to allow sediment transport past the development and increase flushing of waters behind the breakwater.

Figure 4: Foreshore concept plan

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6. Coastal planning strategy

This section provides a summary of key considerations for the management of the Project area, focussing on key management of environmental and social values associated with all aspects of the Project. In accordance with SPP 2.6, coastal planning should result in sustainable development which recognises the need to balance competing economic, social and environmental demands.

Key factors relevant to the management of the foreshore values include:

- coastal processes
- landform and stability
- coastal vulnerability
- climate change
- ecological values
- water quality
- recreation and public access
- marine resource use and access
- landscape, seascape and visual landscape
- heritage
- land capability
- proposed future development.

Within each of these key factors, the requirements under SPP 2.6, requirements under the Master Plan, existing management measures, assessments of the key factor and management considerations for the Proponent have been identified.

6.1 Coastal processes

6.1.1 Requirements under SPP 2.6

Coastal processes including long term shoreline accretion and associated beach ridge formations, longshore sediment transport and seasonal onshore-offshore sediment movement are relevant to the Foreshore Reserve and require consideration. In accordance with SPP 2.6 the FMP must accommodate a coastal processes setback and reflect this in the allocated foreshore reserve. A Coastal Hazard Risk Management & Adaptation Plan (CHRMAP) to assess and provide a framework to manage risks associated with any development within the foreshore reserve must also be prepared.

The Coastal Hazard and Vulnerability assessment for the Project area, for the existing situation prior to the implementation of Port Rockingham, has previously been assessed in line with SPP2.6 (MRA 2017a). The hazards and vulnerability of the shoreline from previous assessments are consistent and have been accepted and adopted by the CoR and community.

6.1.2 Requirements under the Master Plan

The Master Plan considers coastal processes in the design for the Project area. The Master Plan identifies the potential future developments for Rockingham including the Project, Mangles Bay Marina, and Lake Richmond Drainage Outlet.

6.1.3 Existing management

To date CoR has a targeted approach to coastal monitoring in areas of infrastructure or observed change. There is no regular and consolidated coastal monitoring program which covers the proposed development shoreline. This is currently being considered by CoR in isolation and under their membership of the Peron Naturaliste Partnership (MRA 2017b).

6.1.4 Assessment of key factor

The investigations for the PER were completed over a number of years and outlined in RPS (2009). As part of these investigations M P Rogers & Associates Pty Ltd (MRA) were engaged to complete an assessment of the impacts of the Project on coastal processes and recommend monitoring and management requirements. These investigations were presented in MRA (2008) and incorporated into the PER.

A revised assessment of the impacts of Project on coastal processes and recommend monitoring and management requirements was undertaken by MRA in 2017 (MRA 2017b). The assessment provided an update from a previous coastal process assessment conducted in 2008 for the Project. The assessment provided an:

- updated shoreline movement assessment
- updated sediment budget for the area
- updated assessment of the appropriate bypassing volumes for the development to meet EPA Condition 8-1
- indicative monitoring and management program.

The Project area was described to have the following:

- a wide sandy beach and foredune, indicating a stable or moderately accreting shoreline
- low elevation vegetated dunes.

Historic shoreline movement and estimated sediment budget for the Project area from 1976 demonstrated that the trends in shoreline and sediment movement over the past decade are consistent with those since construction of the Garden Island Causeway (MRA 2017b). One only notable change is the slowing of erosion and minor recovery near Kwinana Beach, where coastal management has been completed in the form of offshore headlands and sand nourishment in the past decade (MRA 2017b). There have been no significant changes in trends or quantum of movement in recent years.

The Project is expected to change the local sediment movement on Rockingham Beach. If left unmanaged, there may be a large accretion of sediment in the lee of the breakwater and erosion due to the deficit down-drift, on Rockingham Beach. The estimated sediment budget for the Project area demonstrated that net sediment transport to the south had reduced from approximately 6800 m^3/yr for the period 1976–2004, to approximately 4300 m^3/yr between 1976 and2017. This suggests that the transport past the Project area has slightly decreased over the past decade and was likely attributable to the stabilisation of the shoreline at Kwinana Beach (MRA 2017b). Large natural variability in the sediment fluxes was also likely to occur from one year to another due to fluctuation in weather conditions and the resultant wave climate (MRA 2017b).

The following impacts on the shoreline can therefore be concluded if the coastal processes were unmitigated:

- the offshore breakwater proposed for the Port Rockingham development is predicted to have an effect on sediment movement behind the structure
- in the 5 years after the construction of the proposed Port Rockingham breakwater, the shoreline behind the proposed breakwater is predicted to accrete by approximately 10 m
- in contrast, the shoreline to the south-west ('downdrift') of the breakwater is predicted to erode by approximately 10 m
- the accretion on the shoreline in the wave shadow of the breakwater is estimated to be around 4000– 6000 m^3/yr.

6.1.5 Management considerations

Any future development in this area should seek to avoid the risks posed by coastal hazards by ensuring that they are located landward of the relevant coastal hazard line.

An adaptive management strategy will be implemented by the Proponent to mitigate the impacts from coastal impacts. This adaptive management strategy involves:

- a coastal monitoring program to monitor changes to the shoreline in the vicinity of the Project
- excavation of sand from areas of accretion for transport and placement in regions of sediment erosion (sand bypassing).

The adaptive management strategy should be determined in conjunction with the CoR and be consistent with their greater coastal monitoring and management program for Rockingham.

Coastal monitoring program

A coastal monitoring program is recommended to monitor changes to the shoreline in the vicinity of the Project. The coastal monitoring program will comprise of:

- surveyed beach profiles
- inspections, including photographic monitoring
- assessment and reporting.

The surveyed beach profiles would extend either side of the development to capture shoreline changes caused by the offshore breakwater. Historic coastal monitoring profiles of the shoreline cover the Project area with some dating back to 1974, while others commenced in 2003 (MRA 2017b). For comparison of changes with historic datasets, historic monitoring profiles should be retained. Proposed monitoring locations outlined in Figure 5 has been identified for the following extents:

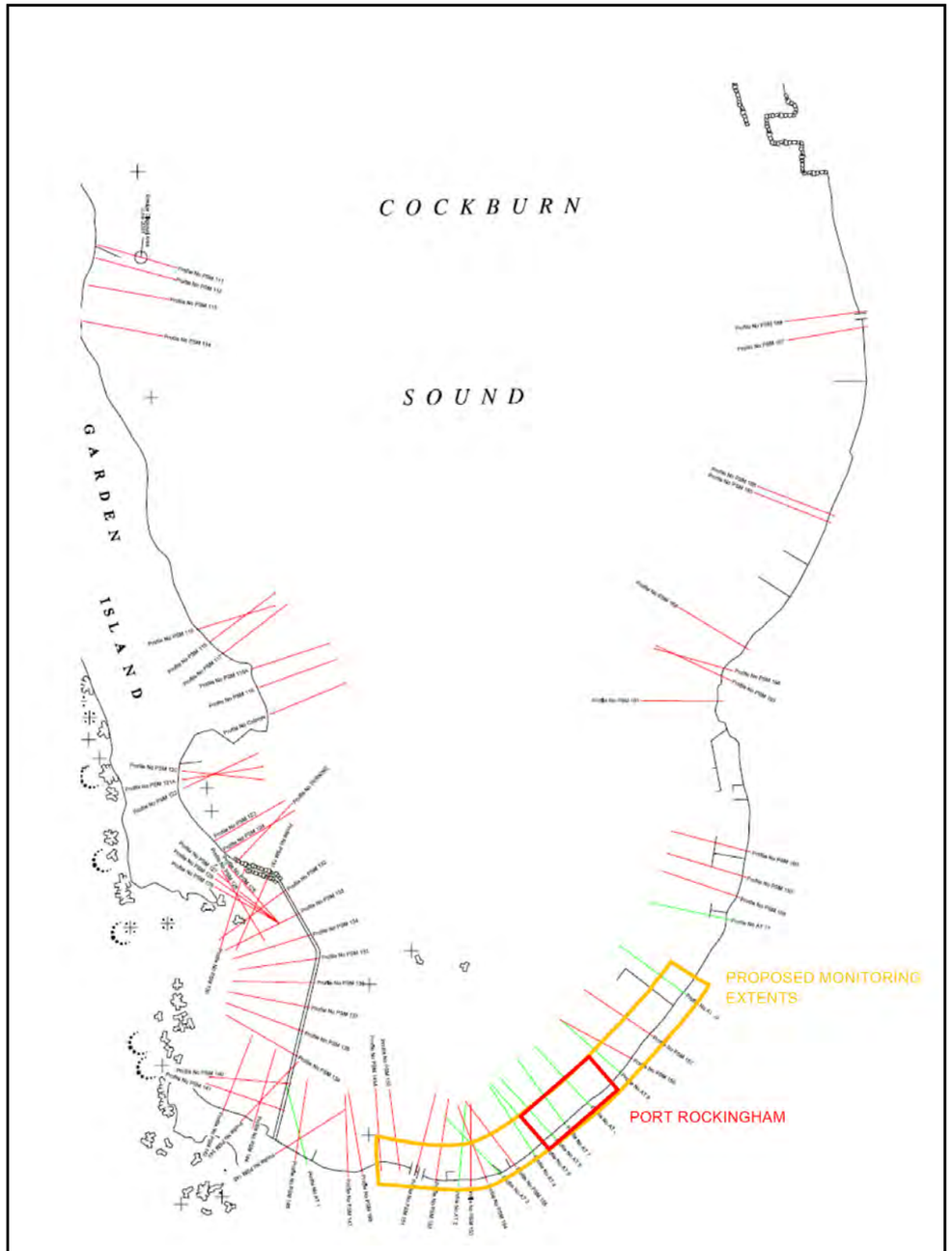
- the southern headland at Kwinana Beach in the north
- Hymus Street at the south / western end.

These areas extend outside the predicted areas of change and past the predicted point of convergence at Rockingham Beach. This covers approximately 17 monitoring profiles, which should extend from behind the primary dune, to approximately 500 m offshore (Figure 5). This will allow changes across the entire active zone of the profiles to be reviewed (MRA 2017b). Completing the surveys twice annually will allow seasonal changes to be assessed.

The coastal monitoring program is presented in Table 6.

Table 6: Coastal monitoring program at monitoring profile locations

Parameters	Purpose	Frequency	Timing	Location
Survey beach profiles	To identify shoreline changes caused by the offshore breakwater.	The monitoring profiles should be completed prior to construction of the offshore breakwater (ideally one year prior) and then twice annually for the first 5 years after construction.	Completed by end of summer (March) and winter (October) twice annually.	Monitoring profiles outlined in Figure 5.
Inspections, including photographic evidence	To demonstrate a visual history of the changes to the shoreline and provide context and clarity to assessment of measured changes in surveyed profiles.	Completed prior to construction of the offshore breakwater (ideally one year prior) and then twice annually for the first 5 years after construction.	Completed by end of summer (March) and winter (October) twice annually.	Photographic monitoring locations should be established along the shoreline and photographs taken during each inspection.



Source: MRA (2017b)

Figure 5: Historic and proposed monitoring profiles

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Sand bypassing

Statement 826 requires sand bypassing to be completed to manage the coastal processes at the development. Coastal processes remain consistent with earlier predictions identified in 2008 (MRA 2017b). Detailed modelling demonstrated that the amount of sand requiring bypassing at the Project area will be approximately 4000–6000 m3 per year (MRA 2017b). For budgeting and assessment purposes it is therefore recommended to allow to bypass 6 000 m^3 per year.

The sand bypassing would likely be completed by excavating accreted sand from within the Project area, loading into off-road dump trucks and transporting the material to the south of the Project. Excavated sand will then be placed on the beach at appropriate locations to allow transport and re-distribution of the sand along the shoreline. This sand bypassing process is shown in Figure 6.

Source: MRA (2017b)

Figure 6: Indicative sand bypassing operation

The extraction and disposal locations should be determined based on the coastal monitoring (MRA 2017b). This would highlight appropriate areas of accretion behind the breakwater (appropriate for extraction) and erosion downdrift (appropriate for placement). In line with the adaptive management strategy proposed by MRA (2008), the sand bypassing may be completed once or twice per year. This will be determined in conjunction with CoR on review of the coastal monitoring data (MRA 2017a).

Additional targeted survey of these areas is likely to be required immediately prior to and following the bypassing operations. This would confirm appropriate quantities of sand has been bypassed and could be incorporated into the bypassing contract.

The appropriate sand bypassing operations would need to be confirmed and approved by CoR.

Review and reporting requirements

An annual analysis and assessment of the monitoring data should be completed by experienced coastal engineers and summarised in a monitoring data report. The annual monitoring data report would provide discussion and analysis of the collected data and recommendations for the required coastal management (sand bypassing).

The monitoring data report would need to relate the changes to the Statement 826 to confirm that changes to the shoreline are within the required limits.

It is recommended that following the first five years of monitoring after construction, the coastal monitoring program is reviewed. Should the program and coastal management (bypassing) be operating efficiently and to plan, the frequency of monitoring may be able to be reduced to once per year or as agreed with CoR (MRA 2017a).

The coastal monitoring program for the Project is completed in conjunction with the greater monitoring program of CoR.

6.2 Landform and stability

As outlined in section 4.1.2, the foreshore environment of the Project area consists of a narrow and relatively stable shoreline, which reflects the low energy regime of Cockburn Sound (RPS 2015). The status of the dune system is typical of the existing coastal reserve system, with the following characteristics (RPS 2015):

- dunes are present in a narrow band backed by a degraded landscape i.e. Urban environment
- no linkage between Quindalup and Spearwood dune systems
- vegetation is limited to near-coastal associations and, due to the presence of car parks, beach access paths and large boundary to area ratios, is very prone to weed invasion
- limited variety of adjacent fauna habitats, with insufficient area for many species.

No specific coastal planning strategies are proposed for landform and stability as part of this FMP.

6.3 Coastal vulnerability

6.3.1 Requirements under SPP 2.6

SCPP 2.6 and the CHRMAP Guidelines are required to be utilised in conjunction to manage potential coastal risks along the Western Australian coastline.

Coastal hazard risk management and adaptation planning is intended to ensure an appropriate risk assessment and management planning framework for incorporating coastal hazard considerations into decision-making processes. It promotes the development of long-term adaptive capacity for managing coastal hazard risk through adoption of adaptive management.

6.3.2 Requirements under the Master Plan

The coastline within the Project area contains significant assets and infrastructure within close proximity of the shoreline. Most of these assets are managed by the CoR (MRA 2017a). CoR have undertaken a planning, design and extensive community consultation process to assist with the re-development and enhancement of the Rockingham Beach Foreshore presented in the Master Plan. This included a CHRMAP for Rockingham Beach to inform the design. This CHRMAP gave an indication of the potential vulnerability and risks associated with existing assets and proposed elements within the Master Plan.

The CoR undertook extensive consultation with key stakeholders and the community as part of the Rockingham Beach Foreshore CHRMAP. A series of design parameters were proposed from the consultation for the separate precincts of the foreshore. These were incorporated into the development of the Master Plan, CHRMAP and subsequent design work (MRA 2017a).

Ongoing stakeholder consultation has been continued throughout the design and development of specific elements of the Master Plan. This consultation has been completed with a Stakeholder Reference Group comprised of selected members of the local community to represent a range of different user and interest groups (MRA 2017a).

6.3.3 Existing management

A summary of the management provisions currently implemented by CoR for Rockingham Beach for coastal vulnerability is provided below.

To manage coastal vulnerability, CoR currently adheres to coastal setbacks and implements a range of coastal protection mechanisms. These include the installation of coastal protection structures such as:

- Buried Geosynthetic Sand Container (GSC) seawall extending from the shoreward extension of Flinders Lane approximately 135 m north east past the eastern viewing platform
- GSC protection at the abutment of the Val Street jetty
- abutment protection at the base of the Palm Beach Jetty
- protection surrounding the Palm Beach boat ramps
- timber groyne and dumped rock at Hymus Street.

Currently, the CoR have a targeted approach to coastal monitoring in areas of infrastructure or observed change (MRA 2017b). There is no regular and consolidated coastal monitoring program which covers the proposed development shoreline. This is currently being considered by the CoR in isolation and under their membership of the Peron Naturaliste Partnership.

6.3.4 Assessment of key factor

MRA (2008) originally undertook an assessment of the impacts of the Project on coastal processes and recommend monitoring and management requirements. Findings presented in MRA (2008) demonstrated that unless mitigated, there may be longer term shoreline accretion in the lee of the breakwater, and erosion to the south following construction of the breakwater. As a result, the Project was approved with an environmental condition to ensure the long-term changes to the shoreline were managed (with proposed sand bypassing). These investigations were incorporated into the PER. Following the environmental approval of the Project, the Proponent was granted Development Application (DA) approval for the Project. The Project did not commence at that time and the DA approval has since lapsed.

Since the previous DA approval, the SPP 2.6 has been revised. The revisions include requirements for CHRMAP defines areas of the coastline which could be vulnerable to coastal hazards and outlines the preferred approach to the monitoring and management of these hazards where required. MRA prepared a revised CHRMAP (MRA 2017a) for the Rockingham Beach foreshore area (extending from Hymus Street in the west to Governor Street to the east) prepared in accordance with SCPP 2.6. The CHRMAP assessed the risks associated with existing assets and the elements proposed in the Master Plan. The CHRMAP for the Project considered the potential risks posed by coastal hazards over a range of timeframes including present day, 2040, 2065, 2090 and 2110.

The revised CHRMAP investigated the 100-year projections for the following coastal hazard factors:

- (S1 Erosion) Allowance for the current risk of storm erosion,
- (S2 Erosion) Allowance for historic shoreline movement trends
- (S3 Erosion) Allowance for erosion caused by future sea level rise
- (S4 inundation) Allowance for the current risk of storm surge inundation.

From this assessment, risk mitigation strategies were developed, where required, to provide a framework for future management (MRA 2017a).

A summary of the findings for the revised CHRMAP presented in MRA (2017a) for the Project is presented below.

Coastal hazard risk

Pre-development coastal hazard lines demonstrates that the Project area could be vulnerable to coastal erosion across the 100-year time period (2017 to 2110). The Project includes a significant offshore breakwater to provide protection to the assets located in its lee. The breakwater, maintained in an appropriate condition, will therefore reduce the potential coastal erosion behind it (MRA 2017a).

On the basis of the protection offered by the offshore breakwater and the proposed coastal management, the existing coastal hazard lines have been modified in the area behind the breakwater to account for the following factors. Overall, hazard areas have been reduced directly behind the breakwater in line with the above notes, but importantly there is no change to coastal hazard areas for the remainder of the Rockingham Beach shoreline (MRA 2017a).

S1 factor - storm erosion modelling

SCPP 2.6 recommends modelling is undertaken to measure the ability of the coastal environment to absorb acute erosion and storm sequences.

A severe storm erosion associated with the 100-year ARI event was used to simulate the shoreline response to the storm. The S1 allowance for storm erosion for the revised CHRMAP has been reduced to 0 m (MRA 2017a). The offshore breakwater, maintained in an appropriate condition, will provide protection from acute storm erosion.

S2 factor - allowance for shoreline movement

Shoreline trend movement was reviewed in accordance with SCPP 2.6. Changes in shoreline over time was assessed through the review of historical aerial imagery. There is no change to the S2 allowance for longer term shoreline movement. The development condition in Statement 826 to limit long term changes to the shoreline will ensure this (MRA 2017a).

S3 factor - sea-level rise

MRA (2015) utilised results from the assessment report prepared by DoT in 2010, *Sea Level Change in Western Australia: Application for Coastal Planning* which outlined recommended allowances for vertical sea level rise over the coming century. The recommendations identified in the report were adopted by WAPC (2013) within the revised SCPP2.6. As a result, SCPP2.6 requires that development allow for a 0.9 m sea level rise by 2110. The SCPP recommends that for sandy coasts the recession be taken as 100 times the estimated rise in sea level; therefore, the S3 factor is taken to be 90 m.

S4 factor - inundation allowance

SCPP2.6 requires that coastal development be located above the storm surge level defined by an event with an annual encounter probability of 0.2%. This is the 500 year ARI event. Assessment of the inundation level requires consideration of peak storm surge, including wave setup. A storm surge occurs when a storm with high winds and low pressures approaches the coastline. The strong, onshore winds and large waves push water against the coastline (wind and wave setup) and the barometric pressure difference creates a region of high water level. These factors acting in concert create the storm surge. The size of the storm surge is influenced by the following factors:

- wind strength and direction
- pressure gradient
- seafloor bathymetry
- coastal topography.

MRA (2015) assessed the coastal inundation risk for the Rockingham Beach Foreshore. The determined coastal inundation levels for the various timeframes are presented in Table 7. It should be noted that these levels do not include the potential effects of wave run-up, which may need to be considered for infrastructure located close to the beach face and on structures such as the offshore breakwater (MRA 2017a).

Table 7: Coastal inundation levels

Component	2015	2040	2065	2090	2110
500 year ARI water level in Fremantle Fishing Boat Harbour	1.44 mAHD	1.44 mAHD	1.44 mAHD	1.44 mAHD	1.44 mAHD
Allowance for nearshore setup (wind and wave)	0.8 m	0.8 m	0.8 m	0.8 m	0.8 m
Allowance for Sea Level Rise	0.0 m	0.15 m	0.36 m	0.64 m	0.9 m
Total Water Level	**2.24 mAHD**	**2.39 mAHD**	**2.60 mAHD**	**2.88 mAHD**	**3.14 mAHD**

These inundation levels have also been used to create Coastal Inundation Hazard Maps for the Present Day (2017), 2040, 2065, 2090 and 2110 timeframes (Appendix 4). Fremantle Fishing Boat Harbour records to provide a reasonable estimate of the peak steady water levels at Rockingham (MRA 2015). Extreme analysis of the Fremantle Fishing Boat Harbour water levels suggests the 500-year ARI water level would be around 1.44 mAHD. Shoreline profile modelling suggests that the nearshore water level setup could be in the order of 0.8 m.

Coastal inundation maps are presented in Appendix 4.

Due to the open nature of the proposed offshore breakwater associated with Port Rockingham, which has openings at both ends, there are likely to only be minor reductions in the inundation levels in the lee of the breakwater following development of the Project (MRA 2017a). The hazard areas are not expected to change significantly with the Project. To maintain a level of conservatism it is therefore assumed that the existing Coastal Inundation Hazard areas will remain following development. It is noted that the structures associated with Port Rockingham will need to take into account these inundation levels in their design (MRA 2017a).

6.3.5 Management considerations

In accordance with *Coastal hazard risk management and adaptation guidelines* (WAPC 2014) a risk based approach has been used to assess the hazards and required mitigation and adaptation options for the proposed Port Rockingham development. The updated CHRMAP have confirmed that, provided the development complies with Statement 826, there is no change to the risk of coastal hazards outside the immediate Port Rockingham area. Existing assets, risk levels and mitigation actions are therefore consistent with CVA conducted by MRA (2015).

The risk assessment for each of the coastal hazards (erosion and inundation) should be assessed separately, as the hazard areas and types of impact are different. Impacts on an asset from erosion are generally permanent or irreversible. For instance, if a car park was undermined, it would be permanently lost. In contrast, coastal inundation would result in flooding of a car park, but it could still be used once the water receded. The impact in that case is therefore temporary.

However, over much of the proposed Port Rockingham area, the inundation hazards are minimal and there is no predicted change from the pre-development case. As a result, it is recommended that the proposed Port Rockingham development be constructed in such a way that any coastal inundation is avoided and accommodated.

Management considerations are therefore focussed on potential coastal erosion, which may have a greater impact than inundation and be more difficult to manage.

The revised CHRMAP also demonstrated that that there would be a moderate consequence to the assets associates with the proposed Port Rockingham development without appropriate design, monitoring, maintenance and adaptation (MRA 2017a).

Responsibility

CHRMAP is generally completed by the authority responsible for managing that asset, in most cases the local authority. For the Rockingham Beach Foreshore, incorporating the proposed development site of Port Rockingham, this is the CoR. The first iteration of CHRMAP for the existing assets, including consultation with key stakeholders and the community, has been completed by the CoR.

The Proponent for Port Rockingham is responsible for CHRMAP associated with the proposed development. This includes understanding the impact on, or changes to, the CHRMAP for Rockingham Beach caused by the proposed Port Rockingham development. These elements have been assessed in this project and are outlined in this report. The implementation of management will be the responsibility of the Proponent.

6.4 Climate change

6.4.1 Requirements under SPP 2.6

Climate change will cause variations in many environmental variables including mean sea level, ocean currents and temperature, wind climate, wave climate, rainfall/run-off and air temperature. Consideration of changes in other key environmental variables should be included as knowledge improves, and where relevant as part of CHRMAP or any other assessment of coastal hazards undertaken in accordance with the policy requirements.

The allowance for sea level rise should be based on a vertical sea level rise of 0.9 m over a 100-year planning timeframe to 2110.

6.4.2 Requirements under the Master Plan

There is consensus amongst scientists dealing with climate hypotheses and observations that human activities are increasing levels of greenhouse gases which may be contributing to global warming (CoR 2016). Changes over the 20th century include increases in global average air and ocean temperature, widespread melting of snow and ice and rising global sea levels. The extra heat in the climate system also has other impacts such as affecting atmospheric and ocean circulation, which influences rainfall and wind patterns (CoR 2016).

Records show that the decade of 2001–2010 was the world's warmest decade on record and in Australia, each decade has been warmer than the previous decade since the 1950s (CoR 2016).

These changes to climate are predicted to result in changes like storm frequency, storm intensity and sea levels. Although the magnitude of these changes is difficult to determine with certainty, any increase in storm severity together with a rise in sea level has the potential to impact on the vulnerability of the City's coastline. High sea levels will mean that storm waves are able to erode sections of the beach that were previously vulnerable, an effect which will be exacerbated by the increasing intensity of storm events.

6.4.3 Existing management

A Climate Change Response Plan is currently being developed by CoR to provide specific climate change mitigation and adaptation actions.

6.4.4 Management considerations

The WAPC recommend that an allowance for sea level rise be accounted for during coastal planning, as it is generally accepted that a 1 cm rise in mean sea level will result in a loss of approximately 1 m of beach, with a rise of 0.9 m predicted by 2110 (WAPC 2013a; 2013b). SPP 2.6 provides a number of management options for coastal management relative to coastal vulnerability risks including:

1. Planned retreat (e.g. building setbacks).
2. Accommodation (e.g. raising vulnerable infrastructure above predicted flood levels).
3. Protection (e.g. through construction of seawalls and other revetment strategies).

6.5 Ecological values

6.5.1 Requirements under SPP 2.6

In accordance with SPP 2.6, the following elements required to be considered for ecological values:

1. Disturbance of existing vegetation during construction should be minimised. However, if unavoidable, the area should be rehabilitated after disturbance with native species of local origin to stabilise land in and around developments.
2. Coastal vegetation corridors should be retained, not fragmented, and where possible enlarged (widened and lengthened), and rehabilitated if necessary.
3. Places of unique landscape, scientific and cultural significance should be conserved and managed including geomorphological, ecological, anthropological and historical sites.
4. Coastal areas that provide nesting sites for marine reptiles, mammals, resident and migratory shorebirds, and sea birds should be protected from impacts of development.
5. Off-road vehicle use should be managed and kept from degrading coastal dunes, vegetation, and habitats.
6. Disturbance of any endangered, threatened or priority listed species and communities present in the area should be avoided and assessed based on the applicable legislation.
7. Development should be designed to prevent invasion of native habitats by introduced species/pests.

6.5.2 Requirements under the Master Plan

Clearing within the Project area associated with the expansion of the Wanliss Street carpark has been approved in PER. The clearing of a total of 0.8 ha of the foreshore has also been identified in Master Plan.

6.5.3 Existing management

The protection of ecological systems is currently established though the removal of threatening processes (such as erosion, inappropriate access, feral animals, vandalism and rubbish dumping) by the CoR. The FMP for Rockingham Beach specifies management provisions for the following currently undertaken by CoR. These management provisions relate to:

- introduced weed species
- inappropriate access
- erosion
- vandalism and rubbish dumping.

A Construction Management Plan will be implemented by the Proponent to ensure there are no adverse impacts to marine fauna during and post construction.

The removal of wrack is not permitted under *Western Australia's Conservation and Land Management Act 1984* and; therefore, is not undertaken by CoR.

6.5.4 Management considerations

No management provisions are proposed to be undertaken by the Proponent as part of this FMP for ecological values.

6.6 Water quality

6.6.1 Requirements under SPP 2.6

In accordance with SPP 2.6, the following elements should be considered:

1. Development should not result in discharges such as sewerage, fertilisers or toxic chemicals into the coastal environment.
2. Development should not result in changes to nearshore water circulation patterns. Such changes may have an adverse impact on the biodiversity or public use of foreshore areas.
3. Development should not substantially alter existing natural drainage patterns, nutrient and organic matter cycling processes, near shore sediment transport patterns or water quality.
4. Development should not substantially alter existing natural drainage patterns, nutrient and organic matter cycling processes, near shore sediment transport patterns or water quality.
5. Coastal waters support primary food production for marine fauna and flora. Coastal habitats, particularly areas of high biological productivity and biodiversity should be protected.

6.6.2 Existing management

The Cockburn Sound Management Council (CSMC) is responsible for the oversight and co-ordination of environmental monitoring and research/investigative studies in Cockburn Sound. The CSMC reports annually to the Minister for Environmental on the results of environmental monitoring of the Cockburn Sound marine waterbody, and the extent to which the results meet the EGOs and EQCs in the SEP.

6.6.3 Assessment of key factor

Water quality has been assessed as part of the PER for the Project.

6.6.4 Management considerations

Management and monitoring actions to assess water quality during operation of the Project are addressed in the MWMMP provided in Appendix 3. A Construction Management Plan has been prepared and will be implemented by the Proponent during the construction and operation phase of the Project.

As part of the MWMMP the Proponent will undertake water quality monitoring to ensure marina operations don't cause nutrient release (eutrophication) or marine contamination.

6.7 Recreation and public access

6.7.1 Requirements under the Master Plan

There are no requirements specified under the Master Plan for water quality.

6.7.2 Requirements under SPP 2.6

In accordance with SPP 2.6, the Project considers recreational attributes that attract people to the coast such as safe swimming, beaches and landscape and seascape features through:

- improving access to the beach, Naval Memorial Park and dog beach
- provision of beach access points along the Project area
- provision of public facilities such as showers, bins and seating.

Connectivity with adjacent uses such as POS, public transport access, established car parking facilities are maintained by the following:

- diverting traffic from Railway Terrace and Rockingham Beach Road by increasing use of Kent Street and Wanliss Street
- upgrading Rockingham Beach Road to a two way pedestrian prioritised Shared Space with reduced vehicle speeds
- the use of Kent and Harrison Streets will increase as vehicles find an alternate route to avoid the busy pedestrian areas (e.g. Rockingham Beach Road)
- installing contrasting pavement at selected nodes to slow vehicles and allow for easier crossing of the road e.g. along Esplanade at Rotary Park and Palm Beach Jetty.

6.7.3 Requirements under Master Plan

The Project area provides obvious and logical public access to the coast to encourage the local community to walk, rather than drive to the beach. Signs are also placed within the Project area, and major access ways avoiding danger zones (e.g. dangerous rip areas) in consideration of safety to users.

Public access (in particular off-road vehicles) will also be minimised over eroding or steep dunes, rocky areas or other difficult terrain unless there is a demonstrated public benefit. This type of access may be susceptible to erosion or require frequent or costly maintenance. Restriction of access also ensures protection of significant conservation or heritage areas through controlled access.

6.7.4 Existing management

Demand for use of the Project area will increase as a result of the Waterfront Village development, the increased provisions proposed within the Project area, and increased use of the area at the regional scale as part of the larger Rockingham area. To ensure the natural values of the foreshore are protected, whilst fulfilling community expectations associated with access to the area, access management is a key management consideration.

Vehicle access will be restricted within the Project area except for maintenance, fire fighting and emergency purposes. Currently, there are six direct roads that access the Project area and have adjoining street car parks that have access to the foreshore:

- Wanliss Street
- Victoria Street
- Alexandra Street
- Governor Road
- Weld Street
- Roe Street.

There are also informal (sand) and formal (hardscape) pedestrian tracks, and formal and informal vehicle and boat track access ways to the coast.

The Project area will contain a mixture of passive and active recreation facilities located in areas that will minimise impact to the natural values of the area. Key access infrastructure proposed within the Project area includes:

- beach access points located along existing tracks
- four universal access along pathways, provision of car parking, and disability access to facilities
- use of existing Wanliss Street car park area
- maintenance access bollards/removable bollards
- fencing.

Uncontrolled and unmanaged access to the Project can result in impacts to the integrity of the foreshore vegetation, including the promotion of weeds and increased erosion. Impacts as a result of unmanaged access to the Project are already evident, largely due to uncontrolled traversing of the dunes outside of designated paths and access ways. In order to manage potential impacts on the Project as a result of uncontrolled access a range of measures will be implemented by the Proponent. This includes:

- the provision of provision of bollards to limit vehicle access
- fencing.

6.7.5 Management considerations

There are no proposed management provisions to be implemented by the Proponent in regard to recreation and access.

6.8 Marine resource use and access

Commercial fisheries are not within the Project area and; therefore, marine resource use and access are not considered further in this FMP.

6.9 Landscape, seascape and visual landscape

6.9.1 Requirements under SPP 2.6

The SPP 2.6 aims to ensure that land use and development adjacent to the coast is sited and designed to complement and enhance the coastal environment.

6.9.2 Requirements under the Master Plan

The Master Plan provides a visual theme for coastal development nodes within the Project area that ensures the components within the reserve (i.e. access paths, car parks, shelters) complement the natural environment. The material palette in the Master Plan is simple, complementary of existing material finishes in Rockingham and suitable for a foreshore application (CoR 2016).

As outlined in section 5, the design of the Project considered the location, site and design of the Project and built elements near the coast in a way that minimises their visual dominance and acknowledges the Rockingham Beach coastal setting.

6.9.3 Existing management

Existing management requirements are outlined in the Master Plan, which provides a visual theme for coastal developments.

6.9.4 Assessment of key factor

The following sections outline how the Project meets the requirements of SPP 2.6.

6.9.5 Location

Locational strategies involve ensuring the Project is not located in areas that are visible from roads, paths, recreation sites, especially if it's in the foreground of views. As the Project involves the development of a marina, and associated development of the foreshore, design is a major focus to ensure the Project complements the natural environment.

6.9.6 Design

These include elements of the Project design that focus on the development not being evident, such as colour and texture:

- use of camouflage colour, especially darker tones
- use of non-reflective surface materials
- use of local materials
- shading of building walls and windows with eaves and verandas.

Visual elements such as form, line, colour, texture, scale and architectural style help blend the development with the coastal environment. The Project uses the following methods to achieve this:

- use of vegetation that is local or its appearance complements local vegetation
- use materials that are prominent in the landscape (e.g. local soils and rocks), or are complementary to local materials
- use colours that are prominent in the landscape (e.g. vegetation, soil or rock), complement the natural environment, or are dark in tone to reduce overall visibility.

Local indigenous vegetation has been retained and/or restored where possible, and the use of local species in revegetated areas to provide visual linkages with the natural landscape setting.

The siting and design of public purpose buildings such as recreation facilities, are visually compatible with the character of the reserve within the Project area.

6.9.7 Siting

Siting strategies should focus on avoiding prominent locations in landscapes, or in important viewsheds. The Project considered siting strategies through the:

- use of strategically placed plantings to draw attention away from the development, and to provide additional emphasis to existing natural and rural landscape features
- additional plantings so ensure the landscape looks more diverse and the structures within the Project area are less obvious
- coastal access paths do not dominate the natural character or views.

6.9.8 Management considerations

Landscape, seascape and visual landscape elements (restricted to immediate adjacent 'knuckle' and Wanliss Street public car park) will be addressed through a Landscape Plan to be prepared to the satisfaction of the City as a condition of approval.

6.10 Heritage

The Project will not result in any potential impacts to Aboriginal or European heritage, therefore management of Aboriginal and European heritage has not been considered further in this FMP.

6.11 Land capability

The infrastructure proposed within the Project area is compatible with the Rockingham Beach coastal zone.

Geotechnical studies will be required within the Project area where structures, such as changerooms, toilet facilities etc are proposed to certify that the land is capable of development. The requirement for a geotechnical investigation is required as part of standard pre-development requirements.

6.12 Proposed future development

The Department of Planning has assessed all Perth metropolitan coastal areas for potential land use capabilities through the Perth Coastal Planning Strategy (2008). This has divided the coast into 56 precincts according to geographical, natural and cultural characteristics. The report then lists recommended development to be promoted for each precinct.

The recommendations for development Rockingham's coastal areas are provided in Table 8.

Table 8: Recommended development types for Rockingham's coastal areas

Precinct	Description	Recommended development
North Rockingham	Passive recreation based around the marine environment.	• Open space • Residential • Tourism • Boat launching • Dog/horse beach • Swimming • Water skiing • Diving and snorkelling.
Rockingham Activity Centre	High-density activity centre. Residential and mixed use development. Commercial, tourism and passive recreation.	• Residential • Tourism accommodation • Tourism and associated facilities, i.e. BBQ's, shade, paths, change rooms, cafes, shade trees • High level of access.
Point Peron	This open space precinct is dominated by conservation. Areas within the precinct are subject to the Shoalwater Islands Marine Park and the Rockingham Lakes Regional Park Management Plans.	• Conservation • Short-term low cost accommodation • Holiday camps, environmental/marine education • Tourism • Interpretive boards • Paths and/or boardwalks • Dog beach • Public boat launching facility.

Source: Rockingham Foreshore Management Plan

In addition to these recommendations, proposed future coastal developments should be compatible with the surrounding environment and consistent with SPP 2.6.

Table 9: Proposed coastal developments within the CoR

Precinct	Description
Port Rockingham Marina	A new marina facility located at the intersection of Wanliss Street and Rockingham Beach Road. An area of approximately 9 ha of near shore marine environment is to be occupied, which will be designed to accommodate 500 vessels. The planning approval for the Project expired on 18 February 2015. The proponent would need to renew the planning approval prior to the commencement of any Project works.
Mangles Bay Marina	The inland marina, to be located just east of the Garden Island Causeway, was proposed to accommodate more than 500 boats, with the surrounding land development to be mixed use, incorporating residential, commercial and tourism land uses. This project did not gain support from the Minister of Planning, and is no longer proposed.
City Centre and Waterfront Village	A range of mixed use and residential multi-story units.

The Project (comprising the Port Rockingham Marina) has been identified as a coastal development recommendation (Table 9).

7. Foreshore management requirements

7.1 Form and scale of development

The Project area is predominantly offshore, with a jetty extending approximately 200 m out from the shoreline at Wanliss St, to connect to an offshore breakwater. The onshore component to the Project comprises the extension of the existing car park at Wanliss Street.

7.2 Foreshore tenure and management

The Project will be located on a seabed lease land will be owned and operated by the Proponent. Ongoing management of and the liability for the completed marina would therefore be the responsibility of the Proponent, not the CoR, or state government agency. Integration with CoR and utility services, such as waste removal, power and water supply, will be required.

7.3 Location, form and land use within development nodes

The key assets within the Project area are outlined below:

- foreshore amenities
- carparks
- Naval Memorial Park
- offshore breakwater
- jetties and marina pens
- foreshore area and extenstion of Wanliss Street Carpark.

The open-pile pier will extend north approximately 200 m from the shoreline and Wanliss Street carpark. The breakwater will extend northeast (parallel with the shoreline) from the end of the open-pile pier for approximately 770 m. The extension of the carpark which increase the number of existing car bays from 52 to 216 car bays for Wanliss Street. Details for the proposed offshore and onshore components (Appendix 1).

The land use proposed within the Project area comprises of a mixed-use development that will provide:

- 500 boat pens
- open-ended pier with commercial and short stay residential land uses (i.e. hotel)
- breakwater.

7.4 Wastewater, stormwater and water sensitive urban design

As development within the CoR has continued, the amount of stormwater that needs to be redirected from urban, built up areas has increased. Traditionally, drains have carried the stormwater to outlet pipes on the beach or in the dunes. As environmental awareness has increased, a number of impacts are known to be associated with this practice, including:

- carrying of pollutants such as nutrients, heavy metals and microbiological species to beach areas where they can come into contact with people when swimming, and thus impacting on the recreational amenity in the vicinity of discharge sites
- creating areas of erosion during larger rainfall and storm events at the outlet location
- creating wetter areas in dunes that, depending on the frequency and intensity of rainfall events, can impact on vegetation at the site.

Considerations for management include:

- treating stormwater before discharge onto beach areas
- reducing the potential for erosion at outlet locations
- consider the continued appropriateness of discharging stormwater into dunes.

A MWMMP has been prepared and provided in Appendix 3 to demonstrate how impacts of wastewater and stormwater into the marina water body will be managed and monitored, to not adversely impact water quality of Rockingham Beach of surrounding community swimming areas.

7.5 Coastal hazard risk management and adaption planning

The 2013 SCPP requires proponents to consider the potential risk to development associated with coastal hazards. Where risk assessments identify a level of risk that is unacceptable to the affected community or proposed development, adaptation measures need to be prepared to reduce those risks to acceptable or tolerable levels. The hierarchy, presented in a sequential and preferential basis with regard to the coastal hazard risk requires:

- avoid - avoid new development within the area impacted by the coastal hazard
- managed retreat - relocation or removal of assets within an area identified as likely to be subject to intolerable risk damage from coastal hazards over the planning timeframe
- accommodation - If sufficient justification can be provided for not avoiding development of land that is at risk from coastal hazards then accommodation adaptation measures should be provided that suitably address the identified risks
- protection - where sufficient justification can be provided for not avoiding the use or development of land that is at risk from coastal hazards and accommodation measures alone cannot adequately address the risks from coastal hazards, then coastal protection works may be proposed for areas where there is a need to preserve the foreshore reserve, public access and public safety, property and infrastructure that is not expendable.

The Project meets an identified demand for recreational boating facilities in the southern section of Cockburn Sound. The marina has an inherent need to be in the coastal zone to be operable and is an exemption to SPP2.6 under item 7.4 (Industrial and commercial development). The Avoid strategy is therefore not an option (MRA 2017a).

7.5.1 Proposed mitigation strategies

The Wanliss Street carpark is within the 100-year coastal processes line. A managed retreat approach will be adopted for the carpark as this approach is expected to be beneficial for the community compared to developing this infrastructure further landward from the outset. The proposed location of this carpark near the coast provides for improved amenity for the users and ensures connection to the coast is maintained.

To ensure the risk of coastal hazards impacting is contemporary and appropriate for the infrastructure, it is recommended that ongoing monitoring and review of structures are undertaken. It is likely that reassessment of coastal vulnerability is undertaken to determine appropriate new locations for infrastructure.

Each of the key assets associated with the proposed Port Rockingham development would require mitigation and adaptation to ensure the risk of coastal impacts is at an appropriate level. The responsibility for the implementation of these mitigation and adaptation strategies will be with the Proponent of the development.

Marina

The marina incorporates a group of assets which require risk management to address the impacts of coastal hazards. The 500 marina pens and associated infrastructure (walkways, access etc) within the marina will be floating structures. To meet the relevant Australian Standards for design and construction of these marina pens, it is important to recognise that they require protection. This protection is required to reduce the wave climate to an appropriately low level. The offshore breakwater was selected as an appropriate protection option. The open-ended pier component of the offshore breakwater will allow natural coastal processes to continue once the structure has been completed.

To ensure protection for the marina assets, the offshore breakwater will be appropriately designed and constructed. The breakwater will need to be designed to meet relevant Australian Standards and to withstand the action of the ocean and coastal hazards and changes to these conditions over the design life. This will ultimately be the responsibility of the Proponent.

The marina pens will also need to be designed and constructed to meet relevant Australian Standards and to withstand the action of the ocean and coastal hazards and changes to these conditions over the design life.

Following construction, a monitoring and maintenance program for the marina elements will be required to confirm that they continue to adequately manage and mitigate the risks.

Implementation will be the responsibility of the Proponent.

Jetties

The proposed jetties and associated fixed structures (including buildings) are not directly protected by the offshore breakwater and require risk management and adaptation to reduce their risks of impact to an appropriate level.

The jetties and associated infrastructure will be designed to sit above the 500-year ARI coastal inundation levels, including an appropriate allowance for climate change. This will ensure that they avoid the risk of coastal inundation.

The jetties have a demonstrated need to be in the coastal erosion hazard area to provide access to the offshore breakwater and marina pens and are unable to avoid this risk. However, to accommodate these risks they will be designed and constructed in accordance with relevant Australian Standards. This will reduce the risk of impacts to an appropriate level. Following construction, a monitoring and maintenance program for the jetties will be required to confirm that they continue to adequately manage and mitigate the risks.

Implementation will be the responsibility of the Proponent.

Offshore breakwater

The offshore breakwater has a demonstrated need to be located in an area subject to the action of the ocean and coastal hazards. It performs a function to reduce the risk of impact of coastal hazards on the marina pens. It will therefore require risk management and adaptation to reduce the risks of impact to an appropriate level.

The breakwater will be designed to accommodate the risks of coastal erosion and inundation to reduce the risk of impacts to an appropriate level. This will include the following actions:

- design and construction of the breakwater to allow for coastal inundation to the appropriate 500-year ARI level
- associated infrastructure on the breakwater (e.g. roads and walkways) would be elevated above the 500-year ARI coastal inundation levels, including an appropriate allowance for climate change. This will ensure that they avoid the risk of coastal inundation
- the breakwater would be designed to accommodate the appropriate design storm conditions, in accordance with relevant Australian Standards and best practice

- an appropriate monitoring and maintenance program for the breakwater to ensure it continues to provide protection to the development
- implementation will be the responsibility of the Proponent.

Foreshore and onshore assets

The coastal management strategy, to manage shoreline movement down-drift of the breakwater, will be completed as part of an adaptive management strategy. It will be determined in conjunction with the City, who manage the shoreline in the greater area. The whole beach adaptive management strategy will include the following:

- coastal monitoring, including surveys, analysis and reporting
- sand bypassing.

Details are provided in section 6.1.

The detailed strategy will be determined in conjunction with the City. It is important to note that the implementation of the monitoring and sand bypassing will be completed in conjunction with the City, but will be the sole responsibility of the Proponent.

The coastal management will be completed to offset those impacts as a result of Port Rockingham. It is important to note that the coastal management will not halt all the erosion of the shoreline over the longer term that is associated with sea level rise and the like. This shoreline erosion would have occurred even without the construction of the marina. This longer term may affect the onshore facilities, including car parks and other infrastructure. To address this, the following should be implemented:

- in the short term, the shoreline movement should be monitored as part of the coastal monitoring program
- detailed design of the foreshore infrastructure associated with the development should be recognisant of the coastal hazard lines. Where possible, the infrastructure should avoid the risk of coastal erosion in the design life of the asset
- in the longer term and as dictated by the coastal monitoring, onshore assets should be relocated or removed by way of planned or managed retreat. Due to the relatively low value assets proposed in these areas and the available space in the foreshore reserve behind the breakwater, it is likely that the majority of assets could be relocated outside the coastal erosion hazard areas at the end of their design life.

The completed risk assessment and proposed adaptation, has been used to develop risk mitigation actions as well as triggers for when these mitigation strategies should be enacted. An initial assessment of these priorities and triggers is presented in Table 10. The party responsible for each of the risk mitigation or adaptation actions is also clearly identified.

It is proposed a single entity will be responsible for managing the assets at Port Rockingham, including the breakwater, jetty and marina. They will also be responsible for the relevant coastal monitoring and management associated with the development. A clear link will therefore be maintained between the assets and the management responsibility. The monitoring and maintenance works will be completed in consultation with the City and would require City approvals.

The City would still be responsible for managing City assets, such as the foreshore through the area.

Table 10: Risk mitigation actions, triggers and responsibilities

Asset	Risk mitigation and adaption	Trigger	Responsibility
Port Rockingham Marina & Jetty	• Protected by offshore breakwater • Designed to accommodate sea level rise and avoid coastal inundation • Designed to meet Australian Standards • Monitoring and maintenance program.	During design and construction	Proponent
Port Rockingham Breakwater	• Designed to accommodate storm events. • Designed to avoid coastal inundation • Designed to meet Australian Standards • Monitoring and maintenance program.	During design and construction	Proponent
Port Rockingham Foreshore	• Monitoring program • Protect (sand bypassing) to maintain coastal processes • Longer term – managed retreat.	Construction As determined by monitoring and in line with EPA condition 8-1	Proponent (Port Rockingham) & CoR (CoR assets)
Existing Assets	As per Rockingham Beach Masterplan.	As per Rockingham Beach Masterplan	CoR
All	Review and update CAP and strategies.		Proponent (Port Rockingham) & CoR (CoR assets)

7.6 Ongoing maintenance and management of foreshore areas including any foreshore protection structures

Implementing this the management strategy in conjunction with the City, including monitoring and reviewing shoreline change through profile monitoring and beach surveys will help identify any alterations, either positively or negatively, of risk exposure of the proposed infrastructure within the Project area.

7.6.1 Coastal Monitoring

The previous assessments (MRA 2008 and RPS 2009) recommended an adaptive and integrated beach management plan, including monitoring, with the City to ensure that natural littoral sand drift is maintained. The Rockingham Foreshore Masterplan CHRMAP also made recommendations for a number of different monitoring strategies for the existing Rockingham Beach shoreline.

It is essential that a monitoring and review program is implemented in order to track changes to the shoreline over time. This has been confirmed and an indicative program outlined in the updated coastal process assessment outlined in Section 6.1. While the coastal hazard mapping and sediment budget presented in this report provide an indication of the potential changes to the shoreline over time, the system is inherently complex and the actual shoreline response could be different to that presented. Triggers should therefore be based on the observed coastal response, determined by the monitoring program.

To implement the 'whole beach' management strategy outlined in Section 6, the Proponent will be responsible to monitor and review shoreline change through profile monitoring and shoreline surveys. It is important that this is done in conjunction with the City and their coastal monitoring program.

7.6.2 Structure Monitoring

The Proponent will also be responsible for monitoring and maintaining assets constructed as part of the proposed Port Rockingham development. This would include regular inspections of the breakwater and jetty structures and assessment of condition.

7.6.3 Adaptation Plan Review

As well as the proposed coastal and asset monitoring program, review of the proposed risk mitigation and CAP actions should be completed on approximately 10 yearly intervals. This would confirm the trends in movement and the risk assessment and recommendations of the CHRMAP.

Based on the outcomes of the review and the coastal monitoring, an update to the proposed strategy and actions may be required.

8. Management framework and responsibilities

8.1 Implementation

This FMP will be implemented by the Proponent and relevant contractors engaged to undertake individual works programs. Funding, maintenance and management of foreshore works will be the responsibility of the Proponent for a period not less than five years commencement from completion of foreshore works.

8.2 Timing

This FMP will require the approval of both CoR and the WAPC. Any proposed development works within the Project area will be subject to the following planning and environmental approvals:

1. Development Application (CoR and WAPC).
2. Engineering/landscape construction design drawings (CoR).

It is envisaged that the landscape concept plans and explanatory documentation presented in this FMP will be approved as part of the overarching FMP approval.

The Project will be constructed in two stages. The majority of the work would be completed in stage one which will comprise construction of the following to accommodate pens for 500 boats:

- car park upgrade
- breakwater
- entire pier (inclusive of retail precinct)
- boardwalk jetties
- finger jetties
- floating pens
- stormwater drain upgrade.

The commencement of stage two of the proposal would see the further construction of another 500 boat pens and the timing of commencement of this stage is dependent upon demand for boat pens.

The anticipated duration for construction of stage one is 24 months with the breakwater construction taking approximately 12 months, 6 months for the pile driving and a further 6 months for the remaining work to be completed. It is estimated that the temporary earthen bund (to be replaced by the pier) will need to be in place for a total of twelve months.

The Project area will be created as a ‘Parks and Recreation’ reserve and vested to the Crown as agreed by the Proponent and the WAPC.

8.3 Finance

Estimated costs to implement the proposed monitoring actions in this FMP are high level and conservation for budgeting purposes and will need to be refined once the program has been established. Once the works are shown to be operating successfully (after the first 5 years following construction) the monitoring program can be altered and potentially reduced. Costs are also likely to be reduced as sand bypassing works become more efficient.

Indicative annual cost estimates for the coastal monitoring and management works proposed in this FMP are summarised in Table 11.

Table 11: Indicative monitoring and associated management costs

Monitoring activity	Annual costs
Implementation of coastal monitoring, including seasonal surveys, inspections, photo monitoring, assessment and reporting	$45 000
Sand bypassing (1–2 operations annually)	$80 000

Source: MRA (2017a)

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Appendix 1
Onshore and offshore plans