



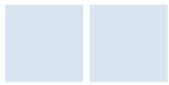
# Exmouth Marina Village Outline Development Plan Including Broad Design Guidelines

Revised April 2011



**Exmouth Marina Village  
Outline Development Plan  
Including Broad Design Guidelines**

**Revised April 2011**



## DOCUMENT HISTORY AND STATUS

Exmouth Marina Village Outline Development Plan (including Broad Design Guidelines)		98/100	Revision	Date Issued
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			1	July 2003
			2	April 2011
In association with:	<b>Jones Coulter Young Architects &amp; Urban Designers</b> <b>Bowman Bishaw Gorham Environmental Consultants</b> <b>Cossill Webley Consulting Engineers</b>			

### REVISION 2 (APRIL 2011) MODIFICATIONS

The modifications arose from an application for subdivision approval to create a site for additional permanent residential development within the Exmouth Marina Village. The Western Australian Planning Commission (WAPC) refused the application (WAPC no 140686) on 2<sup>nd</sup> February 2010. Following that decision, the landowner exercised their right to a Review of that decision in the State Administrative Tribunal (SAT).

The WAPC agreed through the SAT mediation process (refer **Appendix 4**) to give its “in principle support” to an alternative proposal (refer **Broad Design Guidelines - Appendix 1**) subject to modifications being made to the Resort Concept Plan, Exmouth Marina Village Outline Development Plan (ODP), Exmouth Marina Village Broad Design Guidelines (BDG) and Exmouth Marina Village Detailed Design Guidelines (DDG) – Precinct C, together with a new application for subdivision being submitted.

The resultant modifications to the Exmouth Marina Village ODP/BDG document are as follows:

#### **OUTLINE DEVELOPMENT PLAN:**

-  **Section 4.2 Precincts** – amended to include R30 Coded Built Strata Permanent Residential under Precinct C
-  **Section 9.2 Outline Development Plan** - amended to specify ODP is supplemented by the Detailed Design Guidelines for Precinct C
-  **Section 9.6 Development** - amended to include Detailed Design Guidelines for Precinct C
-  **Figure 11 Outline Development Plan** - amended to include Built Strata Permanent Residential Site
-  **Figure 12 Precinct Plan** - amended to include Built Strata Permanent Residential Site
-  **Appendix 3 - Resort Concept Plan** included
-  **Appendix 4** – WAPC SAT Resolution included

#### **BROAD DESIGN GUIDELINES:**

-  **Section 4 Precinct C- Resort Site** – amended to include Built Strata Permanent Residential north of the resort as a permitted use
-  **Section 4.1 Descriptive Design Character** – amended to include Built Strata Permanent Residential north of the resort
-  **Figure 1 Precinct Plan** - amended to include Built Strata Permanent Residential Site
-  **Appendix 1 – Indicative Built Strata Permanent Residential Floor Plans** included

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## 1 INTRODUCTION

The Exmouth Marina Village Outline Development Plan (ODP) has been prepared by LandCorp and Taylor Burrell on behalf of the Exmouth Development Steering Committee to facilitate a marina village consisting of tourist, residential, commercial and marine based industrial development around the existing boat harbour.

The Exmouth Marina Village Outline Development Plan has been prepared in accordance with Clause 5.5.3 of the Exmouth Town Planning Scheme No. 3 and WA Planning Commission Policy DC 1.8 Procedures for Approval of Artificial Waterways and Canals. The area subject of the Outline Development Plan (ODP) is shown in **Figure 1**.

This document updates the ODP (October 1998) which was approved in principle by the Shire of Exmouth in November 1998. Incorporated as part of the Outline Development Plan is the Broad Design Guidelines which are appended at the rear of the document. The Broad Design Guidelines are prepared as a Council Policy in accordance with clause 9.6 of Town Planning Scheme No. 3.

### 1.1 HISTORY OF MARINA PROJECT

The marina has had a lengthy history from being considered to actual construction of the outer harbour and preparation of this Outline Development Plan. The history is summarised below.

#### 1980s

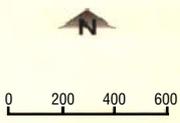
-  At the request of the fishing industry for a boating facility the then Department of Marine and Harbours prepared a design for an unloading/service jetty at Badjirrajirra Creek adjacent to Kailis' fish processing facility located a few kilometres south.
-  The Department resolved not to proceed with building the jetty as the design did not afford protection to boats and would not generate significant income.

#### 1986

-  Skywest Holdings the then owner of NorCape Lodge Resort proposed to develop a marina resort utilising the Lodge Resort side and additional land to the north.
-  A Public Environmental Review (PER) was prepared, but prior to the Environmental Protection Authority formally assessing the proposal Skywest sold NorCape Lodge and withdrew the proposal. The Environmental Protection Authority however, raised concern about the marina being too close to the wastewater treatment plant.
-  Other developers approached Marine and Harbours with a view to constructing a similar facility.
-  The fishing industry continued to lobby for a facility.

#### 1987

-  The then Minister for Transport established a working group to assess the financial viability of a marina within the Exmouth Gulf area.
-  Exmouth Marina Development Committee elected in August.

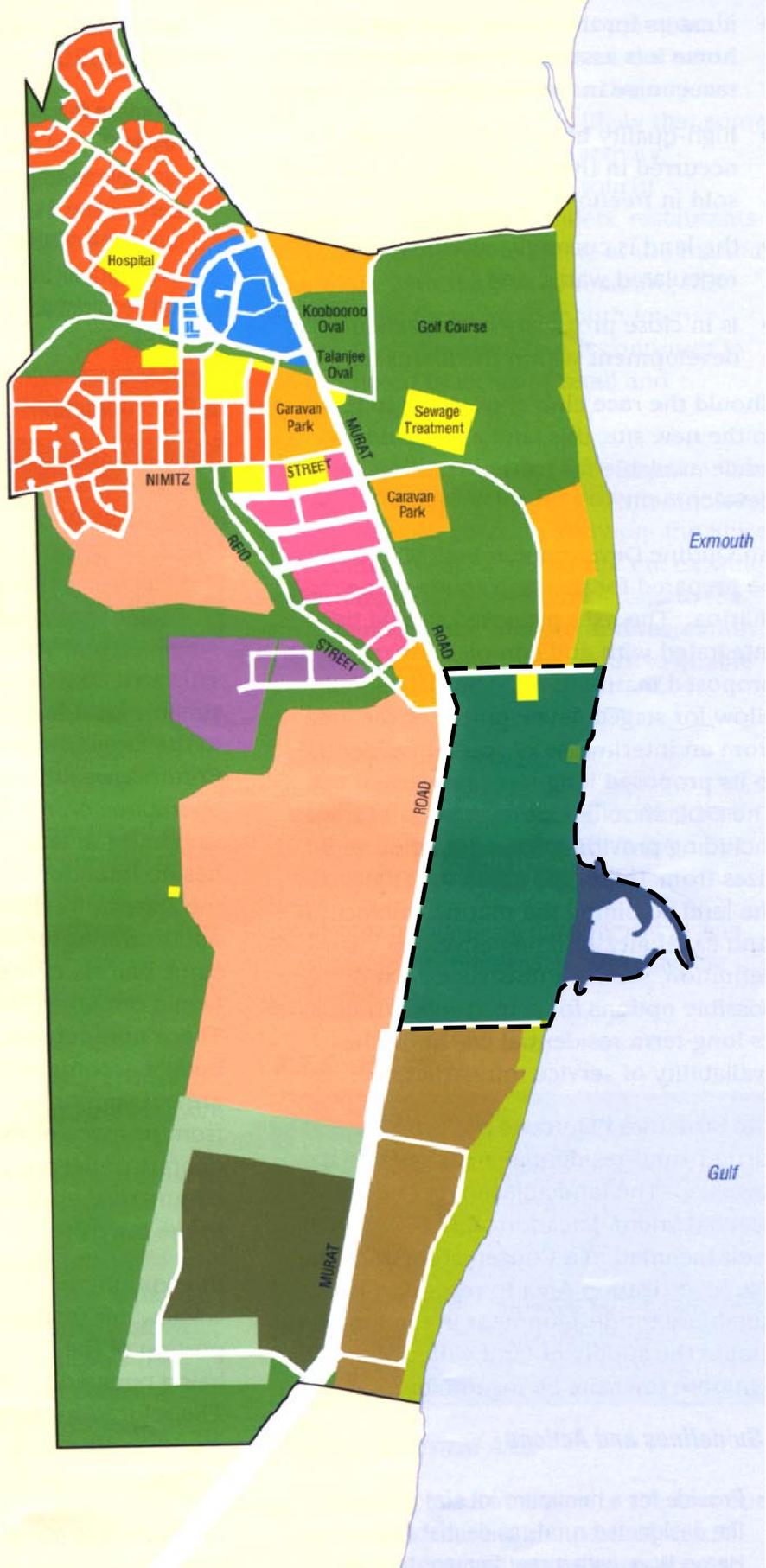


Source: Produced by Project Mapping Section,  
Land Information Branch, Ministry for Planning,  
Perth, W.A. December 1998

ntw\_map18/gascoast/exspf\_f7.dgn

**LEGEND**

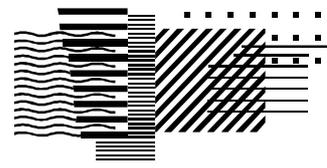
- Recreation / Open Space
- Urban
- Future Urban
- Town Centre
- Mixed Use Light Industrial / Commercial
- Industry
- Public Purpose
- Tourist
- Rural-Residential
- Special Residential / Long-Term Future Urban
- Proposed Racecourse / Rural-Residential
- Marina Precinct
- Marina / Boat Harbour
- Coastal Park
- Townsite Boundary
- Outline Development Plan Area



DATE  
November 1999

FIGURE NO.  
**1**

NORTH



**Taylor Burrell**  
Town planning and design

# LOCATION PLAN EXMOUTH MARINA VILLAGE

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## Exmouth Marina Village Outline Development Plan

 The Working Group recommended a multi-user facility adjacent to the Exmouth township as it could utilise the existing infrastructure and would be a boost to the township.

 The Coral Coast Marina project resulted.

### 1992

 The Coral Coast Marina received environmental approval.

 The project does not proceed due to withdrawal of interested developers, downturn in international and national economies and concern over the cost by the State Government.

 The Department of Planning release the (draft) Exmouth Coastal Strategy for public comment. The Strategy acknowledged significant community support for a marina and resort near town beach.

 The United States Navy withdraws from the Harold Holt Naval Communication Station.

### 1994

 Cabinet resolves that a strategic planning study be prepared for the coastal area between Exmouth and Carnarvon.

### 1995

 Deputy Premier and Minister for Regional Development submit a Cabinet Minute proposing the construction of an outer boat harbour and an associated resort/residential/ tourist development near town beaches.

 Cabinet endorse a Concept Plan for a marina and associated residential and resort development prepared by James Christou and Partners Architects on behalf of LandCorp and request a further report on the land based component of the project. (See **Figure 2**)

 Cabinet establishes the Exmouth Development Steering Committee (EDSC) to oversee the development of the project.

### 1996

 Gascoyne Coast Regional Strategy is released by WA Planning Commission. The Strategy recommends the provision of “a marina with basic infrastructure for a range of uses including commercial and recreational fishing, charter boat operations, mining and exploration support and tour boats in Exmouth

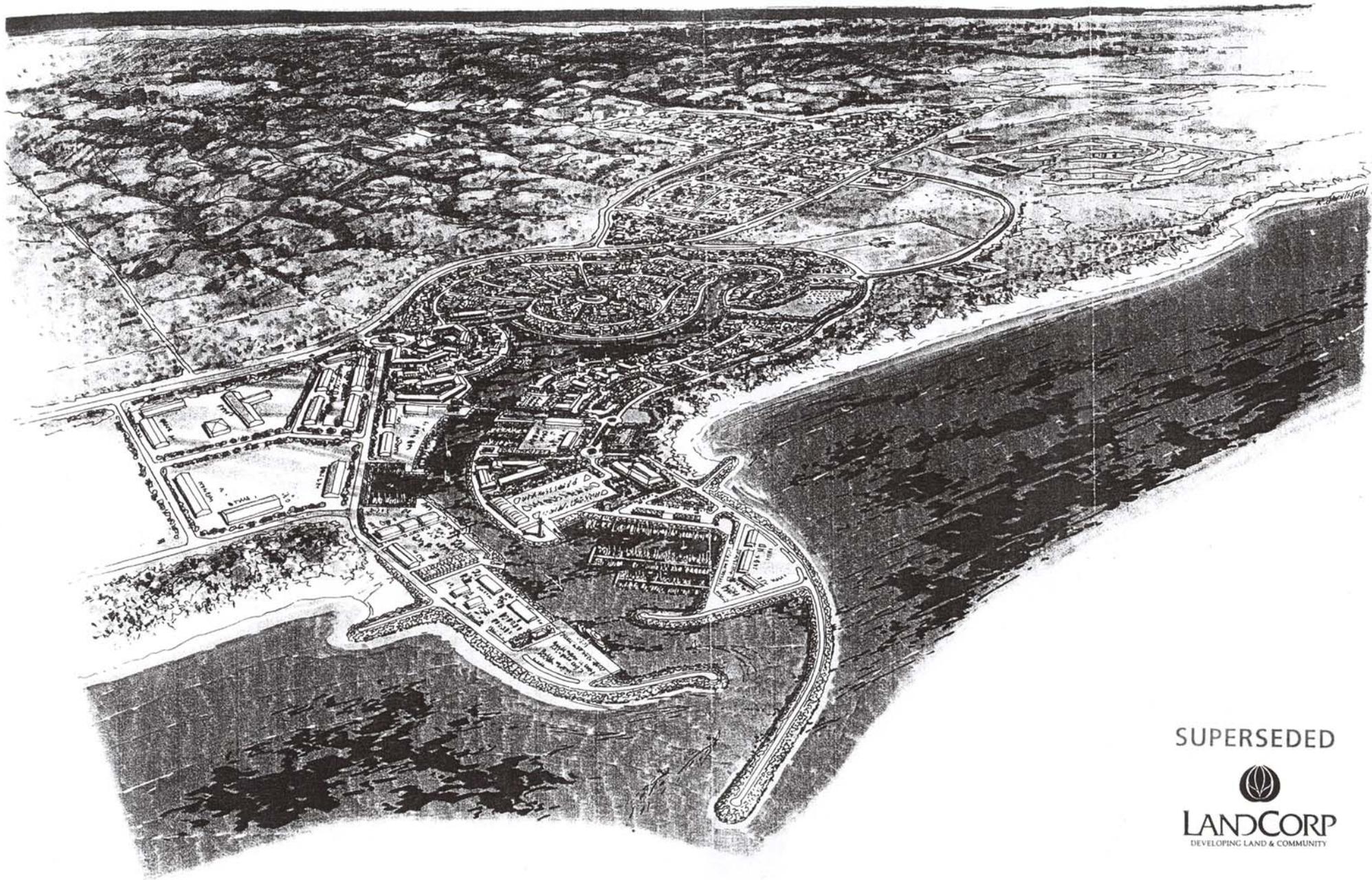
 Construction of the outer boat harbour by Axiom is launched by the Premier.

### 1997

 The outer boat harbour is officially opened in September.

### 1998

 The EDSC relinquish the development contract with Axiom.



CHRISTOU ARCHITECTS  
EXMOUTH BOAT HARBOUR & RESORT/RESIDENTIAL PROJECT

SUPERSEDED



LANDCORP  
DEVELOPING LAND & COMMUNITY

FIGURE 2



## Exmouth Marina Village Outline Development Plan

-  The EDSC resolve to review the design of the land based development.
-  Taylor Burrell prepares a revised concept plan dated October 1998 (See **Figure 3**).
-  WA Planning Commission releases Exmouth-Learmonth (North West Cape) Structure Plan. The Structure Plan acknowledges the Marina Village as part of the strategic areas to accommodate future residential growth and tourist accommodation and recommends its development in accordance with State Agreements.
-  The Shire of Exmouth approves in principle the October 1998 ODP.

### 1999

-  Town Planning Scheme No. 3 for the Shire Of Exmouth is gazetted in September. The Scheme incorporates a Marina Zone which reflects the area proposed by this ODP and respective provisions relating to its development.
-  Taylor Burrell present a further revised design (dated July 1999) presented as an Outline Development Plan in accordance with the requirements of the Shire of Exmouth's Town Planning Scheme No. 3. The July 1999 ODP incorporates two essential changes to the October 1998 plan being the realignment of the northern canal fingers to allow better flushing potential and providing a more direct man access road between the existing townsite and the existing boat harbour.

## 1.2 ENVIRONMENTAL APPROVALS

### 1.2.1 PUBLIC ENVIRONMENTAL REVIEW

The Christou Concept Plan was given a formal level of assessment by the Environmental Protection Agency. A Public Environmental Review (PER) was prepared by Bowman Bishaw Gorham in 1997 based on the Christou Plan. The Environmental Protection Authority reported on the proposal in Bulletin 868 in November 1997.

The former Minister for the Environment issued Ministerial Statement 474 in April 1998 setting out the conditions of implementation of the project.

The first Taylor Burrell design option (October 1998) was submitted to the Department of Environmental Protection as a proposed change to the design of the marina project. The DEP formally accepted the design as a non-substantial change that can be managed by the existing conditions applying to the proposal (Refer **Appendix 1**).

The current design (July 1999) represents a very minor variation from the July 1998 plan and approval for a further non-substantial change is being pursued with the DEP by Bowman Bishaw Gorham.

The Ministerial Statement 474 included the requirement for the preparation of a number of management plans and further studies. A list of the those plans and studies is provided below:

A full report on the status of the studies and management plans is provided in **Appendix 2**.

EXISTING TOWN OF EXMOUTH

NOR CAPE LOPPE SITE (FREEHOLD)

KINGSWAY DEVELOPMENT (OLD DRIVE-IN SITE)

EXISTING PICNIC AREA

CANAL LOTS TO FORM DIRECT LINKS WITH TOWN

EXISTING YACHT CLUB TO REMAIN AT THIS LOCATION

EXISTING MURAT ROAD TO BE RETAINED AS LANDSCAPE ENTRY INTO EXMOUTH

CONSERVATION AREA. RETAIN AND ENHANCE EXISTING DUAL ECOSYSTEM

RETAIN OPEN VISTA OVER WATER. KEEP OPEN AS FLOODWAY

EXISTING SUNRISE BEACH COULD BE BACKED BY LOW ROCK WALL AND COASTAL VEGETATION PROTECTED BY FENCING AND THE USE OF BOARDWALKS

EXISTING HORWOOD STREET TO BE RETAINED AS MAIN ENTRY INTO MARINA VILLAGE

RESORT SITE ON ELEVATED LAND (MODIFIED PUNES) WITH VIEWS OVER SUNRISE BEACH AND WATERWAYS

FUTURE MARINA TO SERVICE DRY LOTS AND VISITORS

EXTEND MARINA COMMERCIAL, REALIGN ROADS AND TRAILER PARKING

POTENTIAL DISTRICT RECREATION

POTENTIAL CARAVAN PARK AND RESORT SITE (5.25 ha)

MARINE RESIDENTIAL LOTS (MIXED USE)

LIGHT MARINE INDUSTRIES

COMMERCIAL FISHING 3 PENS EXISTING 20 PENS ULTIMATE

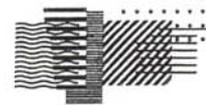
OCTOBER 1998 SUPERSEDED



# EXMOUTH MARINA VILLAGE OUTLINE DEVELOPMENT PLAN

PLAN NO. 96/100/Z DATE October 1998

CLIENT LANDCORP GASCOYNE DEVELOPMENT COMMISSION



Taylor Burrell Town planning and design 187 Roberts Road Subiaco PO Box 503 West Perth Western Australia 6872 Telephone (08) 9382 2911 Facsimile (08) 9382 4586 Email tburrell@inet.net.au

FIGURE 3

## Exmouth Marina Village Outline Development Plan

- |  |   |
|--|---|
|  Public Environmental Review                |  Site Contamination Assessment and Management Plan |
|  Environmental Management System            |  Marina and Canal Design and Construction Plan     |
|  Foreshore Management Plan                  |  Stygofauna Sampling Study                         |
|  Dewatering Management Plan                 |  Flushing Study                                    |
|  Excavation Spoil Disposal Management Plan  |  Drainage Design and Management                    |
|  Water and Sediment Quality Management Plan |  Groundwater Monitoring and Management Plan        |

### 1.3 PLANNING RATIONALE

#### 1.3.1 TOWN PLANNING SCHEME NO. 3 - ZONING

The Shire of Exmouth Town Planning Scheme No. 3 was gazetted on 3 September 1999. The Scheme incorporates a Marina zone which includes provisions on objectives, site requirements and development requirements. The Marina zone covers the outer boat harbour and all of the associated residential/tourist/industrial development.

In accordance with the WA Planning Commissions Policy DC 1.8 "Procedures for Approval of Artificial Waterways and Canal Estates" an Amendment will be undertaken to introduce those provisions as provided in Appendix 1 which are not already included within the existing Marina Zone provisions. The current outstanding provisions generally relate to prescriptive matters such as setbacks. Such prescriptive requirements are incorporated into the Broad Design Guidelines which will provide as an interim protective measure.

#### 1.3.2 OUTLINE DEVELOPMENT PLAN

An Outline Development Plan is required to be prepared in accordance with the provisions of clause 5.5.3. of Scheme 3. This Outline Development Plan is accordingly presented for approval by the Shire of Exmouth and endorsement by the WA Planning Commission.

#### 1.3.3 PUBLIC CONSULTATION

The previous Concept Plan by Christou and Partners was subject to a detailed public consultation process conducted by the Department of Commerce and Trade and initiated with a public information day in Exmouth on 17 October 1996. The public consultation process included:

-  Key stakeholder meetings;
-  Public meetings
-  Public display of the concept plan;
-  Press releases;
-  Public survey.

Of the total submissions (130) 68 responses (60%) were "very supportive" and only 12 (11%) were "totally opposed".

A final report of the results of the public involvement process is currently available from the Department of Commerce and Trade.

The current ODP design has received Council's 'in principle' support and has received strong community support.



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#### 1.3.4 DEVELOPMENT APPROVAL

Development of each of the precinct sites (or superlots) will require a detailed development application and/or subdivision application which accords with the approved ODP, approved management plans and environmental conditions that apply. All development within the ODP area will require a planning application to be determined by the Shire of Exmouth.

---

#### 1.3.5 SUBDIVISION APPROVAL

A subdivision application has been lodged with the Ministry for Planning to create 5 superlots which essentially reflect the five Precincts of the ODP. The creation of the superlots will enable LandCorp to offer for sale by tender, each of the superlots on an individual basis to potential developers. This arrangement allows for staging of development and potential for a greater market interest.

### 1.4 LAND TENURE

The description of lots and the land tenure making up the ODP area is provided in the following schedule and is provided in **Figure 4**.

#### LAND DESCRIPTION - SCHEDULE

Exmouth Lot 133 Volume 3111 Folio 408 consisting of:

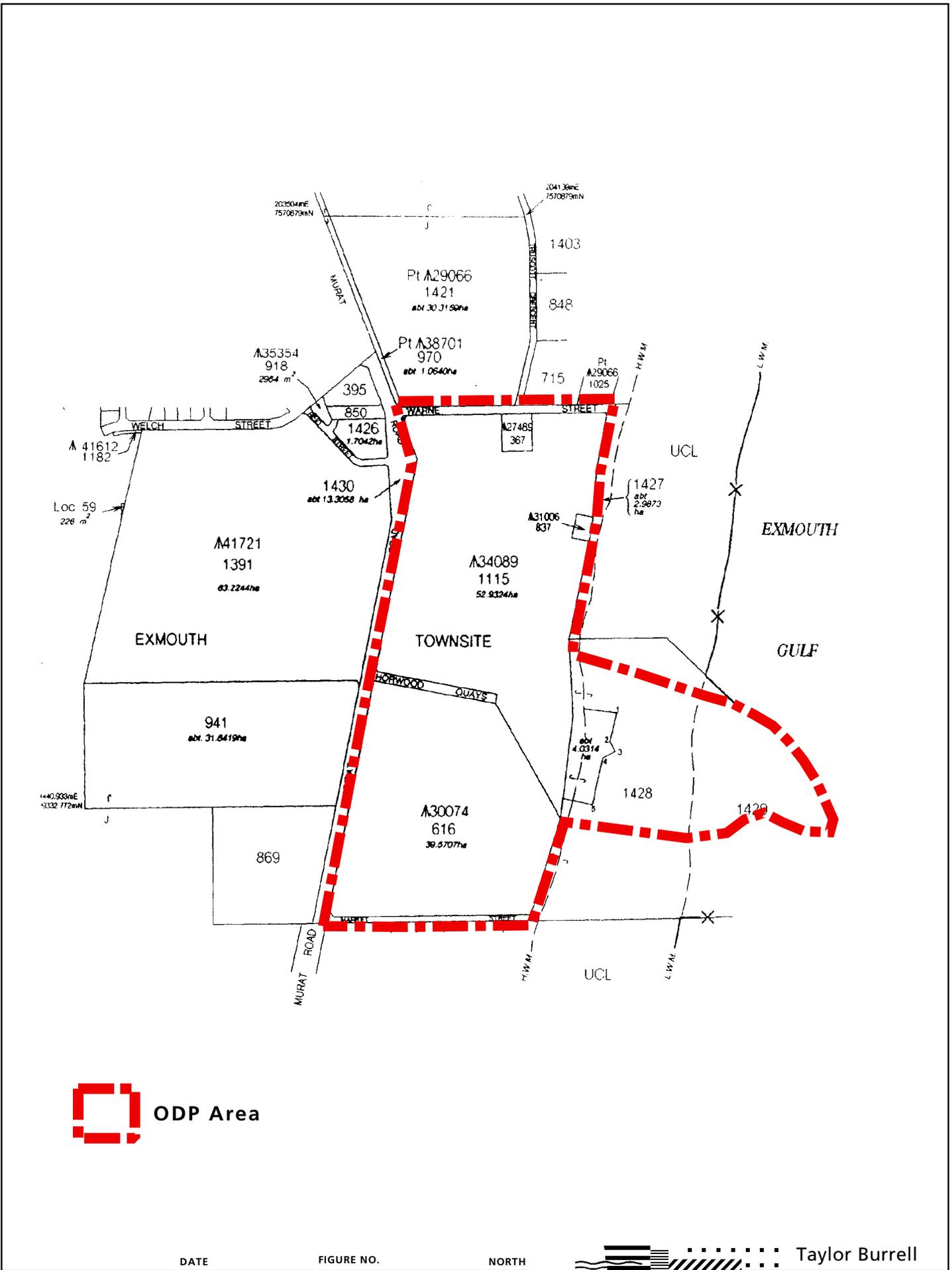
1. Dedicated road (about 16 hectares).
2. Exmouth Lot 1115 being Reserve 41721 "Harbour Purposes" with care, control and management placed in the Minister for Transport (about 62.9125 hectares).
3. Exmouth Lot 616 being Reserve 30074 "Racecourse and Recreation" with care, control and management placed in the Shire of Exmouth (about 39.5707 hectares).
4. Unallocate Crown Land and seabed.

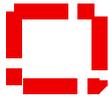
### 1.5 ABORIGINAL HERITAGE - NATIVE TITLE

The Western Australian Museum has evidence of Aboriginal occupation of the North West Cape area from 25,000 years ago until at least 400 years ago. Aboriginal people, from a tribe known as the Jinigudira, camped in the coastal dunes, in rock shelters of the Cape Range and in the foothills. The tribe exploited a wide variety of marine resources including fish, shellfish, crabs, turtle and dugong.

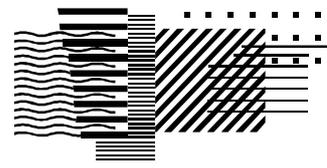
There are very few Aboriginal people alive today with any local knowledge of Aboriginal heritage in the North West Cape area, and there is no documentation to suggest an explanation for the retreat of Aboriginal people from the area.

Registered Aboriginal sites occur in the Cape Range National Park and additional sites have been identified in the North West Cape region. No archaeological or ethnographic sites are known to exist within the proposed development area.



 ODP Area

DATE: November 1999      FIGURE NO.: 4      NORTH



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**LAND TENURE  
EXMOUTH MARINA VILLAGE**



The development site is subject to an application for determination of Native Title by the Gnulli people in the Federal Court. The claim has passed the registration test.

The Western Australian Government has given notice under section 24MD(6B) of the Native Title Act of its intention to acquire any Native Title rights or interests that may exist on the development land. This section applies to land acquisition within an existing townsite.

The Gnulli Native Title claimants have lodged an objection to the proposed acquisition.

The Government, through the Department of Land Administration and LandCorp is currently consulting with the Native Title party as required under the Native Title Act.

It is possible that these consultations may lead to an agreement with the Gnulli claimants to withdraw their objection and thereby enable the Government to complete the land acquisition process.

Under such an agreement there could be a requirement for developers to use Aboriginal names for streets, parks and other places. In addition, developers could be required to adopt a 15% Aboriginal participation in contracting and service provision.

If an agreement is not achieved the Government will seek to have the objection heard by an independent person.

Upon the completion of the acquisition procedure and the availability of a freehold title, the purchaser of any Superlot will be granted a Title enabling the development to proceed without any further Native Title Act requirements.

## 2 ENVIRONMENTAL CONSIDERATIONS/LAND USE

### 2.1 PHYSICAL ENVIRONMENT

#### 2.1.1 CLIMATE

Exmouth is located within a hot, semi-arid climatic zone. Summers (October to April) are very hot with temperatures frequently exceeding 30° with January being the hottest month. A temperate climate occurs over the remainder of the year, (average annual minimum temperatures range from 15° to 27°), with the coolest month being July.

Annual rainfall averages 300 mm, but is highly variable. Most rainfall occurs within a "wet season" from January to July with heaviest falls occurring early in the season (February to March) as a result of tropical cyclones (Logan *et al.*, 1976 Cyclones may result in rainfall as high as 400mm in 48 hours or higher, thereby causing extensive flooding in the region. The rainfall is offset by high evaporation rates which range from 1700-3050 millimetres per year, depending on seasonal conditions.

Exmouth's location on North West Cape results in the land/sea breeze system being a more complex interaction than simple coastal situations. Nevertheless, Exmouth does experience the diurnal land/sea breeze cycle.

Southerly winds dominate the wind pattern with south to south-east winds between 5 and 30 km/hr occurring in the morning, with winds tending slightly more south-easterly in the winter months. During the summer, afternoon sea breezes arise from the west and south-west, while easterly directions are more common during winter afternoons. Strong winds from the north and north-east are infrequent but are commonly associated with tropical cyclones when they do occur.

Severe tropical cyclones with wind speeds in excess of 75-90km/hr occur every three to five years over Exmouth between November and April, but usually between January to March. Less intensive cyclones are experienced during the period January to March approximately two years in every three. Steedman Limited (1986) reports that 34 cyclones passed within 370 km of Exmouth in the period from 1961 to 1982, equating to 1.7 cyclones per cyclone season.

Cyclones entering the Gulf mainly move south or southwest, occasionally southeast, at speeds of 10-30 km/hr. Winds that are induced are usually from the east and south-east swinging to north-east and north if the cyclone passes to the west of the Gulf, and the south and south-west if the cyclone passes to the east. Wind speeds of up to 100 knots (185 km/hr) may be sustained for several hours (Coleman, 1971).

Cyclone Vance passed within 30km of Exmouth during its passage down the Exmouth Gulf in March 1999. Wind speeds of up to 267kmh, the strongest ever recorded on mainland Australia, were measured at the Learmonth weather station.

#### 2.1.2 LANDFORM

Exmouth Gulf is a north-facing marine embayment occurring on the eastern side of the Cape Range geomorphic landform of the Exmouth Peninsula (North West Cape). The western gulf shoreline between Bundegi Beach and Learmonth is characterised by an intermittent coastal barrier of beach, beachridge and dune between an alluvial plain and the shore platform (Le Provost, Semeniuk and Chalmer, 1986).



The alluvial plain slopes gently seaward from the fan deposits at the base of Cape Range, about 4km inland. Although the plain is relatively flat, numerous creeks and drainage lines traverse the plain and may be incised up to 3-4m towards the seaward side. These low-lying areas may flood during high rainfall events.

The sandy shore comprises a coastal barrier of beach, beachridge and dune between the alluvial plain and the shore platform. The barrier is widest (up to 300 m) adjacent to the mouth of larger creeks, where it tends to prograde seawards across the shore platform. Elsewhere the barrier is usually 50-100 m wide.

The dune extends as a single low dune ridge generally 8-12m high along a large portion of the shoreline between Bundegi Beach and Learmonth. Along parts of the shore where the dune is less developed, alluvial plain materials are exposed at the shore with dune sands forming only a thin veneer.

The dunes peripheral to the proposed development site are comprised of a foredune/primary dune 2 metres wide and 1-3 metres high with a secondary dune to 8-10 metres high. The rear of the secondary dune slopes to low halophytic floodplain/grassland. South of the proposed boat harbour, the floodplain is utilised as the town's horse racing track.

The entrance channel to the existing marina passes through an existing (100 m) wide breach in the beach ridge and dune, initially caused by a drainage creek but now widened by its frequent use for off-road vehicle access to the beach. The marina and residential development would be constructed in the low-lying alluvial and marine sediments extending from the landward side of the dunes westward to approximately RL 10 m AHD.

Other than where it is breached at the proposed entrance channel location, the beachridge and dune are well developed (100-150 m wide and rising to 12 m AHD) throughout the shoreline of the proposed development area.

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### 2.1.3 GEOLOGY AND SOILS

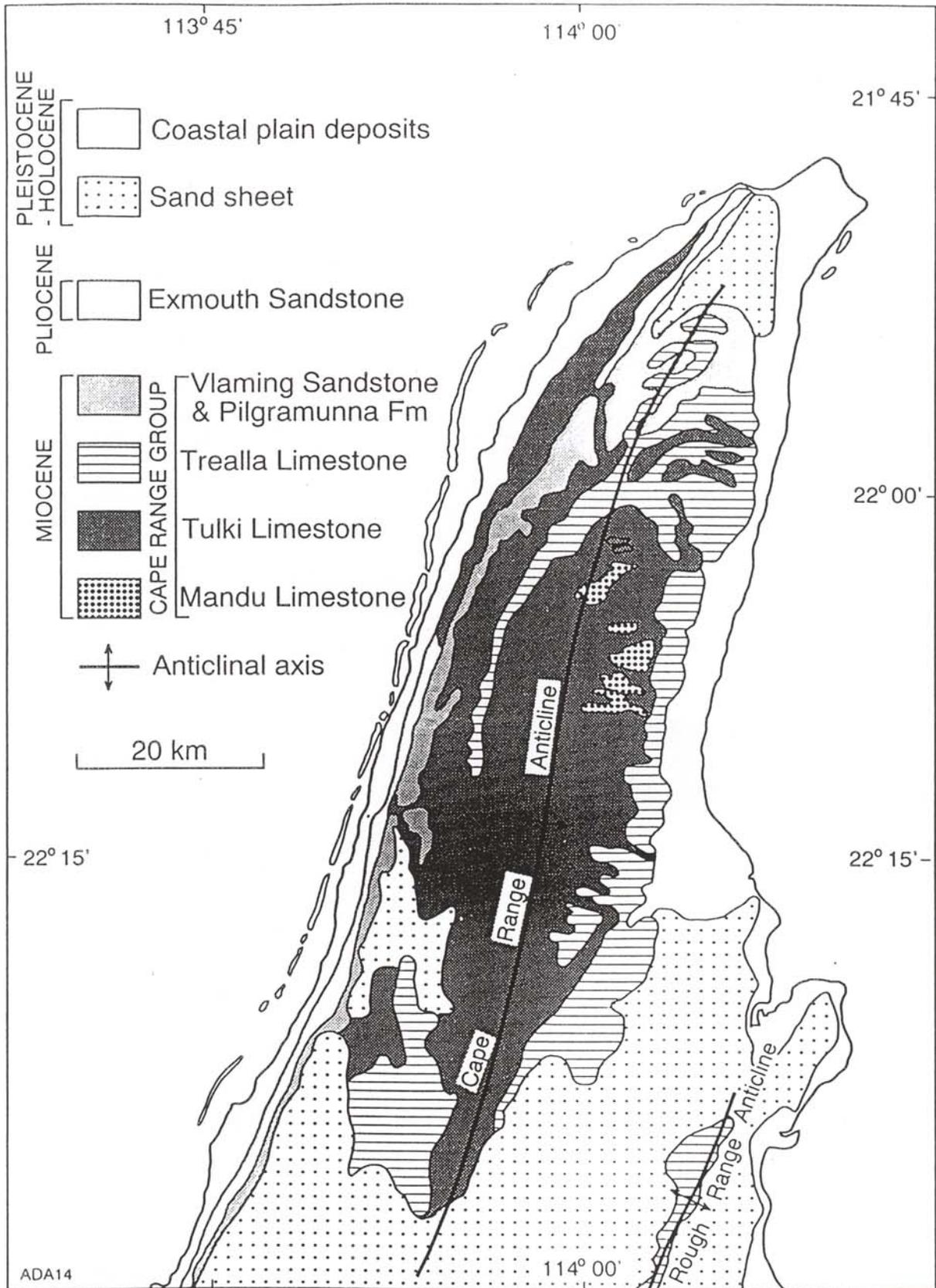
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#### 2.1.3.1 REGIONAL

Cape Range is a prominent northerly trending peninsula approximately 80km long, 20km wide and has a rugged topography reaching a maximum elevation of 314m. The range is bordered on the west by the Indian Ocean and a narrow continental shelf about 12km wide containing the Ningaloo Reef, and to the east by the shallow Exmouth Gulf (Allen, 1993).

The geology of the Cape Range and the Exmouth area has been mapped at 1:250,000 by the Geological Survey of WA (Van de Graaff and Denman, 1977)

Cape Range is situated within the Exmouth Sub-basin of the Carnarvon Basin. The rocks immediately underlying, and forming the core of the range are a sequence of carbonate rocks of Paleocene-Miocene age about 500m thick. Several different rocks units reflecting different age sedimentation are recognised within the Cape Range group, namely the Pilgramunna Formation, Trealla Limestone, Tulki Limestone and Mandu Limestone. The coastal plain comprises Pliocene - Recent littoral, shallow water marine, alluvial and aeolian sediments forming coastal limestone, sands and sandstone. The sediments of the coastal plain range from about 5m in thickness on the western side of the range to 10m in the east. The generalised geology of the Cape Range is presented as **Figure 5**.



### Geology of Cape Range

from Allen 1993

Figure 5



The present physiography of the range results from intermittent uplift on an underlying fault and exposure of predominantly calcareous sedimentary rocks of Tertiary age, of which the uppermost limits have karstified and extensively eroded. The karst system has developed in the relatively pure and porous Trealla and Tulki Limestones which overlie the relatively impermeable Mandu Limestone unit. The Trealla and Tulki units are about 100m thick and contain an extensive cave system which has mostly eroded on the crest of the Range but is still active on the flanks of the range and beneath the coastal plain.

These cave systems and karstic formations provide the major habitat for subterranean fauna (Section 3.2.4). The habitat of troglobitic (cave) fauna on the crest of the Range has probably existed and been relatively unaltered since the Range emerged above sea level in the Late Miocene-early Pliocene. In contrast, the habitat of stygofauna (aquatic subterranean fauna) on the coastal plain has probably varied significantly in response to the rise of Cape Range and especially sea level changes in the Pleistocene (Allan, 1993).

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### 2.1.3.2 SITE GEOLOGY

The mapping by Van de Graaff et al (1977) indicates that the project area lies on a coastal plain formed by colluvium and alluvium; clay, silt, sand and gravel, with unconsolidated and poorly consolidated quartzose calcarenite in dunes along the coast. The Mowbowra Conglomerate Member of the Bundera Calcarenite crops out about 400 m west of Murat Road, and consists of a limestone pebble conglomerate and minor coralline reef deposits.

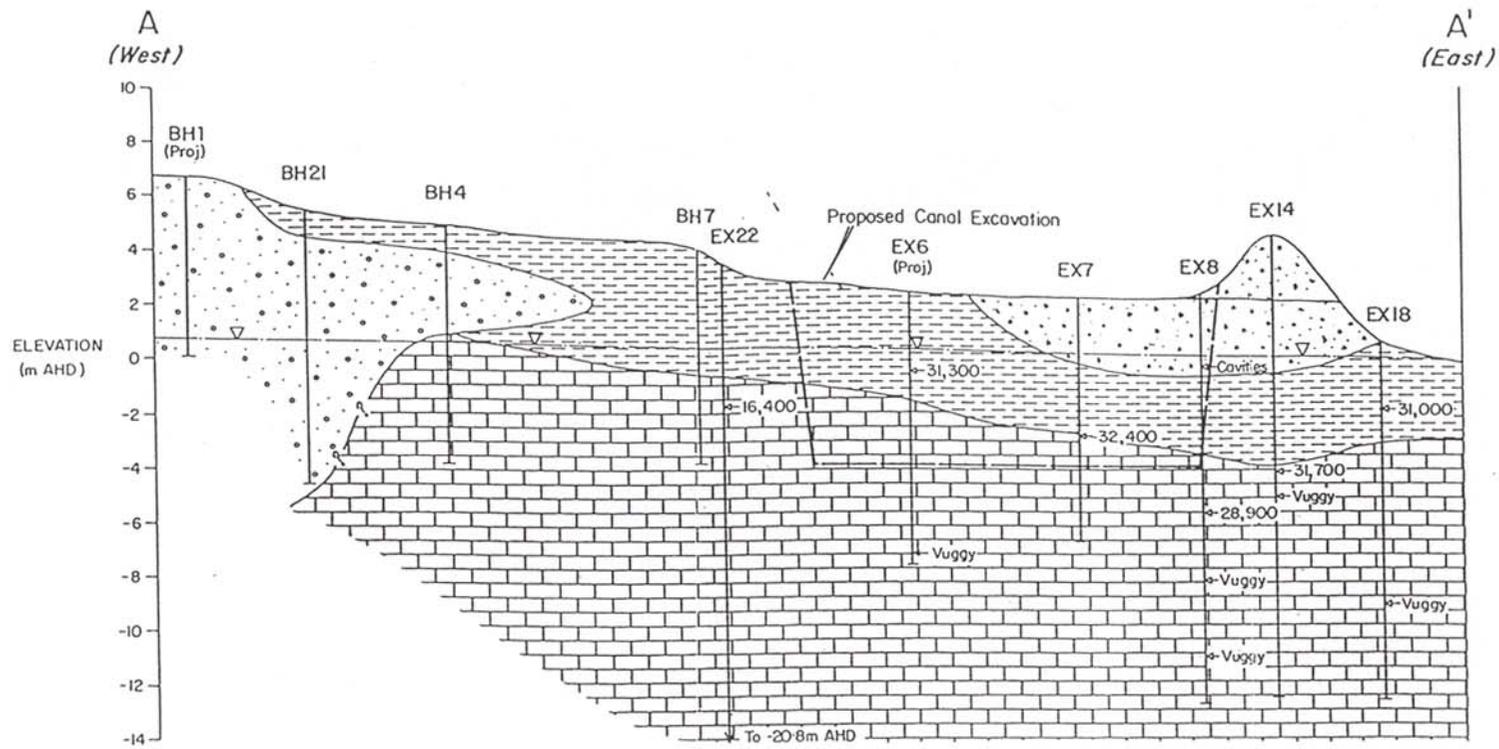
The site geology is depicted in an east-west cross-section in **Figure 6**. Close to the coast unconsolidated beach deposits crop-out, and comprise unconsolidated to weakly cemented, fine to coarse grained calcarenite with granule to pebble sized shells, coral and limestone. There is also a well sorted, fine to medium grained quartz calcarenite forming the sand dunes.

Outcropping further from the coast and underlying the coarse-grained beach deposits is a generally unconsolidated to weakly consolidated, brown, clay or silty clay containing abundant shell, coral and limestone fragments. It is probably a tidal-flat deposit. The holes cored by Douglas Partners indicate that at some locations, e.g. bore TB7, this material consists of variably cemented calcarenite with numerous clay-filled cavities (up to 85 percent of core volume).

Limestone and calcarenite interpreted to be of the Bundera Calcarenite of Pleistocene age underlie the clayey sediments. The top of the formation is probably an erosional surface; it generally slopes down towards the Gulf from about 0 m AHD, 200 - 300 m west of Murat Road, to about -2.5 to -4.0 m AHD at the coast (Fig. 6). The formation consists of calcarenite to calcirudite with interbedded coralline reef deposits. Common to abundant limestone pebbles were intersected in some drillholes, e.g. Ex 6, Ex 8 and Ex 14 near the top of the formation; these probably belong to the Mowbowra Conglomerate Member. Also, weakly to well cemented calcareous sand and gravel intersected from near ground surface in some of the western-most drillholes, e.g. BH1, 4 and 21 are probably part of the Mowbowra Conglomerate Member.

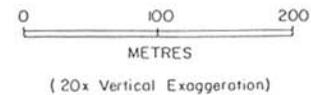
The Bundera Calcarenite ranges from weak, broken and friable rock to very strong and well-cemented rock (K H Morgan & Associates, 1989). Locally, vuggy zones occur, and the rock is commonly porous. Douglas Partners record there are abundant cavities, but these are generally filled with clay or clay and sand.

Cavernous zones occur within the Tulki Limestone: the closest outcrop of this formation is shown by Van de Graaf et al (1977) to be 2.1 km west of Murat Road.



LEGEND

-  Sand, some gravel (shells, coral and limestone)  
- beach deposit and coastal dunes
-  Clay, silty clay with limestone, coral and shell fragments
-  Mowbowra Conglomerate Member ? (Bundera Calcarenite)  
Calcareous sandy conglomerate
-  Bundera Calcarenite (undifferentiated)  
Calcarenite to calcirudite with common pebbles,  
coralgal reef material and shells
-  Water table
- 28,900 Groundwater salinity (mg/L TDS)



Hydrogeological cross-section of site

from Rockwater 1996

Figure 6



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### 2.1.3.3 SURFACE DRAINAGE

Although average rainfall is low, the Exmouth region is characterised by cyclonic storm events yielding high volume storm flows.

The project site is located in an extensive "floodplain" depression behind the dunes and to the east of Murat Road, which receives surface drainage from two catchments (**Figure 7**). The catchments contains a number of creeks from the hills to the immediate west of the proposed development, and two streams extending several kilometres into the Cape Range. The high intensity rainfall events in the area, coupled with relatively low absorption capabilities of the upstream parts of the drainage catchment, can lead to significant storm flows towards the project area, which is low lying and subject to periodic flooding. Drainage in the area is generally absorbed behind the dunes within dissipation and infiltration areas.

A Flood Channel Investigation prepared for the Exmouth Boat Harbour by Evangelisti and Associates (1996) confirmed the presence of two significant drainage channels which flow into the depression east of Murat Road. The depression is effectively divided into two areas by the presence of Warne St, with drainage to the north of Warne St mostly flowing away from the project site. Drainage to the south of Warne St flows towards the project site and the Boat Harbour which is located on a previous break-out which existed in the dune system, being the downstream end of the catchment.

During extreme cyclonic events, such as Cyclone Vance, stormwater from the north of Warne Street also overflows south towards the project site and contributes to flooding in low lying areas. Under these circumstances, the floodwaters discharge to Exmouth Gulf via the Boat Harbour.

The highest flood levels recorded at Exmouth were measured following Cyclone Vance, reaching an average maximum level of 4.5m AHD. Outflow of floodwaters to the ocean occurred at two locations: the Boat Harbour site and to the north of the Exmouth townsite.

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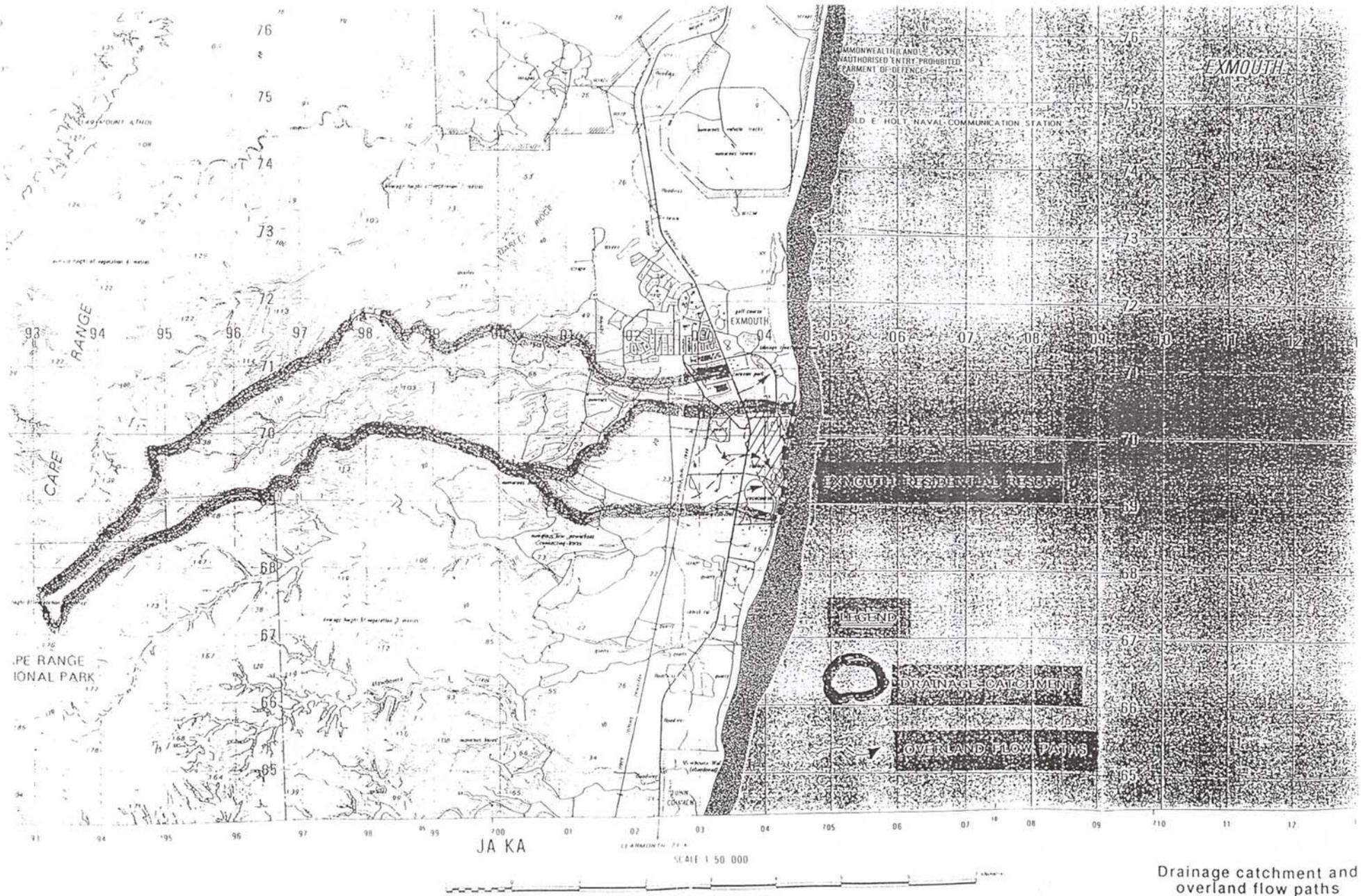
## 2.1.4 GROUNDWATER HYDROGEOLOGY

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### 2.1.4.1 REGIONAL HYDROGEOLOGY

The groundwater of the Cape Range Peninsula occurs in confined and unconfined aquifers. The unconfined aquifer of porous limestone along the eastern slopes of Cape Range between Learmonth and Exmouth contains substantial potable groundwater resources. This aquifer supplies Exmouth's water supply and is replenished by direct infiltration of rainfall, and indirectly by storm runoff from the Range. The groundwater discharges into Exmouth Gulf, and, in addition to the effects of seasonal recharge, there is natural variation in groundwater levels and saltwater intrusion due to tidal fluctuations in the Exmouth Gulf (Water Corporation, 1996).

The upper part of the aquifer is karst and has high permeability while the underlying limestone is less permeable (Water Corporation, 1996). In general, a layer of fresh groundwater up to 20-30m thick overlies a saltwater wedge, the transition zone of which lies about 5km from the coast. The overlying fresh groundwater diffusion zone in the karstic aquifer is a major habitat zone for stygofauna (Section 2.2.3). A general hydrogeological cross section of the Exmouth groundwater area is presented as **Figure 8**.

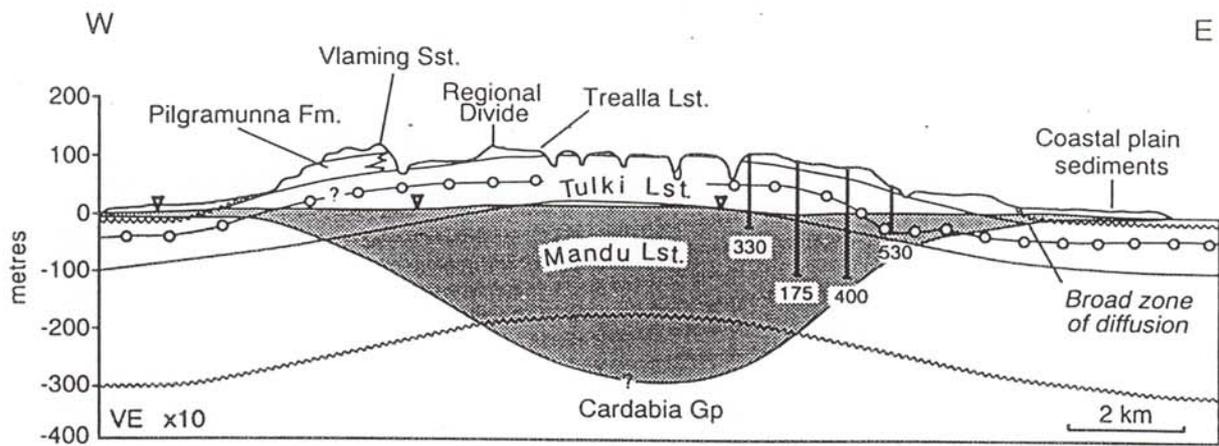


Drainage catchment and overland flow paths

from Ewing Consulting Engineers 1996

Figure 7

BOWMAN BISHAW GORHAM  
ENVIRONMENTAL MANAGEMENT CONSULTANTS



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- |  |                                    |  |                                  |
|--|------------------------------------|--|----------------------------------|
|  | Approximate base of karstification |  | Freshwater                       |
|  | Water Table                        |  | Seawater                         |
|  | Interfingering formations          |  | Bore with salinity (mg/L T.D.S.) |
|  | Unconformity                       |  |                                  |

**General Hydrogeological cross-section of the Exmouth groundwater area**  
from Martin 1990

Figure 8

The water supply for Exmouth township is drawn from the northern part of this aquifer. The Water Corporation has operated the borefield for 30 years and no evidence of thinning of the freshwater has been found (Water Corporation, 1996). In the northern most sector of the borefield, where high abstraction rates, coupled with domestic bore use, some bores are experiencing increased salinity.

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#### 2.1.4.2 SITE HYDROGEOLOGY

A review of the previous hydrological studies conducted by KH Morgan & Associates (1989, 1990) and Soil and Rock Engineering (1996) was undertaken by Rockwater Pty Ltd for the current proposal and summarised below.

Depth to groundwater beneath the site ranges from 2m adjacent to the coast to approximately 6m on the western side of Murat Road. The soils of the site consist mostly of clay and silty clay containing limestone, coral and shell fragments. This unit, which ranges from -3.65m AHD to -5.3m AHD, is of low permeability and contains saline groundwater of a similar salinity to sea water, even at the water table, due to the presence of low permeable clay at shallow depths separating this layer with the underlying aquifer.

In contrast to other areas along the eastern coastal plain, the majority of the site does not contain a layer of fresh groundwater overlying a saltwater wedge, hence no fresh groundwater diffusion zone occurs. At the northern end of the proposed canal and extending to the northwest of the project site, a small area of shallow gravels/conglomerate occurs that contains a thin layer (approximately 5m deep) of brackish groundwater. Salinity measurements from four shallow private bores over the superficial layer of brackish groundwater within one kilometre of the coastline have shown salinities from 1,100 mg/L TDS to 5,400 mg/L TDS (Martin, 1990), with the salinity of the bore previously measured at 1,100 mg/L increasing to 4,600 mg/L TSS (by conductivity) in December 1996. It is likely that salinity in this coastal area would increase when water levels are lower during the summer months (Rockwater, 1996).

The top of the main aquifer ranges from -1.1m AHD to -5m AHD in the area of the planned canal/harbour. Most of this flow is probably from the underlying Bundera Calcarenite which has moderate to high permeability in consolidated or weakly consolidated zones. No large cavities were intersected in any of the drill holes and there were only minor vuggy (porous) zones.

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#### 2.1.5 FLOOD LEVELS

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##### 2.1.5.1 ASTRONOMICAL TIDES

The Department of Transport, Western Australia (DOT) has measured the tidal variations at Exmouth for at least 10 years. The astronomical tides are predominantly semidiurnal (two cycles per day). During spring tides the daily range is typically about 1.8 metres, and during neap tides the daily range is about 0.6 metres (**Table 2**). The highest and lowest astronomical tides recorded at Town Beach are +1.4 m AHD and -1.4 m AHD respectively.

**TABLE 2: TIDAL LEVELS AT EXMOUTH  
(FROM M. P. ROGERS & ASSOCIATES - APPENDIX D)**

	Chart Datum (CD)	Australian Height Datum (AHD)
Highest Astronomical Tide (HAT)	2.8m	1.4m
Mean High Water Springs (MHWS)	2.3m	0.9m
Mean High Water Neaps (MHWN)	1.7m	0.3m
Mean Sea Level (MSL)	1.4m	0.0m
Mean Low Water Neaps (MLWN)	1.1m	-0.3m
Mean Low Water Springs (MLWS)	0.5m	-0.9m
Lowest Astronomical Tide (LAT)	0.0m	-1.4m

#### 2.1.5.2 STORM SURGE AND WAVE SET-UP

In addition to the astronomical tide, tropical cyclone storm conditions can cause significant increases in the ocean water level through the combined effects of low atmospheric pressure, strong onshore winds and large waves breaking nearshore. This increase in the water level is known as storm surge.

There have been a number of detailed studies investigating the frequency and severity of storm surges experienced along the coast from Carnarvon to Onslow. These investigations have included analyses of the long term tidal records at Carnarvon by the Department of Transport (DOT), as well a computer modelling of various cyclones at a number of locations by Steedman Limited (1986) and Steedman Science & Engineering (1989,1990). **Table 3** summarises the 100 year return period storm surge for various locations in the region as estimated by these investigations.

**TABLE 3: STORM SURGE ESTIMATES  
(FROM M. P. ROGERS & ASSOCIATES - APPENDIX D)**

Location & Reference	100 year RP Storm Surge	Method & Comments
Carnarvon, DMH (1988)	1.7m	Based on 20 years of tidal records from Carnarvon
Denham, DMH (1988)	2.3m	Correlation with Carnarvon tidal records & local flood level marks on buildings
Coral Bay, Steedman (1989)	2.0m	Computer modelling, correlation with Carnarvon & excludes wave set-up
Exmouth, Steedman (1986)	0.4m (50 year RP)	Computer modelling & excludes wave set-up
Onslow, Steedman (1990)	2.4m	Computer modelling & excludes wave set-up
Exmouth, MP Rogers & Associates (1996)	2.4m 1.5m (25 Year RP)	Precautionary estimate applying Onslow data to Exmouth

The recent passage of Cyclone Vance, which traversed Exmouth Gulf within 30km of Exmouth and resulted in the highest wind strengths ever recorded on mainland Australia, provided a good indication of potential storm surge levels in the vicinity of the project area.

Surveys over the Exmouth area following the cyclone, combined with recordings from a tidal gauge located in the Exmouth Boat Harbour during the cyclone, indicate that the storm surge associated with Cyclone Vance reached a peak of approximately 3.5m. Assessment of the tidal status at the time of the cyclone indicates that a maximum water level (surge plus tide) of 4.8m AHD could have resulted if the passage of Cyclone Vance had coincided with highest astronomical tides.

Coastal engineers MP Rogers and Associates in conjunction with Egis Consulting have analysed the data from Cyclone Vance and have concluded that the surge recurrence is approximately 1000 years and the maximum water level recurrence is approximately 700 years. The 100 year return maximum water level in the vicinity of the development site is calculated at 3.8m AHD (Egis Consulting, 1999).

#### 2.1.6 GREENHOUSE EFFECT

A sea level rise of between 150 - 510 mm, with a current best estimate of 320mm, has been predicted for global oceans over the next 50 years as a consequence of global warming.

The Institution of Engineers, Australia (1991), presents three scenarios for possible changes in the Global Mean Sea Level for the years 2030, 2050 and 2100. These are presented in **Table 4**.

**TABLE 4: POSSIBLE GLOBAL SEA LEVEL RISE  
(INSTITUTION OF ENGINEERS, AUSTRALIA, 1991)**

Scenario	Year		
	2030	2050	2100
Low Scenario	0.10m	0.16m	0.32m
Medium Scenario	0.20m	0.32m	0.68m
High Scenario	0.32m	0.51m	1.13m

The sea level rise could be accompanied by significant changes in the occurrence of storms and tropical cyclones, thereby leading to an increase in the frequency of floods and erosion along the coastlines of the region.

In the event that these predictions are correct, the implications for the Exmouth area are difficult to determine, although limited storm surge data suggests that the impacts would be greatest in the southern reaches of Exmouth Gulf, south of Learmonth, and less in the vicinity of the proposed development (DPUD, 1992).

The effect of possible global warming has been considered within the assessment and design of the drainage system.



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### 2.1.7 EFFECTS OF CYCLONE VANCE

The storm surge and waves associated with the passage of Cyclone Vance removed or buried the 1-3 metre high foredunes between Warne Street and the Exmouth Boat Harbour. Immediately north of the harbour, a considerable amount of coral rubble and other debris was deposited up the beach by the storm seas, covering the area previously comprising foredune. Apart from isolated strands, little remains of the previous foredune vegetation.

the cyclone also caused substantial damage to the picnic facilities between the Yacht Club and Warne Street, including severe erosion of the beach carpark and destruction of the barbeque facilities.

Wave erosion of the higher secondary dunes due to the storm surge was limited to the base of the dunes and has not compromised dune integrity.

The extreme winds associated with the cyclone caused erosion in some areas of the secondary dunes, particularly in those areas that were previously degraded and lacking vegetation cover. Direct damage to dune vegetation, including the exposure of root structures and localised defoliation, also occurred.

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## 2.2 TERRESTRIAL BIOLOGICAL ENVIRONMENT

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### 2.2.1 VEGETATION AND FLORA

The Exmouth area is located within the Carnarvon Botanical District of the Eremaean Botanical Province, which extends from Shark Bay northwards to the Exmouth Gulf area.

The Cape Range is considered to have a rich flora for an arid zone environment due to the range of habitat types found over the Peninsula, with a low number of weed species (30) in comparison to the Carnarvon Botanical District (81). The highest numbers of weed species are found around Exmouth and human-altered environments, with nine species only found in those areas (Keighery and Gibson, 1993). The most serious and widespread weed is Buffel Grass (*Cenchrus ciliaris*) which has largely replaced *Triodia* grasslands because of fire and grazing pressure. Buffel grass is found almost all over the Peninsula.

The natural flora and vegetation communities of the project area are broadly typical of coastal fringe species found north of Geraldton (Oma et al., 1992). As with many coastal areas with relatively young sediments, the vegetation of the project area is relatively low in species diversity, and varies mainly in the proportion of the same predominant species.

The vegetation of the floodplain hinterland is generally dominated by low shrubs (predominantly wattles, *Acacia spp.* with numerous *Atriplex sp.* and a *Euphorbiaceae*) and the spinifex grass *Triodia basedowii*. Vegetative cover is generally sparse, although it is slightly denser within the diffuse floodway in the eastern area of the proposed project site, near Murat Road. *Cenchrus ciliaris* (buffel grass) has dominated most of the site, displacing most of the low native species.

The coastal dunes between the proposed marina site and the Gulf form a distinct vegetation zone. Pioneer species such as *Spinifex longifolius*, *Salsola kali*, *Cakile maritima*, *Ipomea brasiliensis* and *Tetragonia decumbens* occur in the foredune/primary dune with *Ptilotus spp.*, *Atriplex isatidea*, *Olearia axillaris*, *Scaevola crassifolia* and *Euphorbia sp.* in the swales.

Secondary dune species begin close to the foredune crest and continue landward into Acacia shrubland over sub-shrub and hammock grass communities. Species such as *Swainsonia pterostilis*, *Tribulus occidentalis*, *Canavalia rosea*, *Atriplex isatidea*, *Crotalaria cunninghamii*, *Gomphrena canescens*, *Tephrosia rosaea*, *Adriana tomentosa*, *Trichodesma zeylanicum* and *Triodia pungens* occur under scattered *Acacia bivenosa*, *A. coriacea* and *A. tetragonophloia*.

In contrast with other coastal areas of the Exmouth Peninsula inspected during the study, the dune integrity and vegetation of the study area is in moderate to very poor condition.

Disturbance and deterioration of vegetation quality in the vicinity of the project site has been caused by several factors, as follows:

- (i) Frequent pony/horse riding in the vicinity of the Boat Harbour site has created tracks of bare sand along both the primary and secondary dune crests approximately 1m to 0.5m wide, and are marked by exotic species which have spread along them (see (ii) below). Frequent use of the tracks has prevented the potential regeneration of vegetation over the bare sand.

Camel rides originating at the Yacht Club also occur, however the route used for this activity is unknown.

- (ii) There has been a high level of weed invasion in the secondary dunes, particularly to the south of the Boat Harbour. Buffel grass (*Cenchrus ciliaris*) is spreading beachward into the secondary dunes from the floodplain/racing course area. The presence of other exotic species is coincident with horse trails. The invading weeds have significantly displaced endemic vegetation and reduced native species diversity in the secondary dunes.
- (iii) There has been damage to the dune integrity caused by 4-wheel drive vehicles, particularly to the north of the Boat Harbour. Tracks suggest that vehicles are driven along the beach, then meander through the primary dunes to the higher secondary dunes.
- (iv) Uncontrolled pedestrian access to the beach has also resulted in disturbance and deterioration to dune areas adjacent to Market Street.

No regionally significant vegetation communities, plant taxa endemic or nearly endemic to the Cape Range Peninsula, Declared Rare or Priority flora occur on or in the vicinity of the project area.

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## 2.2.2 FAUNA AND HABITATS

The habitat types and potential fauna of the region have been extensively researched for the Maud's Landing Coral Coast Marina Project (ecologia, 1994; Bowman Bishaw Gorham, 1995b) on the west of Cape Range. Where applicable, information from that study can be applied to the Exmouth area, as follows:

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### 2.2.2.1 HABITAT TYPES

The project area contains fauna habitats associated with the sparsely vegetated beachfront, the coastal dune scrub-heath and low lying hinterland.

The beachfront habitat could support foraging of the intertidal zone and bands of tidal debris by waders and other birds, and roosting by birds and foraging by foxes and varanids (monitor lizards) along the beach front.



The coastal scrub-heath habitat is the most structurally diverse habitat within the project area and as a consequence would exhibit the greatest species richness. Coastal dunes are the preferred habitat of the cryptozoic surface burrowing reptiles such as the legless lizards, while the accumulated leaf litter constitutes an important micro-habitat for fossorial species of reptiles. The relatively dense shrub and grass layer affords suitable shelter and a regular food supply for reptiles and for small mammals while the shrubs are utilised by arboreal lizard species and small insectivorous birds.

The hinterland is a structurally poor habitat due to the prevalence of low hummock grasses and buffel grass and would support a low fauna species diversity.

The sparsely vegetated beach front and coastal heath/scrub habitats are widely distributed on a regional scale, and are both encompassed by the Cape Range National Park.

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#### 2.2.2.2 VERTEBRATE FAUNA

A number of native mammalian species potentially occur in the project area, however most species, such as the Dingo *Canis familiaris dingo* and Gould's Wattle Bat *Chalinolobus gouldii* have Australia-wide distributions. Other bats which may use the site (Western Cave Eptesicus *Eptesicus finlaysoni* and Yellow-bellied Sheath-tail Bat *Saccolaimus flaviventris*) are near the southern limits of their range. Four species of introduced mammal potentially occur within the project area; the Cat *Felis catus*, the Fox *Vulpes vulpes*, the House Mouse *Mus domesticus* and the Rabbit *Oryctolagus cuniculus*. All four species are widely distributed over most of Australia and would undoubtedly occur within the project area.

Based on preferred habitat and distribution records, over 100 species of birds may occur in the project area from time to time. The majority of birds recorded or expected to occur have distributions which extend into all the zoogeographic sub-regions of Australia, including most of the migratory and highly nomadic species.

The project area encompasses habitats suitable for over 40 species of reptiles. Particularly well represented are the skinks and geckos, while the varanids (monitor lizards) are poorly represented with only one species expected in the area. Several species are endemic to the North West Cape, including the gecko *Diplodactylus rankini*, the skink *Lerista haroldi* and the legless lizard *Aprasia rostrata*. Five species including the Tree Dotted Gecko *Gehyra variegata*, Bynoe's Gecko *Heteronotia binoei* and Burton's Snake Lizard *Lialis burtonis* have Australia-wide distributions occurring mainly in arid and semi-arid habitats.

The project area is expected to contain fauna species which are generally widespread and abundant in similar habitats throughout the region, and is not expected to contain regional endemics or locally restricted species.

Under the *Wildlife Conservation Act 1950*, one Schedule 1 vertebrate taxa (Grey Falcon *Falco hypoleucos*.) one Schedule 4 species (Peregrine Falcon *Falco peregrinus*) potentially occurs within the project area. Both are mobile species which do not rely on the habitat of the site for survival.

A further three gazetted rare and currently extant species may have occurred in the area. The Western Barred Bandicoot *Perameles bougainville*, Bilby *Macrotis lagotis* and the Burrowing Bettong *Bettongia lesueur* are now considered to be extinct in the region.

### 2.2.2.3 STYGOFAUNA

Eleven stygofauna sampling bores were installed over the project site in 1999. The following represents a summary of the findings, full details are found in the Stygofauna Sampling Study. The locations were selected on the basis of previous records of stygofauna in the region and current hydrogeological data, and focused the sampling effort on the areas considered most likely to contain stygofauna.

Stygofauna were collected from the boreholes by the standard methods developed previously by the WAM, using nets and traps designed and fabricated by the museum. The sampling techniques were determined in consultation with Dr Bill Humphreys (WAM) and were aimed to maximise the chance of encountering any stygofauna present in the study area.

Nine stygofaunal taxa were collected from the eleven bores. No endangered or rare and vulnerable species were caught in any of the samples from any of the bores.

No shrimps (*Stygocarid sp.*) were found in any of the bores and there was a complete absence of macrofaunal stygofauna in the three bores in the north-west corner of the site, where the highest transmissivities had been previously recorded. Presumably, the absence of sufficient cavities in the rock, with a preponderance of them being clay-filled, reduces the amount of suitable habitat in this area.

The macrofaunal assemblage was characterised by very low abundances, concentrated towards the edges of the study area and comprising mostly gammarid amphipods and worms.

The absence of shrimps and the low abundance of amphipods from the middle of the site indicates that it is very unlikely that significant populations of the larger and protected macrofauna exist in the area of the proposed waterways.

The most common stygofaunal assemblages were meiofauna (<1mm), mostly harpacticoid and calanoid copepods. Meiofauna are not usually afforded protected status due to their ubiquity, high abundances and small size. The highest abundances of copepods were at Bore#6, located to the west of Murat Road, outside of the development area.

The fact that shrimps were previously caught in Exmouth town to the north of the Exmouth Marina Village site (Martinick and Associates, 1996) but were absent in any of the bores to the south of the town suggests that there are patches of suitably vuggy rock to the north that presumably do not extend into the development area.

## 2.3 CONSERVATION SIGNIFICANCE

In addition to the degradation of the dune vegetation, large tracts of the alluvial plain are moderately degraded due to human activities, including the following:

-  The area has been extensively used by trail bikes and off-road vehicles;
-  There is a decommissioned rubbish dump immediately landward of the dunes at the proposed marina site which has been excavated and filled;
-  The site of the marine industrial area is the Exmouth Racecourse;
-  There is a second, disused rubbish dump in the north-western part of the proposed residential development; and



 Most of the proposed residential subdivision has been used for horse grazing.

Both the ecological significance and the conservation value of the proposed development area are considered to be minimal.

## 2.4 SOCIAL ENVIRONMENT

### 2.4.1 LANDSCAPE

The site is bounded to the east by a relatively high foredune system which must be retained for storm surge protection. To the west, Murat Road, the only access route to the Cape, forms the principle edge.

The body of the site is relatively flat and featureless with a gentle rise to the west from the toe of the foredunes.

Although the Cape Range and the Exmouth Gulf are prominent features to the west and east of the site respectively, the view from the site is significantly restricted due to the height of the foredunes (10-12m AHD).

### 2.4.2 LAND USE

All of the land covered by the project area is in Crown ownership.

Several grazing leases and the existing Exmouth Racecourse are located on Reserve 30074. Alternative sites for the existing grazing leases and the Racecourse have been identified on Crown land located to the south of the proposed development area, and would be leased by the Department of Land Administration when required. The lease to the Exmouth Racing Club by the Shire has already expired and a new lease for a location west of Murat Road is currently being negotiated.

A site on Reserve 29066 is currently leased to the Exmouth Pony Club. Minimal improvements exist on the site. The Shire advises that the club could be re-located at the new racecourse with minimal expense.

The Exmouth Cemetery (Reserve 27489) occupies land near Warne Street. The site is respected and is proposed to remain as an operative cemetery

Coastal facilities in the vicinity of the project site include the boat ramp, parking areas and the yacht club premises at Town Beach (approximately 1 km to the north of the proposed northern breakwater to the Exmouth Boat Harbour). The waters at this site are used primarily for yachting and dinghy launching. Town Beach is infrequently used for swimming as most people prefer the cooler and clearer oceanic water which occurs at Bundegi and Point Murat.

Rural uses (horse grazing and a poultry farm), occupy the areas immediately to the west and south of the proposed project area.

### 2.4.3 EXISTING PUBLIC FORESHORE RESERVES

The foreshore reserve south of Town Beach is frequently used by off-road vehicles, with access provided from Horwood Road. A number of trail-bike tracks occur through the dune and foredune, as well as across the proposed project site. As discussed previously, horse riding and camel rides also occur within the public foreshore reserve in the vicinity of the project site.

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#### 2.4.4 PUBLIC HEALTH

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##### 2.4.4.1 MIDGES

Three species of midge have been trapped in the vicinity of the project site, at Town Beach and the Yacht Club, namely *Styloconops* sp., *Culicoides marksi* and *Culicoides* sp. The activity of the dominant species (*Styloconops* sp.), which is active over daylight hours, is largely confined to shorelines, however can extend over water and to 50m inland (Health Department of WA pers. comm. 1997).

##### 2.4.4.2 MOSQUITOES

Mosquito nuisance and mosquito-borne disease are known to be of concern in the Exmouth area (Health Department of WA pers. comm. 1997). Ross River Virus is particularly active in May-July whenever heavy late autumn and early winter rains occur. The Health Department of WA has recorded high numbers of the mosquito *Aedes vigilax* whenever these environmental conditions occur, as a consequence of widespread breeding on the extensive salt affected areas around the VLF communications towers, some 10-15km from the project site. Other recorded mosquito breeding areas include Mangrove Bay which is located on the west side of the Cape.

*Aedes vigilax* generally range up to 10km in search of bloodmeals (Health Department of WA pers. comm. 1996) although distances of up to 50km have also been recorded (Health Department of WA pers. comm. 1997).

The project site will be subject to the same level of mosquito nuisance as the Town of Exmouth. The Health Department of WA has indicated that the Ross River virus problem at Exmouth can be effectively addressed subject to the availability of adequate financial resources and skilled personnel necessary to carry out an effective control program.



### 3 CONTEXT ANALYSIS

#### 3.1 NOR WEST CAPE - REGIONAL PLANNING CONTEXT

The Exmouth townsite is located on the eastern side of Nor West Cape some 1300 km north of Perth. The Nor West Cape is within the Gascoyne region which includes the coastal townships of Exmouth and Carnarvon. The Nor West Cape area is becoming increasingly important as a tourist recreational destination and commercial fishing area.

The western side of the Cape is home to the Ningaloo Reef which has attracted world wide attention as being one of the great coral reefs in the world. The fairly recent phenomenon of whale shark watching and diving has further increased the popularity of the area. The general area is also acknowledged as being one of the best recreational fishing areas within Australia. Consequently, the area is an attractive destination for many Australian and International tourists.

Within Nor West Cape is Cape Range National Park which is an 'A' Class Reserve vested in the National Parks and Nature Conservation Authority and is managed by CALM. The Park is home to Shot Hole Canyon and Charles Knife Gorge which are popular tourist attractions.

The Exmouth Gulf and nearby open waters are important commercial fishing areas. The area provides nearly 90% of the states prawn catch and is a major source for scallops and snapper. The future of the commercial fishing industry and aquaculture will become increasingly important in the area and suggests the need for supportive infrastructure such as a harbour with space for marine industries to establish and develop.

Planning for the Nor West Cape needs to provide for the future tourism, recreation, residential commercial and industrial potential while also protecting its intrinsic environmental and historical values which makes the area unique. The Regional Planning Context is graphically provided in **Figure 9**.

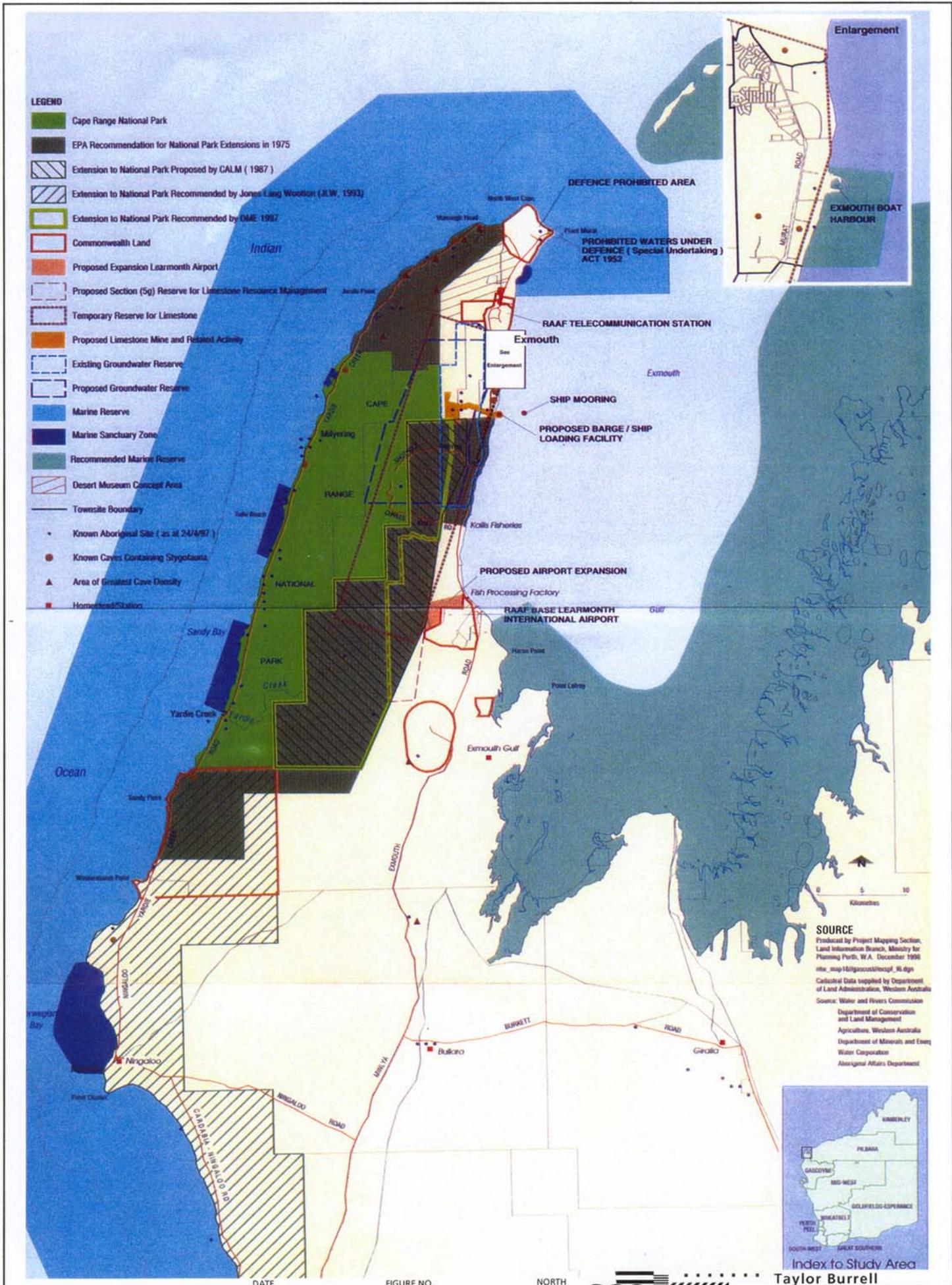
#### 3.2 EXMOUTH - LOCAL PLANNING CONTEXT

The Exmouth Marina Village ODP area is situated immediately to the south east of the existing developed townsite area. The development of the ODP area will provide a link between Exmouth Gulf (Indian Ocean) and the existing townsite area.

**Figure 10** provides a graphic representation of the ODP site in the context of existing land use and proposed development of the surrounding areas as recommended under the Exmouth-Learmonth (North-West Cape) Structure Plan, produced by the WA Planning Commission in 1998.

Murat Road provides the main access road into Exmouth and creates the western boundary of the ODP area. Warne Street provides the northern boundary and provides access to Sunrise Beach and the Exmouth Yacht Club. The unsealed Market Street creates the southern boundary and also provides access to Sunrise Beach. Sunrise Beach is the local 'town' beach for Exmouth residents and visitors. While the beach is located some 1.5kms away. Sunrise Beach provides an important local recreation function.

The Exmouth (horse) Race Course is located on the southern portion of the site. The racetrack will be relocated.

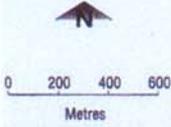


# CONTEXT ANALYSIS - REGIONAL EXMOUTH MARINA VILLAGE

NORTH

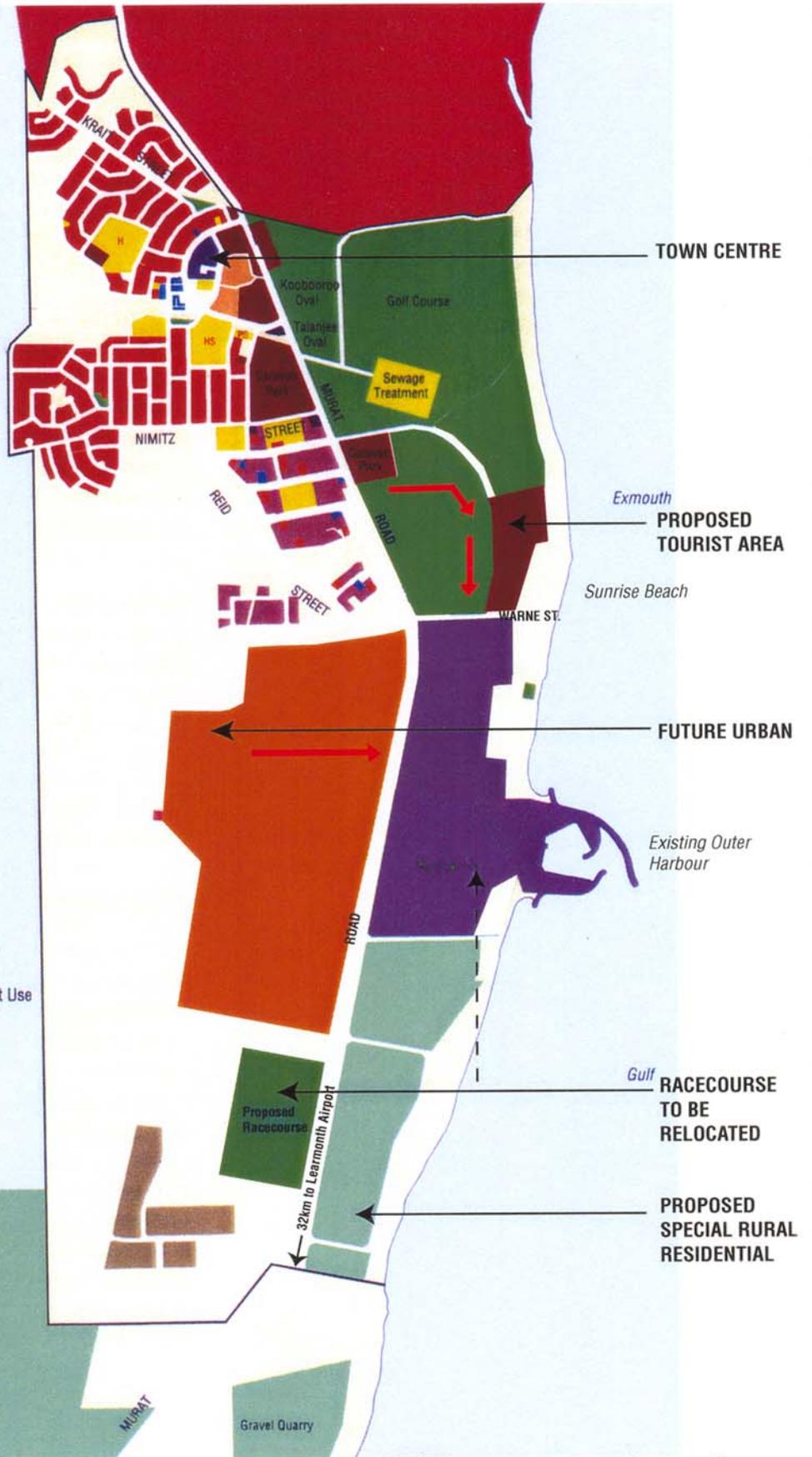


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**BASE SOURCE :**  
 Produced by Project Mapping Section,  
 Land Information Branch, Ministry for  
 Planning Perth, W.A. December 1998  
 ntw\_map18/gascoast/exspt\_t2.dgn  
 Land Use derived from field survey carried  
 out by Ministry for Planning June 1997

- LEGEND**
- Future Urban
  - Single Residence
  - Tourist Accommodation
  - Recreation/Reserve
  - Special Rural
  - Rural
  - Vacant Land
  - Shop
  - Office
  - Public Use
  - Community Use
  - Exmouth Boat Harbour & Marina Village
  - Petrol Station
  - Plant Nursery/Industry/Shed
  - Commonwealth Government Use
  - Water Catchment
  - Townsite Boundary
  - Natural Drainage Flow into the Site



TOWN CENTRE

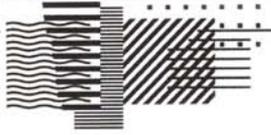
PROPOSED TOURIST AREA

FUTURE URBAN

RACECOURSE TO BE RELOCATED

PROPOSED SPECIAL RURAL RESIDENTIAL

DATE November 1999 FIGURE NO. 10



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# CONTEXT ANALYSIS - LOCAL EXMOUTH MARINA VILLAGE



## **Exmouth Marina Village Outline Development Plan**

The Exmouth-Learmonth (North-West Cape) Structure Plan proposes that the main extension to the townsite occur to the south of the existing townsite. The Structure Plan proposes future urban development on the western side of Murat Road and acknowledges the outer harbour and marina village on the eastern side of Murat Road.

The Exmouth Gulf is located to the east of the ODP area and is an important recreational and commercial fishing area. The boat harbour will be an important facility for both recreational and commercial pursuits. Commercial fishing in the Exmouth Gulf is one of the main employers of the local towns people.



## 4 OUTLINE DEVELOPMENT PLAN - DESIGN BY PRECINCTS

### 4.1 DEVELOPMENT VISION

A clear objective of the ODP is to ensure that the proposed marina village and existing boat harbour ties back into the existing town of Exmouth in the most direct and efficient way so that it becomes a part of the townsite rather than a separate focus. For this reason, the main highway into town (Murat Road) has not been traversed and its reserve boundaries and existing engineering infrastructure are proposed to be retained. The ODP is provided in **Figure 11**.

The northern section of Murat Road adjoining the ODP area could be upgraded into a dual carriageway tree lined boulevard providing an attractive landscape link between the town and the marina village. It also provides a unique entry statement for the town.

A new access road will be constructed from the intersection of Warne Street with Murat Road providing direct access to the resort site, boat harbour, and Sunrise Beach. The new entry road will provide an attractive link between the town and the boat harbour with its tree lined verges and landscaped entrance.

Another objective in the design is to bring the ocean closer to the town by allowing views of ocean water from Murat Road. Currently, the developed part of Exmouth is at some distance from the Gulf. Given the high coastal dunes and the flat low plain which the town is developed on, there are no ocean glimpses afforded. There is no sense of the town actually being close to the ocean. The ODP brings some of the canal fingers right up to Murat Road to provide a view over water and therefore a sense of place of being close to the ocean.

The design aims to provide a variety of product type catering for residential, tourist/holiday accommodation and marine based industrial uses. The marina village will be multi-functional in its use providing a place to live, work and play. This multi-use mix will ensure vibrant and active atmosphere.

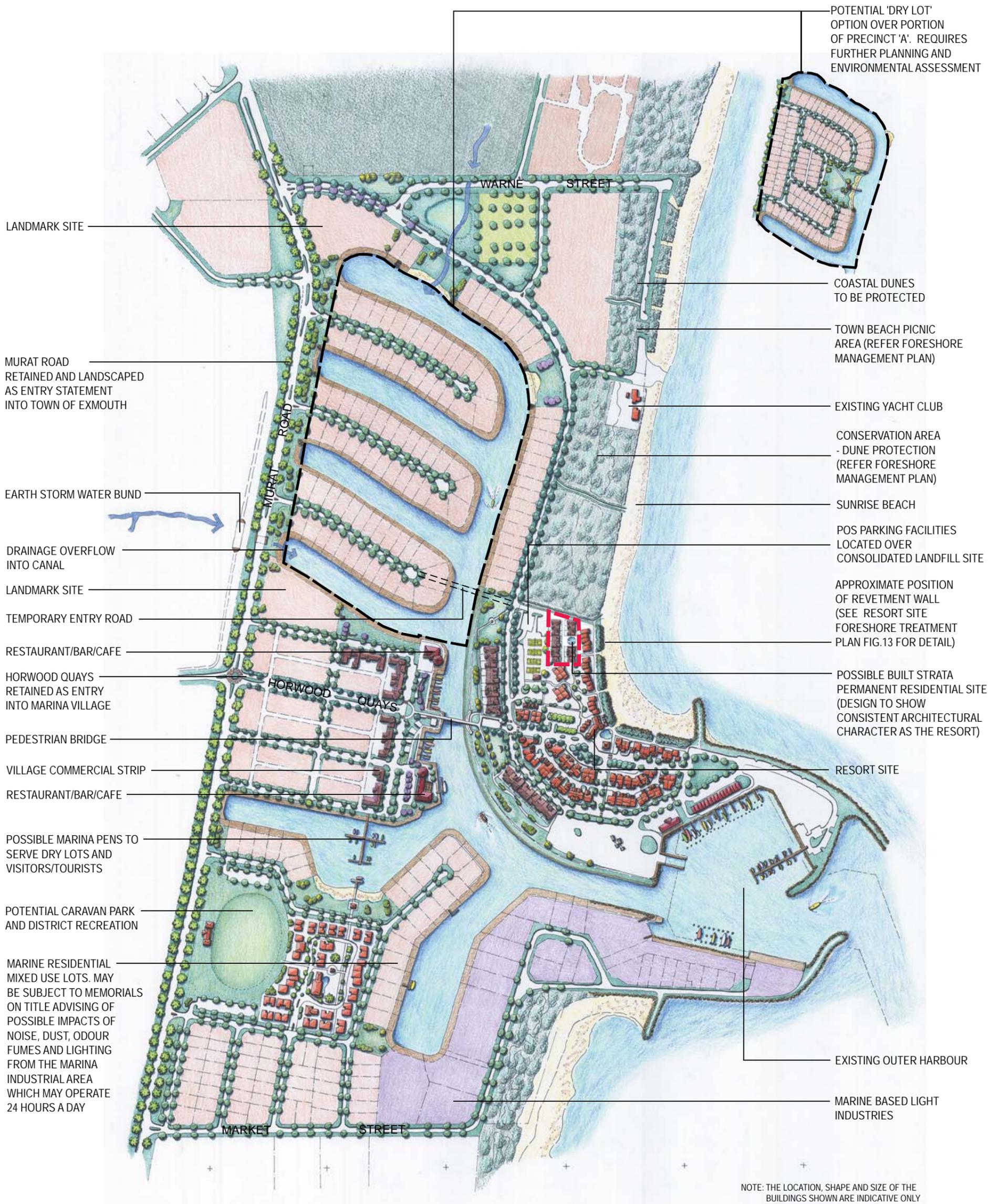
There are three key ingredients which will ensure the success of the marina village, being the resort site, canal based residential and the marine industry.

Exmouth has significant tourism opportunities to offer and is on the world map of recreational destinations for its Ningaloo Reef, whale sharks and fishing. Currently there are limited tourist facilities available and with a distinct lack of luxury style accommodation. The development of the resort site will fill this void.

Residential housing stock within Exmouth is limited in its variety. The canal based residential will provide residential choice in both type and character.

As discussed, commercial fishing is a significant industry within Exmouth. The ODP provides a distinct area, Precinct E, for the continued expansion of marine based industries. M.G. Kailis Gulf Fisheries (at the time of writing) have indicated an interest in moving its prawn processing operations onto a site within the proposed marine industrial area. Kailis already utilise moorings within the outer harbour. The continuing growth in aquaculture is also likely to provide development opportunities within the industrial area.

The design of the ODP allows for staging of development on a precinct basis.





## 4.2 PRECINCTS

The ODP has been divided into five precincts. They differ in character and predominant use but have some other uses in common. (See **Figure 12**).

### PRECINCT A

Canal based and dry lot residential incorporating a landmark development (tourist complex, holiday accommodation, etc) entrance site. The Precinct is split into two areas separated by the main entry road.

### PRECINCT B

Canal based and dry lot residential, commercial/mixed use (café/restaurant/tourist), short stay accommodation and landmark development (tourist complex, holiday accommodation, etc) site.

### PRECINCT C

Resort site, permanent residential (long stay accommodation west of entry road) and residential R30 coded built strata permanent residential to the north of the resort, as shown on the ODP dated February 2011 only (refer **Figure 11**) and Resort Concept Plan (refer **Appendix 3**).

### PRECINCT D

Canal based and dry lot residential, caravan park, recreation, mixed use residential/low key marine based uses.

### PRECINCT E

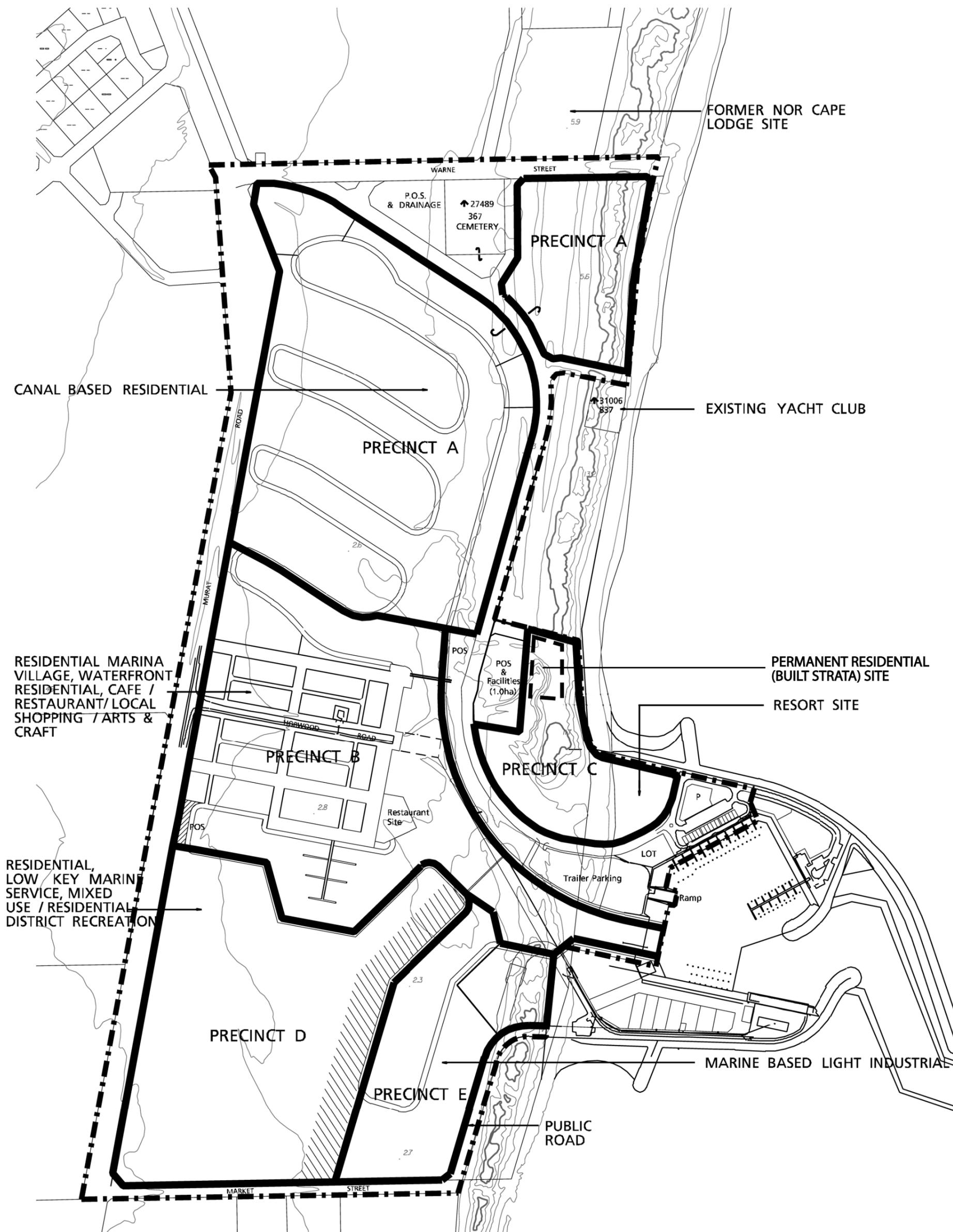
Marine Industrial.

Design Guidelines for each precinct are provided in the Broad Design Guidelines appended to the report.

## 4.3 LAND USE CONFLICT

The inclusion of the proposed marine industrial area (Precinct E) has the potential to attract some industries which may potentially generate, noise, odour, pollution etc which could impact on the nearby residential or resort areas. In this respect the issue of potential impact and protection of impact from such uses is afforded by the WA Planning Commission's *Draft State Planning Policy 4.1 State Industrial Buffer (Amended)* and *Guidance Statement No. 2 (2005) Separation Distances between Industrial and Sensitive Land Uses* (EPA). These Policies set out the framework and requirements for determining acceptable uses within certain buffer requirements and under certain operative conditions.

The proponent/s and the Shire of Exmouth shall have due regard to the Commission's State Industrial Buffer Policy (Statement of Planning Policy No. 4) and the proximity of such proposal/s to nearby Residential and Future Urban zoned areas and other sensitive uses when considering development applications locating uses of an industrial nature within the Light Marine Industry Area.



**PRECINCT PLAN**

OUTLINE DEVELOPMENT PLAN - REVISED SEPTEMBER 2010  
 SUNRISE BEACH RESORT PTY LTD



date - Sept 2010  
 scale - NTS  
 plan number - 08/062/G005A



Wherever possible, industrial land uses should retain their emissions and hazards on-site or at least within the boundaries of the Light Marine Industry Area. Proposals which may result in off-site impacts shall be referred by the Shire of Exmouth to the Environmental Protection Authority for assessment under Section 38 of the *Environmental Protection Act, 1986*.

Any licensed premises as defined under the Environmental Protection Act 1986 is required to obtain a works approval from the DEC. Therefore, any proposed licensed industry will be required to obtain a works approval and accordingly will be assessed in terms of the objectives and requirements of the WA Planning Commission's *Draft State Planning Policy 4.1 State Industrial Buffer (Amended)* and *Guidance Statement No. 2 (2005) Separation Distances between Industrial and Sensitive Land Uses (EPA)*. Any buffer distance and industry performance criteria set by the DEC must be respected. It is expected that the Shire of Exmouth will refer any planning development application for a new industry within the marine industrial area, to the DEC.

#### 4.4 FILLING PORTION OF SUPERLOT A

The portion of Precinct A which lies on the eastern side of the proposed main access road includes land which is to inevitably be given up as foreshore reserve. The ODP clearly shows the area, shaded green, which is to form part of the foreshore reserve. It is proposed to include this land within proposed Superlot A to enable some filling to occur behind the secondary foredune.

A notional foreshore reserve line has been designated behind the secondary dune, in accordance with coastal policy objectives, and being located fairly close to the 7 - 7.5m AHD contours. The purpose of keeping the intended foreshore reserve within Superlot A is to allow the purchaser of the superlot to undertake necessary filling works of the hollow behind the secondary dunes. The subject hollow is within the intended development area and requires to be filled to enable the area to be developed. Currently, the hollow collects wind blown rubbish and debris. To enable the works to be undertaken by the developer it is preferable for the land to be transferred to the developer in the first instance to allow them access into this area. Under the terms of the Contract of Sale of Superlot A, between the purchaser and LandCorp, the land shown as foreshore reserve on the ODP will be required to be transferred back to the Crown free of cost, upon the completion of the filling works as a condition imposed on the subdivision approval for that land.

All other works within this foreshore reserve area are to be provided in accordance with the Foreshore Management Plan.

#### 4.5 BEACH REVETMENT WALL

To achieve a reduced coastal setback and to protect the resort from wave action caused by storms and cyclones, a revetment wall is proposed to be constructed in front of the foredune.

The detailed engineering design of the revetment wall will be undertaken prior to the issue of a Title for the Resort Precinct superlot. The design will be undertaken to the specifications of the Department of Transport.

In accordance with the Western Australian Planning Commission requirements, the following shall apply in respect of the revetment wall:

-  That the final location and engineering standards of revetment wall are to be determined in consultation with Department of Transport and Shire of Exmouth;

-  That the width and nature of the required foreshore reserve in front of the resort site are to be determined following detailed consideration of the engineering construction details for the proposed revetment wall and have regard to the need to provide emergency vehicle access;
-  That the coastal setback and finished floor levels to protect the resort buildings from wave attack and storm damage are still to be determined and are subject to the finalisation of the design and engineering specifications for the proposed revetment wall; and
-  That the location, shape and size of buildings shown on the ODP are indicative only.

The revetment wall is being designed to a standard and location to achieve the reduced foreshore setback and foreshore layout as provided in the Resort Site Foreshore Treatment Plan, **Figure 13**. A typical foreshore cross section is provided in **Figure 14**.

Detailed use and management of all the foreshore areas within the Outline Development Plan area is provided under a separate Foreshore Management Plan prepared by Bowman Bishaw Gorham.

#### 4.6 AREAS OUTSIDE OF THE PRECINCTS

A Foreshore Management Plan (FMP) has been prepared by Bowman Bishaw Gorham covering the use, development and management of the foreshore reserves north of the boat harbour. It is proposed under the FMP for formalised pathways to be installed through the dunes to link the developed area to the beach. Other essential works to be carried out by the Shire of Exmouth and LandCorp are outlined in the FMP and are summarised in Section 8.

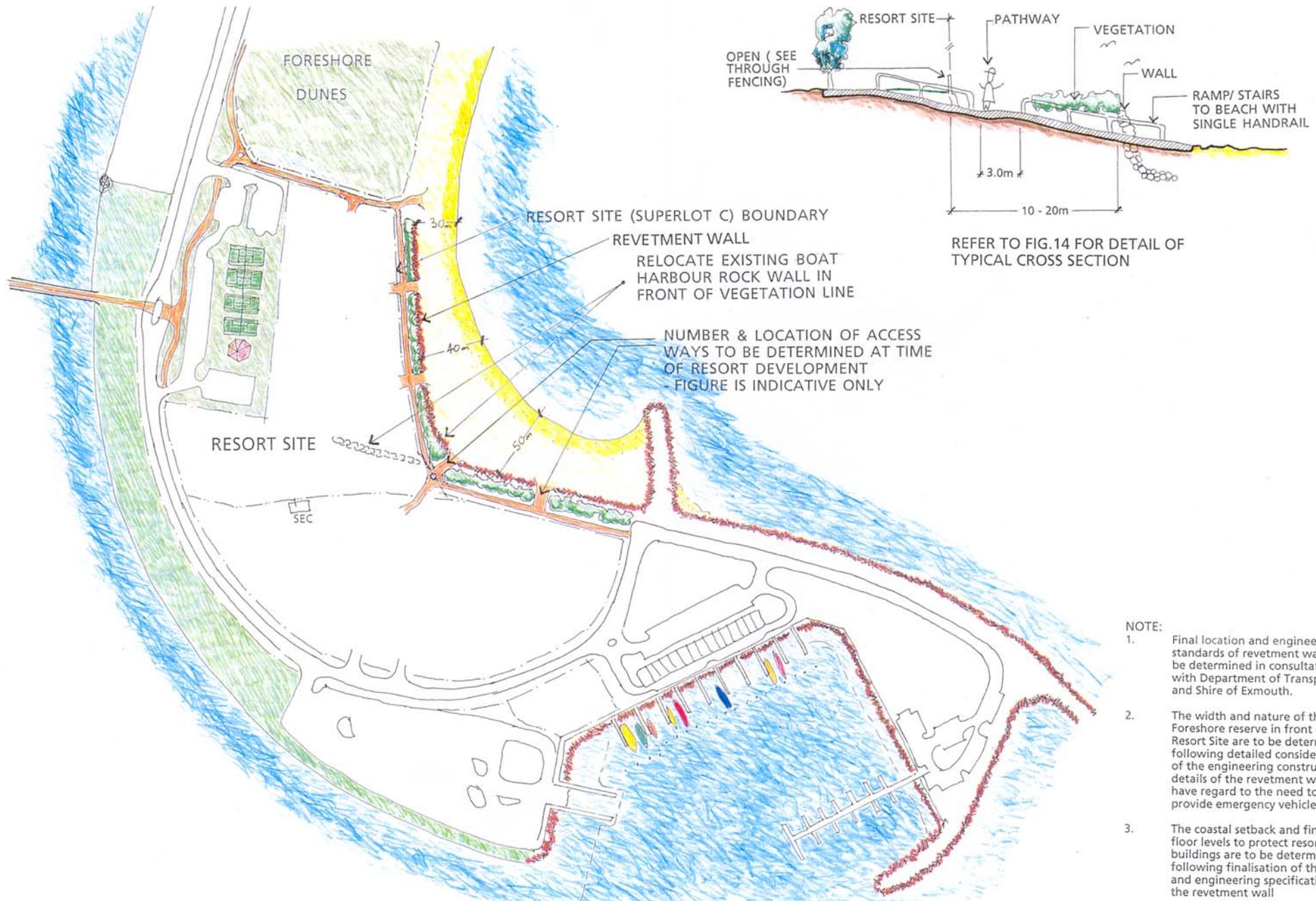
The FMP has been endorsed by CALM and the Shire of Exmouth and is currently being assessed by the Ministry for Planning.

The Exmouth Yacht Club will remain in its current location.

The proposed tennis courts over the former tip site are to be developed by the resort owners on a lease arrangement with the Shire of Exmouth.

The cemetery is to remain in its current location with the addition of POS to buffer it from the entry road. The adjoining POS area to the west provides a significant drainage function for the plains area to the north of the site.

The existing outer boat harbour is to remain in its present form.



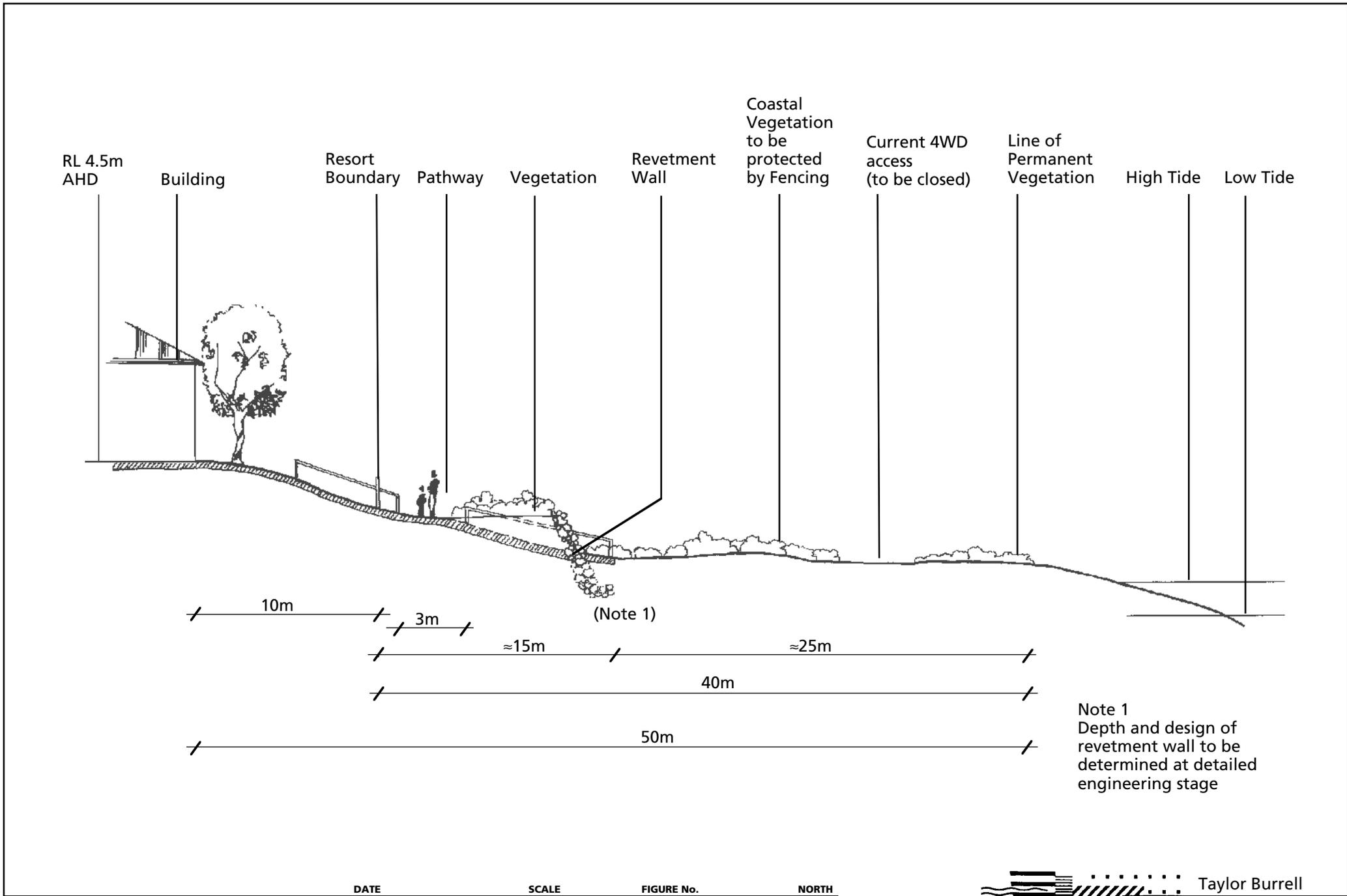
REFER TO FIG.14 FOR DETAIL OF TYPICAL CROSS SECTION

- NOTE:
1. Final location and engineering standards of revetment wall to be determined in consultation with Department of Transport and Shire of Exmouth.
  2. The width and nature of the Foreshore reserve in front of the Resort Site are to be determined following detailed consideration of the engineering construction details of the revetment wall and have regard to the need to provide emergency vehicle access.
  3. The coastal setback and finished floor levels to protect resort buildings are to be determined following finalisation of the design and engineering specifications of the revetment wall

FIGURE 13 SCALE 1 : 2 500 NORTH

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# RESORT SITE FORESHORE TREATMENT



DATE  
December, 2000

SCALE  
NTS

FIGURE No.  
14

NORTH



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TYPICAL FORESHORE CROSS SECTION  
BASED ON THE 40m SECTION



## 5 MOVEMENT NETWORK

### 5.1 EXISTING ROADS

There are three sealed roads which already exist within the ODP area.

Murat Road, the only sealed entry road into Exmouth flanks the western boundary of the ODP area. Murat Road is a two lane undivided road. Murat Road has a 40m reserve width extending to 80m at its bend just south of Warne Street.

Accessing the site from Murat Road is Horwood Road (30m reserve) which currently provides access to the outer boat harbour.

Warne Street (30m reserve) runs along the northern edge of the ODP area and then becomes Donnelly Street (non public and unsealed) heading south to provide access to the Exmouth Yacht Club. Warne Street also provides access to Sunrise Beach and to the former Nor Cape Lodge site.

Market Street (20m reserve) is a partially sealed road which lies on the southern border of the ODP area, south of the existing race course and go cart track. This road provides alternative low key access to the beach south of the boat harbour.

### 5.2 PROPOSED ROAD NETWORK

It is proposed to retain and utilise each of the three sealed roads and the unsealed Market Street in the ODP. Murat Road will continue to provide the main uninterrupted link with the Exmouth town centre. A median strip could be incorporated into Murat Road from its intersection with Horwood Street continuing up to Warne Street. This will permit a landscaped entry statement into the Town of Exmouth. It is proposed to plant cotton palms to reinforce and compliment the existing planting in the rest of the Exmouth townsite.

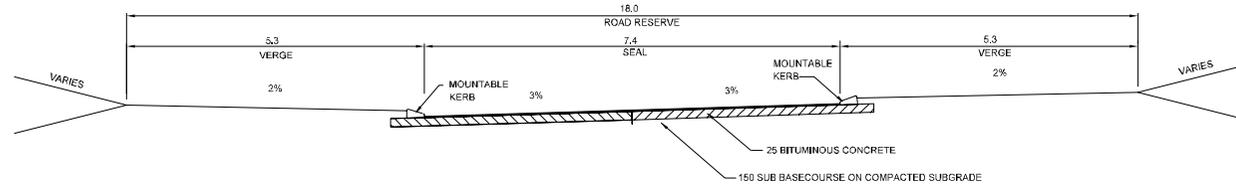
Horwood Street is proposed to be retained for its length within Precinct B. The balance, severed by the canal will be closed. Horwood Street will be turned into a boulevard incorporating tree lined verges and median strip. It will provide the main access into the Marina Village.

The main access road to the resort site and boat harbour will utilise the current intersection of Warne Street with Murat Road. This intersection together with the proposed alignment provides the most direct and unencumbered access between the Exmouth townsite and the resort site and the existing boat harbour. A dual carriageway, landscaped median and verge on a 27m road reserve could provide an attractive entry into the Resort and boat harbour. The road will taper into a 21m wide reserve south of Superlot A1 and then to an 18m wide reserve at the resort site. Typical cross-sections are shown in **Figure 15**.

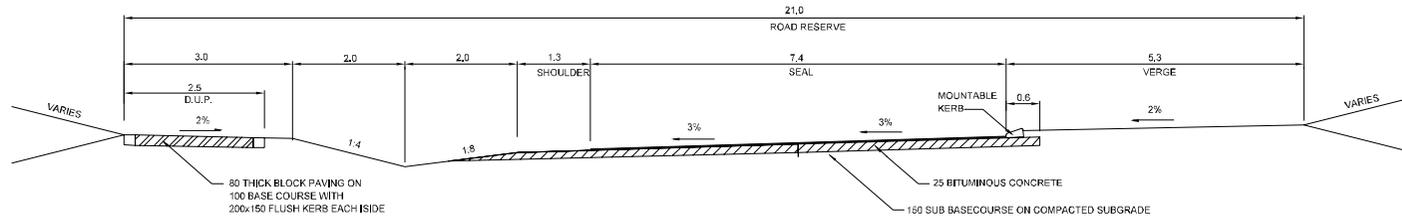
The existing alignment of Warne Street will also remain for the major part and will continue to provide access to Sunrise Beach, cemetery, yacht club and Truscott Street. It will intersect with the main access road.

Market Street will be upgraded to a fully sealed road and will provide access to the southern portion of Precinct D and to the proposed marine industrial area and the more 'working side' of the outer harbour and marina area. The 20m wide reservation of Market Street will be retained.

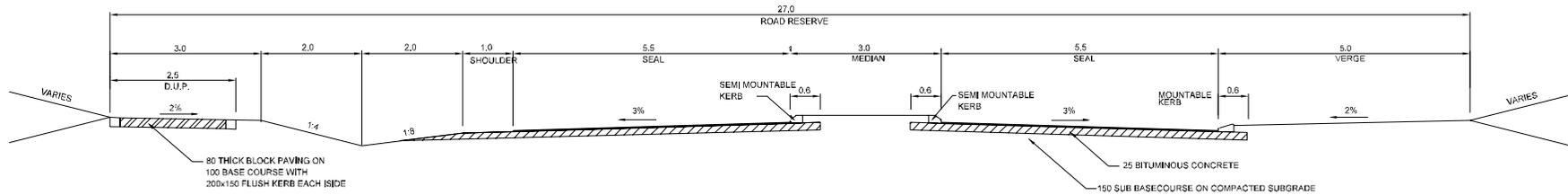
150 SUB BASECOURSE ON COMPACTED SUBGRADE  
**TYPICAL CROSS SECTION  
ROADS 1 AND 2**



**TYPICAL CROSS SECTION  
WITH KERBING**



**TYPICAL CROSS SECTION  
WITH TABLE DRAIN**



**TYPICAL CROSS SECTION  
DUAL CARRIAGEWAY  
MAIN ACCESS ROAD**

						<p><b>COPYRIGHT</b>  The contents and information contained herein are the property of Cassill &amp; Wibley. All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or by any information storage and retrieval system, without the prior written permission of Cassill &amp; Wibley.</p>			<p><b>CLIENT</b>  <b>LANDCORP</b></p>			<p><b>DESIGNED</b> G.E.D.    <b>CHECKED</b>    <b>APPROVED</b></p>			<p><b>CONSTRUCTION</b>  68 Hwy Street  SUBIACO WA 6008  Tel : (08) 9388 1855  Fax : (08) 9388 1853</p>			<p><b>PROJECT</b> EXMOUTH MARINA VILLAGE  <b>TITLE</b> TYPICAL MAIN ACCESS ROAD</p>		
<p><b>NO.</b>    <b>DATE</b>    <b>APPROVED</b></p>			<p><b>NO.</b>    <b>DATE</b>    <b>APPROVED</b></p>			<p><b>AMENDMENT</b></p>			<p><b>DESIGNED</b> G.E.D.    <b>CHECKED</b>    <b>APPROVED</b></p>			<p><b>CONSULTING ENGINEERS</b>  <b>CASSILL &amp; WIBLEY</b></p>			<p><b>SCALE</b>    <b>DRAWING NUMBER</b>    <b>ISSUE</b></p>					
									<p><b>FIGURE 15</b></p>			<p><b>Consulting Engineers</b></p>								



## 5.3 PEDESTRIAN AND DUAL USE PATH NETWORK

### 5.3.1 DUAL USE PATHS

A dual use path (DUP) system is proposed to link the town with both the northern and southern sides of the boat harbour and Sunrise Beach. (See **Figure 16**).

A dual use path will be constructed along the new main access road providing access to the tennis courts, resort, Sunrise Beach and the boat harbour. Cycle access will also be provided over the footbridge to link Precinct B and the resort site.

The dual use path will wrap around the resort side ensuring a public edge between the resort site and the beach.

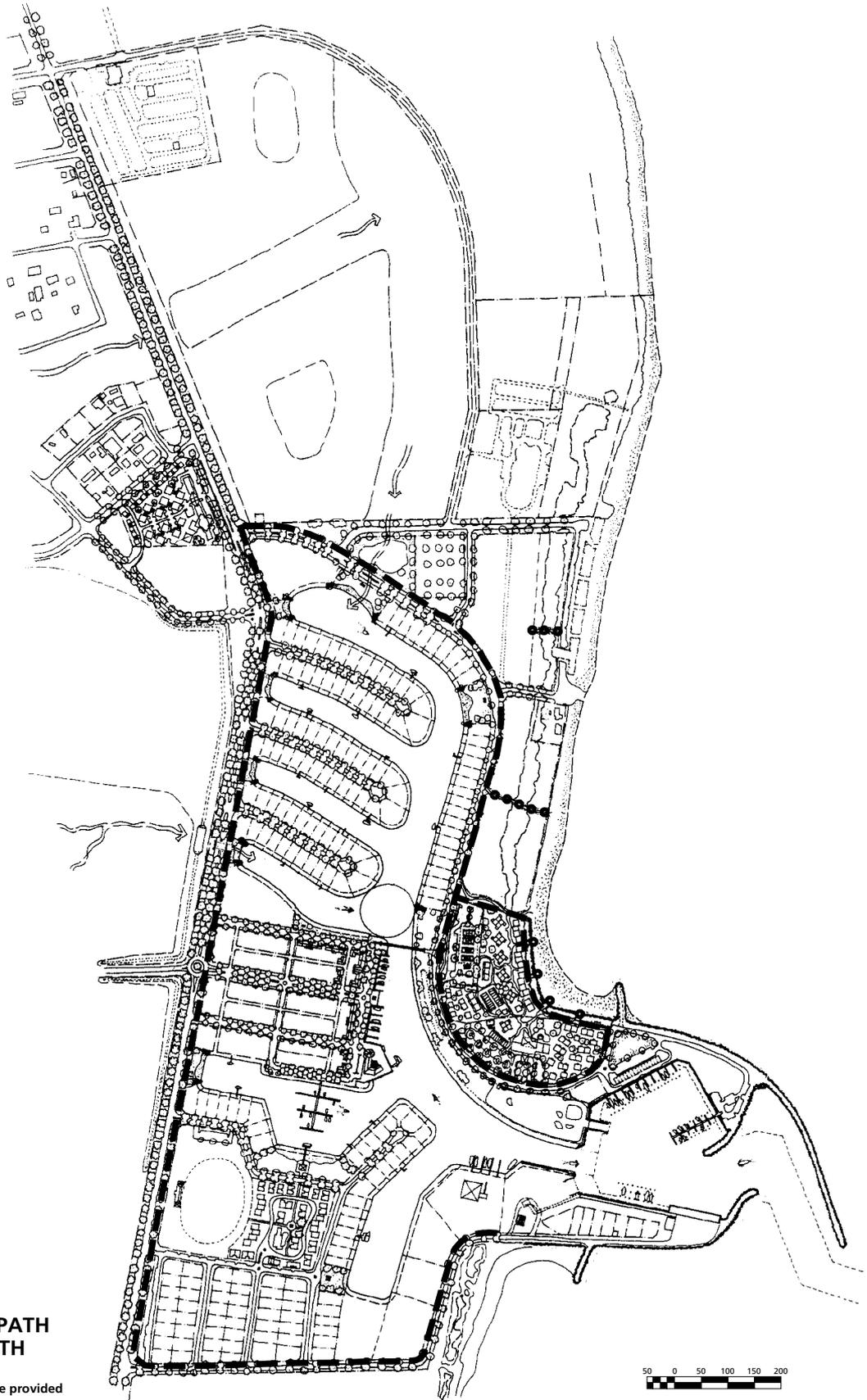
A dual use path is also proposed along Murat Road and Market Street. This will provide access between the townsite and Precinct B commercial area, the marine industrial area and the northern marina quay.

The road network throughout the ODP area is fairly low key with high permeability and low traffic counts. Generally all roads will be conducive to cycle traffic.

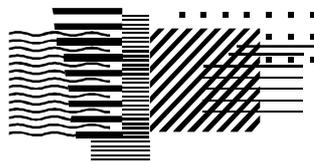
### 5.3.2 FOOTPATHS

It is intended that individual developers provide a footpath along one side of every internal road, in accordance with current subdivision requirements. The design of roads should allow for the potential construction of a second footpath in the future.

Access paths are also proposed to link development areas to Sunrise Beach. These are nominally shown in **Figure 16**. For details on the location, number and maintenance of paths discussed in the Foreshore Management Plan.



DATE December 2000      FIGURE NO. 16      NORTH



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**DUAL USE PATH & WALKWAY PLAN  
 EXMOUTH MARINA VILLAGE**

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## 6 PUBLIC OPEN SPACE (POS)

### 6.1 BACKGROUND

It is WA Planning Commission Policy to require 10% of the gross subdivisible area to be given up as public open space to the Crown free of cost. Alternatively, a developer may provide 8% where POS is improved under an agreed management plan. These requirements are accepted standards in the land development industry for standard residential estates.

There is a move, however, in the northern parts of Western Australia by a number of Council's to require a lesser percentage of public open space with the trade off being that the more active recreation areas are developed and provided with lighting by the developer. In the hot climate of the northern areas of the state recreational activities are occurring more often in the cool of the night. There is an increasing move towards evening games of organised sports such as football, under lights. With its hot dry climate Exmouth is one such location where a proportion of recreational activities should be favoured for night time use.

In addition to this argument the general lack of water also puts pressure on Council's in the upkeep of parks. It is becoming preferable for a lesser area being given to reduce Council's ongoing maintenance costs.

In respect to the Exmouth Marina Village, emphasis has been given to allocate most recreational pursuits around marine based activities.

While the ODP provides 10% public open space, the actual development will be dependent on the aspirations of each of the superlot or precinct developers. At the initial stage of superlot development, the percentage provision of public open space should be reviewed at the time more detailed planning of each precinct. Clearly the objective is to achieve the creation of public open space of quality rather than quantity.

### 6.2 PUBLIC OPEN SPACE SCHEDULE

The Public Open Space Schedule is presented below.

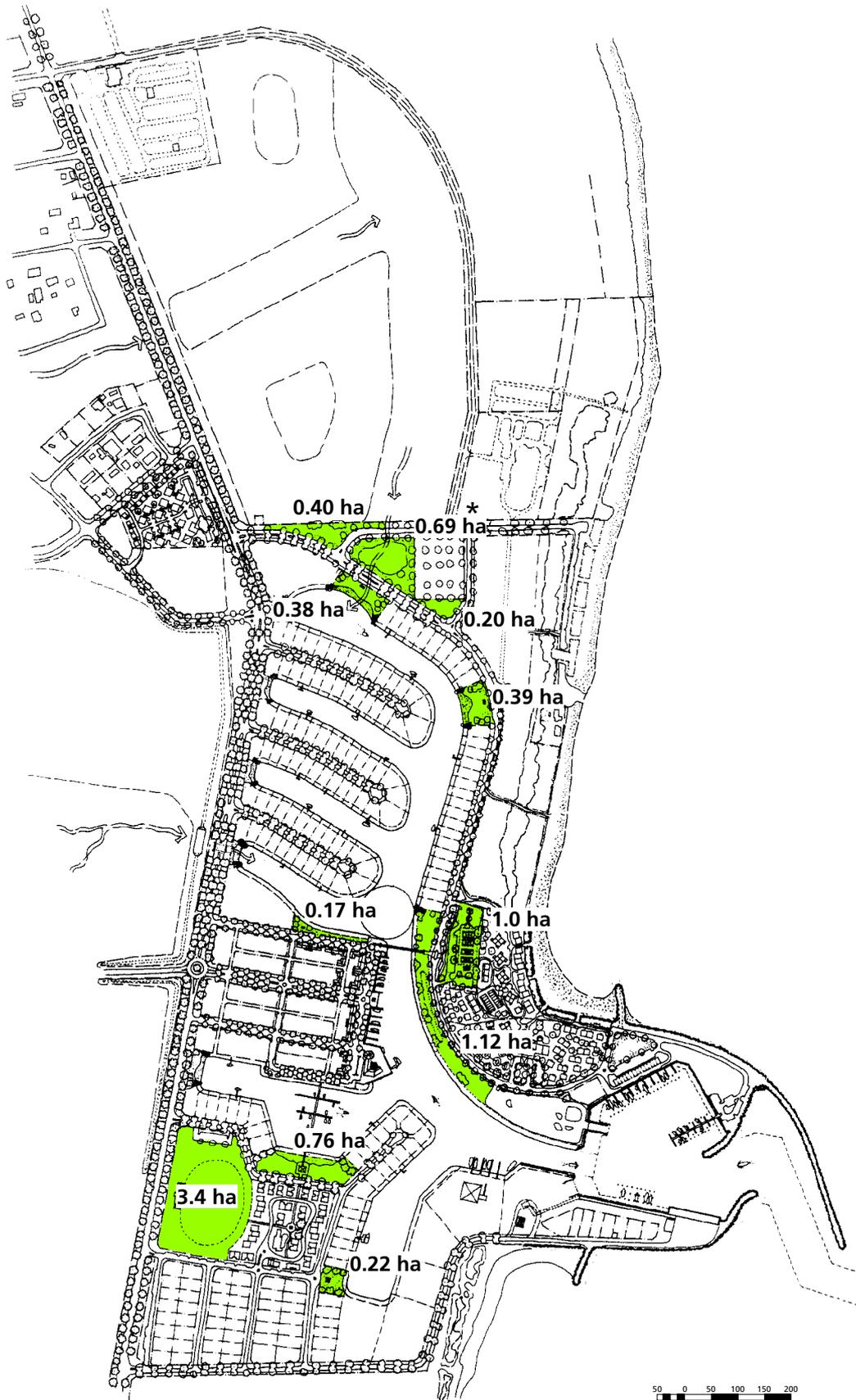
To obtain the net developable area to work out the 10% POS requirement the non-residential development areas were deducted from the total development area. The significant deductions included the canal waterways, resort precinct, industrial precinct and the foreshore reserve in Precinct A.

Attention has been given to providing a range of recreational opportunities which suit the context of being within a marina village. Various POS sites are provided near the main entrance. This will provide an attractive green entry into the marina village and will also provide for the necessary drainage (basin) system.

Six beach and/or canal frontage areas are also incorporated to provide access to the canals for residents and the public. This includes an esplanade foreshore area adjacent to the resort site which will ensure the public ownership of this area in perpetuity. Small parks have also been located where canal fingers meet Murat Road. These have not been credited as public open space areas in accordance with WAPC Policy DC 1.8.

Active recreational pursuits are catered for with the proposed tennis courts (near the resort site) and the oval within Precinct D.

The provision of POS is graphically provided in **Figure 17**.



\* INCLUDES ONLY 50%  
CREDIT FOR ANY  
BASIN AREA

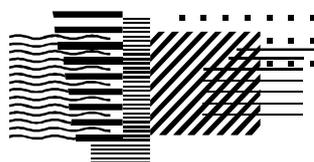
DATE

December 2000

FIGURE NO.

17

NORTH



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# PUBLIC OPEN SPACE PROVISION EXMOUTH MARINA VILLAGE



The Schedule indicates that a significant over provision of POS has been provided. As discussed above, it is requested that the right be reserved for the allocation of POS to be reviewed in the future detailed planning of each of the precincts.

### EXMOUTH MARINA VILLAGE POS SCHEDULE

<b>Total Development Area</b>	<b>101.46 ha</b>
<b>Less:</b>	
Cemetery	1.05
Waterway Precinct A inc open space at canal ends	9.57
Foreshore Reserve A1	2.14
Murat Road (50% of 7.56ha)	3.78
Commercial Waterfront Strip Precinct B	1.50
Waterway Precinct B	12.00
Resort Precinct C	5.10
Caravan Park Precinct D	2.30
Water Way Precinct E	2.98
Industrial Area Precinct E	4.62
Trailer Parking	1.36
Car park	0.34
<b>Total</b>	<b>46.74</b>
 <b>Net Developable Area</b>	 <b>54.72 ha</b>
 <b>POS Required</b>	 <b>5.472 ha (10%)</b>
<b>POS Provided (from north to south)</b>	
North of Entry Road	0.40
West of Cemetery (50% for lake)	0.69
South of Cemetery	0.20
Beach at canal head west of cemetery	0.35
Beach at A1 intersection	0.39
Canal front Precinct B	0.30
Canal front strip Precinct C	1.50
Tennis Courts	0.93
Canal Front Precinct D	0.76
Active recreation site	3.40
Beach at canal head Precinct D	0.25
<b>Total</b>	<b>9.17</b>
 <b>Total POS Provided</b>	 <b>9.17 ha (16.7%)</b>

## 7 SERVICING

### 7.1 INTERNAL WATERWAY CONSTRUCTION

#### 7.1.1 GENERAL

The internal waterway is to be constructed as an extension of the existing boat harbour and will provide water access and frontage to the proposed Superlots as well as the future inner boat harbour and proposed light marine industries.

The waterway will vary in width from 50 metres to 100 metres at Mean Sea Level.

#### 7.1.2 EXISTING ACCESS AND SERVICES

Construction of the internal waterway will cut the existing Horwood Street access as well as the existing power and water supplies to the existing boat harbour.

The boat harbour access and services would be temporarily relocated around the northern end of the proposed waterway until the permanent access and services are provided for the Superlot subdivision.

#### 7.1.3 WATERWAY CONSTRUCTION

##### 7.1.3.1 STAGE 1 – MAIN ACCESS WATERWAY

The natural ground level varies from RL +1.5 metres AHD to RL + 4.0 metres AHD in the area of the proposed main access waterway.

The floor level of the waterway has been designed at RL - 4.2 metres AHD to allow access of similar sized vessels from the outer harbour to the future inner harbour then reduced to -3.7 metres AHD past the future inner boat harbour to cater for recreational boating.

Depth of excavation will vary from 6.0 to 8.0 metres generating approximately 450,000 cubic metres of fill.

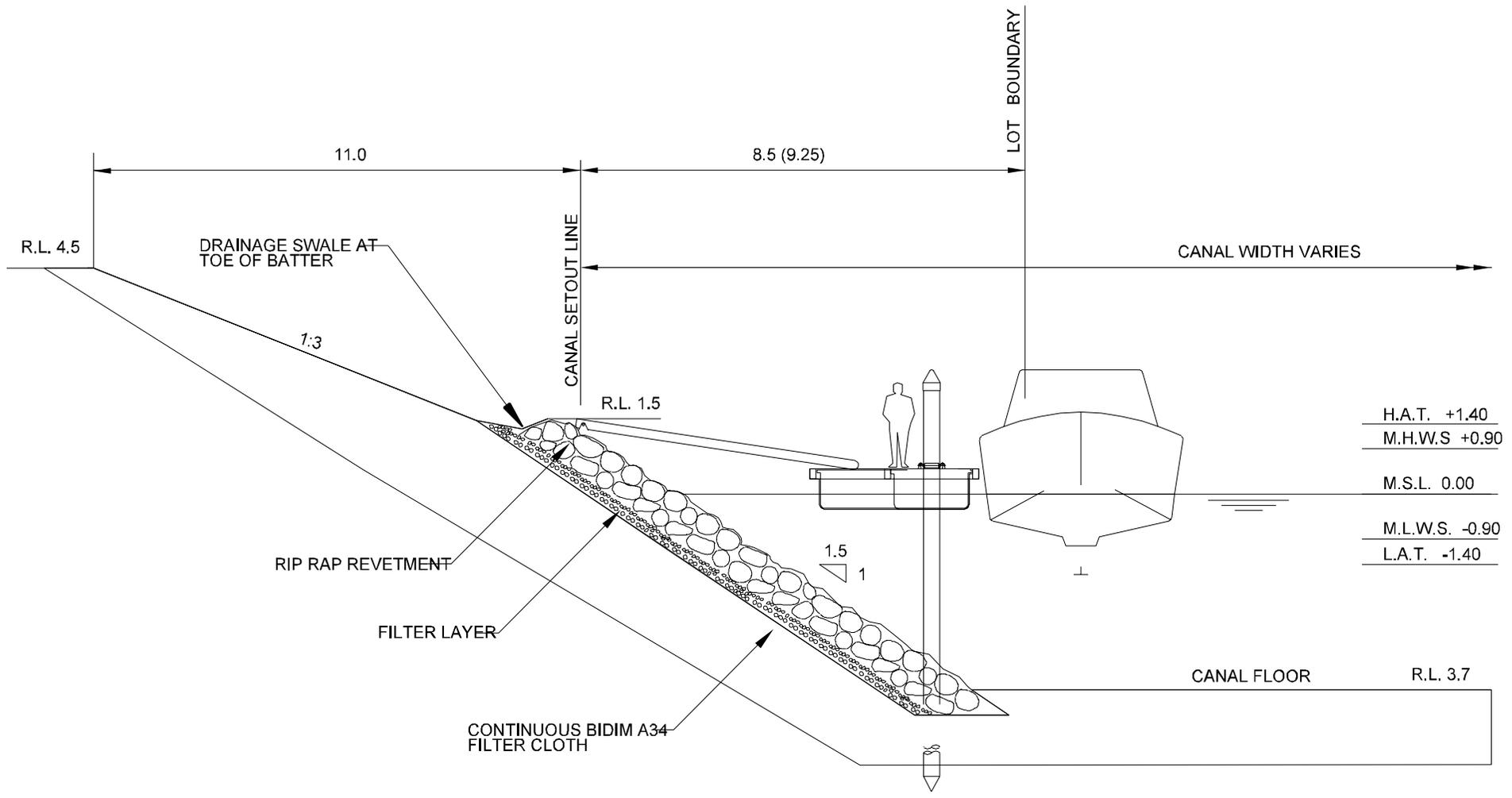
The minimum design floor level for development allowing for flooding, storm surge, climate change and freeboard is RL + 4.5 metres AHD (see **Figure 18**). This level was assessed as RL +3.7 metres AHD in the Public Environment Review for the Exmouth Marina but has been increased following the flood levels recorded during Cyclone Vance.

It is proposed that the internal waterway would be excavated in the dry utilising dewatering techniques with a temporary bund being left at the connection to the existing boat harbour. The bund would be removed at completion of the excavation work using an excavator and trucks.

##### 7.1.3.2 STAGE 2 – FIRST RESIDENTIAL CANAL

This canal is located between Precincts A & B and provides direct water frontage for both lots.

The floor level of the canal has been designed at RL -3.7 metres AHD to cater for up to 15.0m yachts.



WATERWAY REVETMENT WALL DETAIL

No.	DATE	APPROVED	AMENDMENT

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 to be used for  
 construction unless  
 issued as rev. 0  
 and signed below

CLIENT <b>LANDCORP</b>		APPROVED <b>FIGURE 18</b>
DESIGNED <b>G.E.D.</b>	CHECKED	
DRAWN <b>J.V.</b>	CHECKED	

**COSMILL & WEBLEY**  
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**COSMILL & WEBLEY**  
 Consulting Engineers

PROJECT <b>EXMOUTH MARINA VILLAGE</b>	TITLE <b>TYPICAL CANAL EDGE DETAIL</b>
SCALE	DRAWING NUMBER
ISSUE	

This canal is included in the infrastructure works to be undertaken by LandCorp and cost will be shared equally by the purchasers of Precincts A & B.

Depth of excavation will vary from 6.0 to 8.0 metres generating approximately 150,000 cubic metres of fill.

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#### 7.1.4 WATERWAY REVETMENT WALL

Waterway revetment walls (Stone rip-rap) are integral to the structural stability of the subdivision, being designed to protect lots from tidal (including surge tide) conditions. The revetment walling sits completely within residential lot boundary with its care and maintenance being the responsibility of the property owner. Alterations or modifications to revetment walls are not permitted unless approval is sought and obtained from Council.

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##### 7.1.4.1 WATERWAY EDGE WALLING

There are two types of waterway edge walling proposed for the development. The majority of the waterway perimeter will be protected by a 1:2 revetment slope armoured with 2 layers of rip rap rocks, underlain by a layer of filter rock and geotextile fabric to prevent the leaching of fines from the land into the waterway.

The second type of edge proposed for the waterway in the vicinity of the pedestrian bridge will be near vertical reconstituted limestone blockwork supported by geo-grid to form a typical reinforced earth wall. The blockwork extends downwards, to just below the low tidal range and the remaining battered edge beneath the wall will be rip rap revetment. The edge walling extends typically from + 1.5 AHD down to waterway bed level at – 3.7 AHD or – 4.2 AHD. (See **Figure 18**)

Immediately behind the revetment edge, at its top, a depression or swale will be created to capture any runoff from the 1:3 batter above and help to contain the potential for entry of nutrients into the waterbody.

Generally lots grade (slightly) away from the waters edge towards the roadways, again assisting with protection of the 1:3 batter and nutrient escape to the waterbody.

#### 7.2 PEDESTRIAN FOOTBRIDGE

To allow pedestrian access from the western side of the harbour and waterway it is proposed to construct a footbridge across the waterway north of Horwood Street.

The footbridge would have an underside clearance at Mean Sea Level of 6.5 metres which will allow most motor vessels with flybridges access to the residential canal development proposed in Superlot A.

#### 7.3 DRAINAGE

Limited drainage works would be required to accommodate the existing external overland flow of stormwater and its redirection to settlement/infiltration areas with severe storm events flowing into the internal waterway as part of the Superlot subdivision. The northern canal and the canal between precincts A & B will collect overflow stormwater from respective adjoining land. Prior to the creation of these canals, 'canal easements' will be imposed on the superlot titles as an interim measure to ensure an appropriate (short term) drainage system is provided.



Stormwater runoff from external roads will be collected and drained within the road reserves to table drains to allow settlement/infiltration for low intensity storms and discharge to the waterway in the case of severe storms.

A full detailed examination of drainage and the design system proposed is provided in the Drainage Design and Management Report.

#### 7.4 WATER SUPPLY

The existing boat harbour is serviced by a 150mm dia water main located in Horwood Street.

As part of the creation of the Superlots it is proposed to extend this main north along Murat Road to Warne Street and along the new access road for reconnection at the boat harbour. It is also proposed to connect this main to the 150mm dia. main in Murat Road north of Welch Street.

All the Superlots will be provided with a water supply connection at their boundary. Purchasers of superlots will be responsible for internal connections at the subdivision development stage.

#### 7.5 SEWERAGE

The Exmouth Marina Village area is currently not sewered and a comprehensive sewerage scheme will be required before resort, residential or commercial development can take place.

It is proposed that a gravity sewerage system be provided and connected to the town's sewage treatment works. This system can also service the existing boat harbour which will require a sewage pump station to pump into the gravity main adjacent to the resort site.

A sewage pump station would be constructed at the intersection of Warne Street and Murat Road with gravity lines constructed along the proposed access road and Murat Road.

Collected sewage would be pumped via a rising main, north along Murat Road, to the existing town's gravity system at Pelias Street.

All the Superlots will be provided with a sewerage connection point at their boundary designed to service the total lot area. The Resort Site (Precinct C) may require a private sewage pump station to discharge into the gravity sewer at the boundary depending on the layout and levels of the buildings within the site.

#### 7.6 POWER

Electricity is currently provided to the boat harbour along Horwood Street.

It is proposed that a new underground cable be located along the new access road alignment and be installed in the new water main trench.

The main switchroom, distribution centre, transformer and cables for the existing boat harbour are located within the proposed resort site (Superlot C). An easement has been provided through the site to accommodate these facilities.

All the Superlots will be provided with an underground HV connection at the boundary. Purchasers will be required to provide their own transformers, switchgear etc. to match their proposed development.

## 8 COMMITMENTS & RESPONSIBILITIES

To ensure the successful implementation of the project it is necessary that the commitments to undertake works and responsibilities for on-going maintenance be clearly defined at the outset of the project. The major stakeholders in the project are LandCorp, Superlot/precinct developers, Shire of Exmouth, individual lot owners and Department of Transport.

The commitments and responsibilities that will be carried out by each stakeholder are defined below.

### 8.1 LANDCORP

#### 8.1.1 FIRST STAGE WORKS

The State (LandCorp) will carry out works as shown in **Figure 19** as modified (October 2001) and as summarised below:

-  Create Superlots A, B, C and E;
-  construct a temporary entrance road to Precinct C and the outer harbour utilising the southern cul-de-sac road in Precinct A;
-  extend the 150mm water main along Murat Road through temporary access road to Precinct C and the outer boat harbour;
-  construct a sewer pump station to the west of Murat Road near the intersection of Murat Road and Horwood Quays
-  extend power supply to Precinct E from extension of existing supply from Market Street;
-  construct pedestrian bridge over main canal;
-  construct the seawall;
-  landscape portion of Murat Road and road entry statements; and
-  landscape foreshore area at main canal in Precinct B.

##### 8.1.1.1 SUPERLOT SUBDIVISION

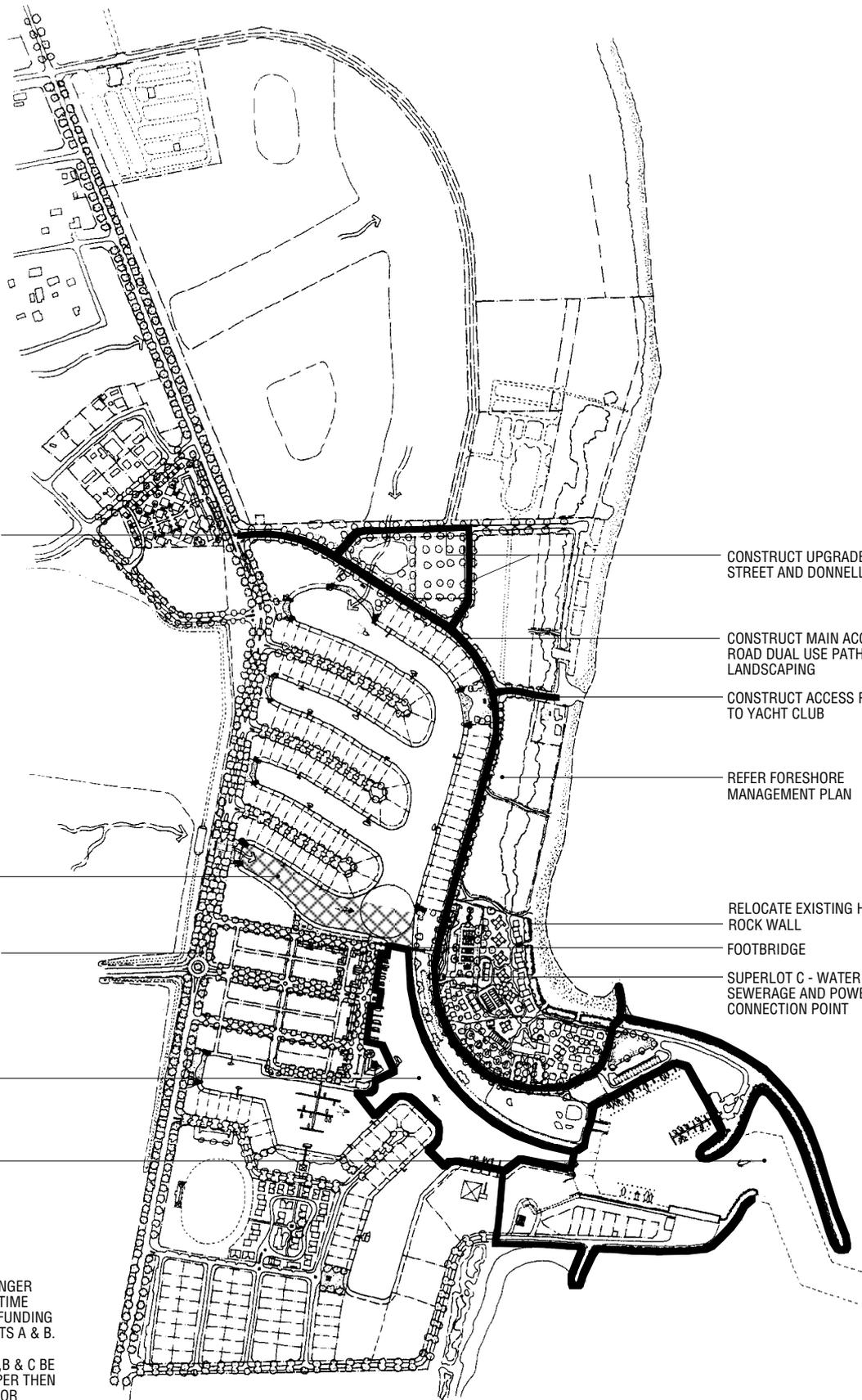
LandCorp will provide the following services to each of the proposed superlots:

-  road access
-  drainage
-  water supply
-  sewerage
-  power

##### 8.1.1.2 WATERWAYS/CANALS

LandCorp will construct:

-  the main canal up to the southern boundary of Precinct A;
-  waterway between Superlots A and B; and
-  waterway between Superlots D and E.



SUPERLOT A - WATER SUPPLY, SEWERAGE AND POWER CONNECTION POINT

CONSTRUCT UPGRADE WARNE STREET AND DONNELLY ROAD

CONSTRUCT MAIN ACCESS ROAD DUAL USE PATH AND LANDSCAPING

CONSTRUCT ACCESS ROAD TO YACHT CLUB

REFER FORESHORE MANAGEMENT PLAN

\* CANAL (FUNDED EQUALLY BY OWNERS OF SUPERLOTS A & B)

RELOCATE EXISTING HARBOUR ROCK WALL

FOOTBRIDGE

SUPERLOT C - WATER SUPPLY, SEWERAGE AND POWER CONNECTION POINT

SUPERLOT B - WATER SUPPLY, SEWERAGE AND POWER CONNECTION POINT

CONSTRUCT MAIN CANAL

OUTER HARBOUR AND ASSOCIATED FACILITIES ALREADY CONSTRUCTED

\* LANDCORP TO UNDERTAKE FINGER CANAL WORKS AT THE SAME TIME AS MAIN CANAL SUBJECT TO FUNDING BY PURCHASERS OF PRECINCTS A & B.

NOTE: SHOULD SUPERLOTS A,B & C BE PURCHASED BY ONE DEVELOPER THEN THEY MAY BE RESPONSIBLE FOR CONSTRUCTION OF THE CANALS.

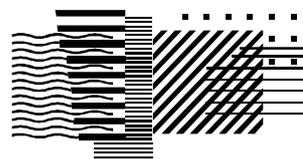
DATE

FIGURE NO.

NORTH

December 2000

19



Taylor Burrell

Town planning and design

**FIRST STAGE WORKS BY LANDCORP  
EXMOUTH MARINA VILLAGE**

187 Roberts Road Subiaco  
PO Box 503 West Perth  
Western Australia 6872  
Telephone (09) 382 2911  
Facsimile (09) 382 4586

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### 8.1.1.3 FORESHORE MANAGEMENT – CONSTRUCTION

LandCorp will carry out the following:

-  dune fencing
-  access ways
-  dual use pathway
-  signage and brushing of dunes
-  relocate the existing (northern) marina riprap rock wall as a beach wall as shown in the Foreshore Management Plan

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### 8.1.2 FORESHORE MANAGEMENT – MAINTENANCE

LandCorp will:

-  maintain all the works required, as described above, for a period of one year following the completion of construction of Stage 1.

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### 8.1.3 ENVIRONMENTAL MANAGEMENT PLANS

LandCorp will carry out:

-  monitoring and maintenance as prescribed under the various environmental management plans as listed in Section 1 of the report.

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### 8.1.4 LOCAL AUTHORITY AMENDMENT

LandCorp will undertake:

-  an Amendment to the Shire of Exmouth Town Planning Scheme No. 3 to introduce the provisions as provided in Appendix 1 of the WA Planning Commission's 'Procedures for Approval of Artificial Waterways and Canal Estates' Policy No. DC 1.8, where applicable, to the Marina Zone.

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## 8.2 SHIRE OF EXMOUTH

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### 8.2.1 FORESHORE MANAGEMENT - CONSTRUCTION

Reconstruct Warne Street foreshore parking area, including replacement of pine log barriers; construct the adjacent dual use pathway; rehabilitate (including seeding and/or planting) the adjacent foredune and decommissioned road and parking areas.

Restore picnic area, including new barbecue and seating.

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### 8.2.2 FORESHORE MANAGEMENT – MAINTENANCE

-  Monitor success of dune rehabilitation.
-  Maintain picnic area.

- 
-  Maintain all other foreshore areas after LandCorp's one year maintenance period expires as agreed by review with the dep.
  -  Maintain the beach wall north of the marina.

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### 8.2.3 WATERWAYS MANAGER

The waterways and all public edges will be vested in the Shire. The Shire shall become the waterways manager and will be responsible for:

-  the ongoing maintenance of the canals, including water quality, depth (dredging), entrance channel navigation aids;
-  maintenance of all waterways edges adjoining public open space including revetment walls, jetties, canal footbridge;
-  beach stabilisation;
-  public marina pens;
-  boat ramps and associated car/trailer parks;
-  marina public toilets/change rooms; and
-  issue of jetty licence under delegated authority from DPI (when legislation allows), and issue of planning development approval.

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### 8.2.4 PUBLIC OPEN SPACE

Establish (where necessary) and maintain all parks and public recreation areas including public canal beaches.

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### 8.2.5 ENVIRONMENTAL MANAGEMENT PLANS

Monitoring and maintenance as prescribed under the various environmental management plans as listed in Section 1 of the report.

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## 8.3 INDIVIDUAL DEVELOPERS

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### 8.3.1 DEVELOPMENT

The development of any Superlot will be in accordance with the approved Exmouth Marina Village Outline Development Plan and Design Policy. Any departure from the approved ODP and Design Policy will be subject to further approvals by the Shire of Exmouth, WA Planning Commission and Environmental Protection Authority as required, at the developers cost.

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### 8.3.2 SERVICES

-  Power, sewerage, water, telecommunications etc.
-  Responsible for providing all services internally within their Superlot.

### 8.3.3 CANAL CONSTRUCTION

-  Funding and organising construction of a canal where it is entirely within a developers Superlot holding.
-  To equally fund and coordinate the construction of a canal where it lies between two separate superlots.

### 8.3.4 FORESHORE RESERVE - PRECINCT A

The purchaser of Precinct A shall, following completion of required filling behind the secondary dune and associated rehabilitation, cede to the Crown free of cost, that area shown on the ODP as foreshore reserve, shaded green.

### 8.3.5 RESORT SITE – PRECINCT C

The purchaser of the resort site will be responsible for the following:

-  Construction of a 2-3m boardwalk/walkway and associated landscaping and fencing along the beach frontage of the resort site behind the beach wall in accordance with the Foreshore Management Plan.
-  The installation of steps and/or ramps through the beach wall onto the beach.
-  The construction and maintenance of tennis courts on a lease arrangement from the Shire of Exmouth.

### 8.3.6 ENVIRONMENTAL MANAGEMENT PLANS

Monitoring and maintenance as prescribed under the various environmental management plans as listed in Section 1 of the report.

### 8.3.7 DUAL USE PATHS

The purchases of Precincts A, B, D and E will be responsible for constructing the dual use path, for these sections along Murat Road and Market Street which adjoin their respective precinct.

## 8.4 INDIVIDUAL CANAL FRONT LOT OWNERS

Each purchaser of a lot which has canal frontage will be responsible for the ongoing maintenance of the stabilised surfaces and revetment walls and private jetties within their lot. Each owner will also be responsible for the ongoing maintenance of any pontoon or jetty that gives access to that lot.

## 8.5 DEPARTMENT FOR PLANNING AND INFRASTRUCTURE (MARINE DIVISION)

The Department for Planning and Infrastructure (Marine Division) will:

-  Continue to manage and maintain the existing outer boat harbour;
-  Provide advice to the waterways manager (Shire of Exmouth);
-  Assist in monitoring the main waterway and navigation aids;
-  Monitoring and maintenance as prescribed under the various environmental management plans as listed in Section 1 of the report; and
-  Manage any leasehold land for industry purposes within Precinct E.



## 9 IMPLEMENTATION OF DEVELOPMENT

### 9.1 PROCESS

Prior to development occurring within the Exmouth Marina Village the following needs to occur:

-  ODP needs to be adopted.
-  Various environmental management plans need to be approved.
-  Superlot subdivision needs to be approved.
-  A Deed of Agreement for works, monitoring and maintenance and funding arrangements for maintenance needs to be entered into.
-  Native Title Clearance.

### 9.2 OUTLINE DEVELOPMENT PLAN

The Outline Development Plan will provide the basis for guiding subdivision, development and broad design requirements of all areas within the Exmouth Marina Village. The ODP will be adopted by the Shire of Exmouth and be endorsed by the WA Planning Commission in accordance with clause 5.5.3 of Town Planning Scheme No. 3.

The Broad Design Guidelines will form part of the ODP and following adoption by Council will become a local planning Policy under its Scheme.

The ODP provisions are further supplemented by Detailed Design Guidelines for Precinct C, which are also adopted by Council as a Local Planning Policy.

### 9.3 ENVIRONMENTAL MANAGEMENT PLANS

Prior to the ODP, and in accordance with the formal level of assessment imposed on the project by the Environmental Protection Authority, a Public Environmental Review was prepared by Bowman Bishaw Gorham which resulted in Ministerial Conditions being set. These conditions required the preparation of a number of environmental studies and management plans. These have been undertaken and are at various stages from being assessed to being approved, as outlined in Section 1. The environmental management plans include commitments and responsibilities which need to be undertaken in accordance with the arrangements as provided in the respective reports.

### 9.4 SUPERLOT SUBDIVISION

The superlot subdivision will divide the area into five individual development nodes to allow greater marketability and potential for individual development. The creation of superlots is likely to generate greater market interest as specialised developers will be able to tender for a specific precinct which meets their development objectives.

The creation and purchase of a superlot will facilitate the development of that precinct. Each precinct owner will be responsible for attending to the necessary subdivision and development approvals as required.

## 9.5 DEED OF AGREEMENTS

In accordance with the WA Planning Commission Policy DC 1.8 Procedures for Approval of Artificial Waterways and Canal Estates a Deed of Agreement will be entered into between the Shire of Exmouth, LandCorp and Department of Transport. The Deed will cover the following matters:

-  Compliance with ODP and Broad Design Guidelines, Town Planning Scheme No. 3, environmental Ministerial Conditions and any other relevant approval.
-  Construction of first stage works, i.e. main canal, main access road, etc.
-  Monitoring of water quality.
-  Management and maintenance of canals.
-  Sale of land and ability to transfer responsibility from LandCorp to a developer.
-  Other matters as may be listed in the Commitments and Responsibilities sections of the report.

## 9.6 DEVELOPMENT

All development within each of the superlots will be funded and constructed by the individual property purchasers.

All development will need to comply with:

-  the ODP and incorporated Broad Design Guidelines;
-  in respect of Precinct C, the Detailed Design Guidelines;
-  Town Planning Scheme No 3 provisions 5.5 which apply to the Marina Zone; and
-  the Residential Planning Codes.

Superlot developers may, at Council's discretion, be required to prepare further detailed Design Guidelines for each Precinct for the formal adoption of and administration by the Shire of Exmouth.

The Shire of Exmouth will be the responsible authority to administer planning development approvals within the Marina Village. Any development proposed, including that of a residence, will be required to be lodged as a planning application with the Shire together with plans of the proposed development and prescribed fee. The details of the proposed development including building materials, finishes and colours are to be shown on the plans.

Following receipt of a development approval from the Council, application of a building licence may then be submitted.



# APPENDIX 1 DEP ACCEPTANCE LETTER



Head Office:  
Wastraia Square  
141 St Georges Terrace  
Perth, Western Australia 6000  
Tel (08) 9222 7000 Fax (08) 9322 1598  
<http://www.environ.wa.gov.au>

Postal Address:  
PO Box K822  
Perth, Western Australia 6842

Managing Director  
Bowman Bishaw Gorham  
for Landcorp  
PO Box 946  
WEST PERTH WA 6872  
Attn: Mr R Gorham

Your ref: R18297  
Our ref: 372/96  
Enq: Dr R Holmes 9222 70476

Dear Sir

**PROPOSED CHANGED TO DESIGN OF EXMOUTH MARINA  
DEVELOPMENT (STATEMENT 474)**

I refer to your letters dated 4 November 1998 and 28 January 1998, requesting permission for a design change to the above proposal on behalf of the proponent Landcorp.

I note that full compliance with conditions and commitments of Statement 474, signed by the Minister for the Environment on 30 April 1998, will manage any possible environmental impacts of the changes which you have proposed. The following management plans will be required to take into account any changes to the proposal as assessed by the EPA:

- Environmental Management Plan (Condition 5);
- Flushing Study (Commitment 1);
- Drainage Design and Management Plan (Commitment 2);
- Foreshore Reserve Management Plan (Commitment 3); and
- Dewatering Management Plan (Commitments 4 and 11).

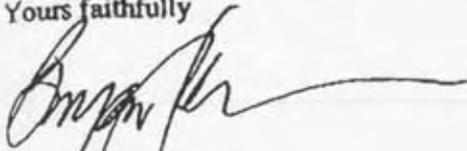
Accordingly, under delegation from the EPA,

- I consider the changes to the design of the proposal, as outlined in letters from Bowman Bishaw Gorham dated 4 November 1998 and 28 January 1998, to be non-substantial and can be managed by the existing conditions applying to the proposal.



The audit table has been updated in accordance with this letter. Please note that the above information refers to environmental issues for the construction phase in the Statement 474 of 30 April 1998, and does not replace any responsibilities you may have for seeking other approvals from other government agencies.

Yours faithfully



(Dr) Bryan Jenkins  
CHIEF EXECUTIVE OFFICER

date: 22.4.99

Shire of Exmouth,  
Department of Conservation and Land Management  
Waters and Rivers Commission  
Ministry for Planning  
DEP Pilbara Regional Office



## APPENDIX 2 STATUS OF STUDIES AND MANAGEMENT PLANS



**Exmouth Marina Village  
Outline Development Plan**

**TABLE 1 - ENVIRONMENTAL STUDIES AND MANAGEMENT PLANS - STATUS**

<b>Title</b>	<b>Approving Body</b>	<b>Advisory Bodies</b>	<b>Status (November 1999)</b>
Public Environmental Review	Minister	EPA	Project approved April 1998
Environmental Management System	EPA	DEP	Shire has approved. Submitted to DEP August 1999.
Foreshore Management Plan	EPA	DEP, CALM, MfP, Shire	Shire has approved. Calm has approved. MfP will not formally comment until ODP approved but have provided informal recommendation currently under negotiation.
Dewatering Management Plan	EPA	DEP, WARC, DOT	Plan submitted and awaiting DoT and WARC comment/approval
Excavation Spoil Disposal Management Plan	EPA	DEP, Shire,	Plan submitted and awaiting Shire comment/ approval.
Water and Sediment Quality Management Plan	EPA	DEP, Shire, DoT	Shire and DoT have approved. Submitted to DEP 5/10/99.
Site Contamination Assessment and Management Plan	EPA	<b>DEP</b>	Submitted to DEP September 1999.
Marina and Canal Design and Construction Plan	Minister	EPA CALM	Released for 2 week public review on 21/10
Stygofauna Sampling Study	Minister	EPA, CALM	Completed
Flushing Study	DEP	MfP, WRC, DOT	DoT undertaking further modelling and assessment
Drainage Design and Management	DEP	WRC, MfP, Shire	Approved by WRC, Shire awaiting MfP comment/approval
Groundwater Monitoring and Management Plan			Completed by Rockwater September 1999



**APPENDIX 3  
RESORT CONCEPT PLAN**



**LAND USES (BUILT FORM)**

	PROPOSED BUILT STRATA PERMANENT RESIDENTIAL		APARTMENTS
	EXISTING RESIDENTIAL LOTS		BUNGALOWS
	CLUSTER UNITS		NUMBER OF BEDS

**RESORT CONCEPT PLAN**

EXMOUTH RESORT SITE, LOT 900 MADAFFARI DRIVE EXMOUTH  
SUNRISE BEACH RESORT PTY LTD



date - Feb 2011  
scale - NTS  
plan number - 08/062/G003B





**APPENDIX 4  
WAPC SAT RESOLUTION**

Our Ref: 140686  
Your Ref:  
Enquiries: Sally Grebe (9264 7600)

State Solicitor's Office  
GPO Box F317  
PERTH WA 6841

ATTENTION: Catherine Ide

Dear Sir/Madam

**INFORMAL RECONSIDERATION OF REFUSAL OF SUBDIVISION OF  
LOT 900 MADAFFARI DRIVE, EXMOUTH (NOVOTEL RESORT HOTEL  
SITE) TO CREATE 11 SINGLE RESIDENTIAL LOTS (WAPC REF: 140686)**

I refer to the above matter. In this regard, the Western Australian Planning Commission has considered the submission of amended plans date stamped 8 June 2010 and supporting information in relation to its decision dated 2 February 2010 to refuse the subdivision application No. 140686 (DR 53 of 2010) and has resolved to give 'in principle' support to the proposal, subject to the following modifications and noting that a separate new application process is required for any future implementation of the proposal:

1. Proposed ODP Amendment Resort Concept Plan
  - a) The 4 permanent residential units that are located on the beach front are to be relocated and the area occupied by the units, including the road access to the units, is to be included in 'Future Stage 3' of the resort development.
  - b) The architectural elevations and floor plans entitled 'Permanent Stay Residential Development' are to be included in the amendment to the ODP as part of the "Broad Design Guidelines" for Precinct C as an indication of the desired built form outcome.
2. Management Statement for Residential Built Strata Scheme (with reference to Section 1(a) to 1(f) of Hardy Bowen Lawyer's written submission dated 8 June 2010)
  - a) Additional provisions in the Management Statement are required to regulate the design of boundary fencing and location of clothes lines, rubbish bin storage and air conditioning units to ensure these elements are consistent with, and will not visually detract from, the resort site.

Albert Facey House, 469 Wellington Street (cnr Forrest Place), Perth, Western Australia 6000  
Tel: (08) 9264 7777; Fax: (08) 9264 7566; TTY: (08) 9264 7535; Infotline: 1800 626 477  
e-mail: corporate@wapc.wa.gov.au; web address: <http://www.planning.wa.gov.au>  
ABN 35 482 341 493



- b) The Management Statement should also address potential nuisance arising from use of the future tennis courts.
  - b) The proposed provision 1(f) relating to approval of any changes to the management statement is to be deleted.
3. Proposed amendments to Exmouth Marina Village Modified Outline Development Plan (ODP) dated November 2001 (with reference to Section 6 of Hardy Bowen Lawyer's written submission dated 8 June 2010)
- a) Any reference in the ODP to permanent residential use north of the resort is to be phrased as 'built strata permanent residential'.
  - b) Amendment to the ODP is to also include, as part of the "Broad Design Guidelines" for Precinct C, articulation of the general principles for use and management of the permanent residential units as outlined in the Management Statement for Residential Built Strata Scheme contained in Sections 1(a) to 1(e) of Hardy Bowen Lawyer's written submission dated 8 June 2010 and including the additional provisions required under paragraph 2(a) above.
4. The modifications referred to in paragraphs 1 to 3 above are not necessarily complete requirements and further issues may arise after formal assessment and consultation with referral agencies during the statutory planning process under which formal assessment of a modification to the ODP will be conducted.

Yours faithfully



For Tony Evans  
Secretary  
Western Australian Planning Commission

14 July 2010

cc. Shire of Exmouth

# Exmouth Marina Village Broad Design Guidelines

Revised April 2011

Prepared for  
**LandCorp**



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## 1 BROAD DESIGN GUIDELINES

### 1.1 SCOPE

These Broad Design Guidelines have been prepared to ensure that both private and public development follows a common theme throughout the Exmouth Marina Village. This is essential given the likelihood of different developers developing individual precincts and different individuals building dwellings on separate lots. The guidelines seek to define a desired character of streetscape landscape and building fabric for each precinct.

The Broad Design Guidelines address the public domain - street, foreshores, parks - as well as privately owned built form and in particular the way in which those buildings face the street or other public areas.

These standards shall apply to all development within the Exmouth Marina Village development area. Precinct guidelines are discussed in detail under individual precinct headings below. The arrangements of Precincts are provided in **Figure 1**.

Superlot developers may, at Council's discretion, be required to prepare further detailed Design Guidelines for each Precinct for the formal adoption of and administration by the Shire of Exmouth.

### 1.2 RELATIONSHIP TO PLANNING SCHEME AND RESIDENTIAL PLANNING CODES

The Broad Design Guidelines form part of the approved Outline Development Plan and will be adopted as a Policy in accordance with Clause 9.6 of Council's Town Planning Scheme. The guidelines are to be administered by Council in determining development applications.

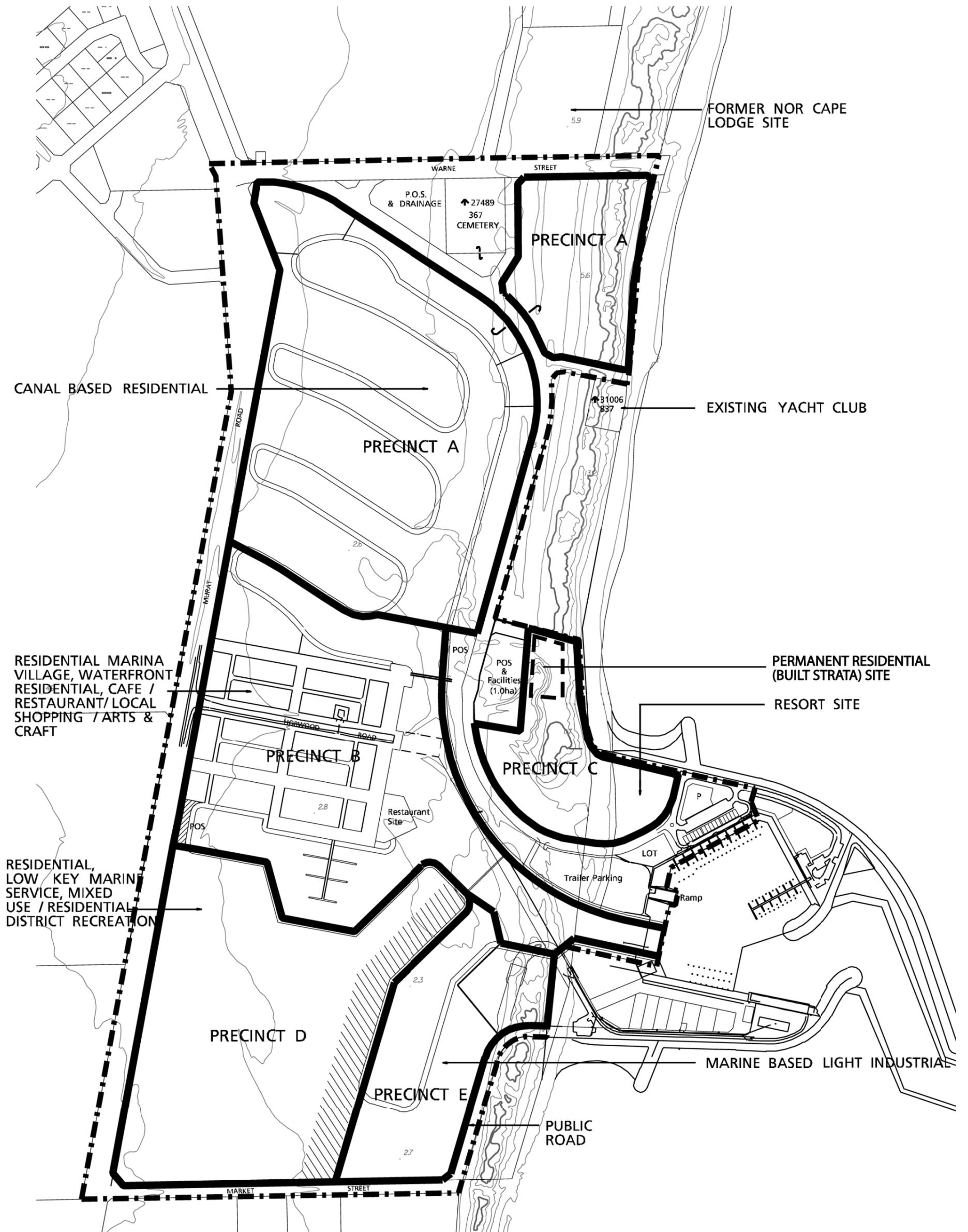
The Broad Design Guidelines are intended to supplement the provisions of the Scheme and the Residential Planning Codes. In the instance of the guidelines conflicting with a provision of the Codes, the guidelines shall prevail.

Where a development is not considered to be consistent with the design guidelines, the Council may refuse to issue planning approval.

### 1.3 OBJECTIVES

In order to facilitate the creation of an attractive physical development which is responsive to its environment and climate the following objectives have been formulated for the Exmouth Marina Village:

-  To provide for the development of a high quality residential, resort and marine industry estate;
-  To establish Broad Design Guidelines to ensure a unifying theme within the public domain which is responsive to the local climate and is environmentally sustainable;
-  To promote the essential landscape qualities of Exmouth and the Marina Development Area;
-  To provide legible and convenient access to the Exmouth Boat Harbour for local residents workforce and visitors; and
-  To provide design standards which are achievable in respect to meeting the Cyclone Region D (Australian standard 1170 Part 2) Terrain Category 2 design requirements.



**PRECINCT PLAN**

OUTLINE DEVELOPMENT PLAN - REVISED SEPTEMBER 2010  
 SUNRISE BEACH RESORT PTY LTD



date - Sept 2010  
 scale - NTS  
 plan number - 08/062/G006

## 2 PRECINCT A – CANAL BASED RESIDENTIAL AND DRY LOT RESIDENTIAL

Permitted Land Uses: Single residential, grouped dwelling,

Landmark Site: Grouped dwelling, short stay accommodation, tourist complex and ancillary uses.

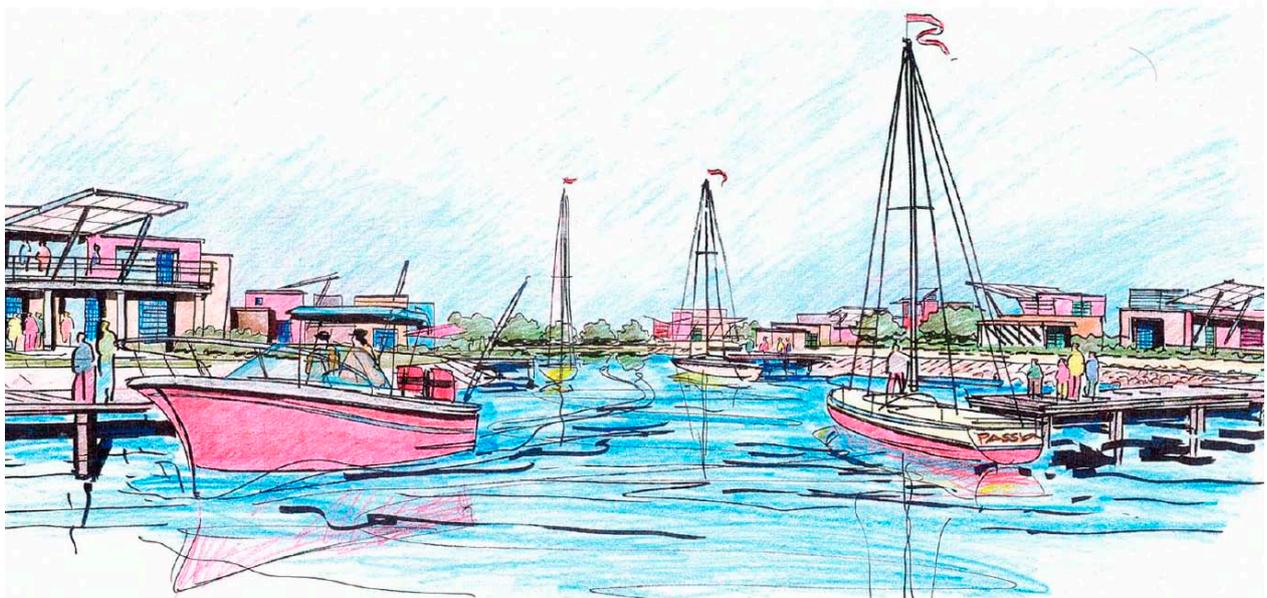
### 2.1 DESCRIPTIVE DESIGN CHARACTER

This precinct will have high quality homes on generous plots of land providing an open landscaped character to each waterway peninsula. The building scale will be predominantly low rise single storey with reduced area double storey sections overlooking the waterways. Jetties, roof decks, landscaped decks and outdoor patios will all contribute to the marina character.

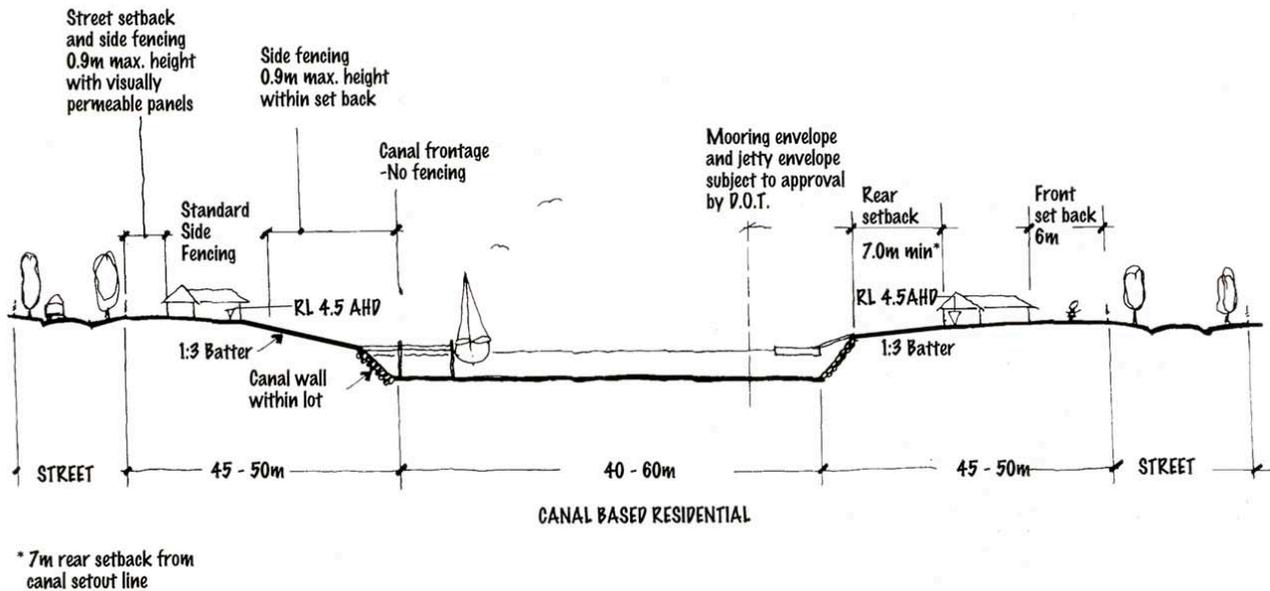
Vegetation should be selected for their uniqueness to the area and their ability to provide shade. The building form will be responsive to the climatic qualities of the region and recognise ecologically sustainable design principles.

Architectural devices like courtyards and breezeways should be part of the design character. In the north west corner of Precinct A is the landmark site – which incorporates a water active edge with its own jetty for guests. Views from Murat Road create an opportunity for this building to set the standard of quality through the precinct. View corridors through to the canal will need to be preserved to present the waterscape nature of the precinct to passers-by.

A perspective of a typical waterfront residential area is provided in **Figure 2** and a typical cross section in **Figure 3**.



**Figure 2: Precinct A Residential Waterfront**



**Figure 3: Precinct A Typical Cross-section**

### 2.1.1 STREETScape CHARACTER

The streetscape character of Precinct A should evolve from a gateway entry statement that is made up of low stone walls and landscaping and which becomes progressively a more private character as you go deeper into the neighbourhood. The pavement design will give a strong commitment to pedestrian movement with clearly defined shaded walkways that are lit by downlighting. Car parking and garaging are to be preferably concealed from the street and landscaped to provide a pedestrian scale entry to the houses.

### 2.1.2 PUBLIC EDGES CHARACTER

Small public canal beaches have been provided at the end of each canal within view of Murat Road. These create a sheltered sandy safe beach for public access and a strong termination for the view corridor down the waterway.

### 2.1.3 PRIVATE EDGES

The waterway edges are to be maintained with high quality, low level landscape. Waterway vistas into the private properties are to conceal service yards. Owners will be responsible for the care and maintenance of all waters' edge structures within their property.

The land to the east of the cemetery shall have a public road or other acceptable form of interface to the adjacent foreshore reserve.

## 2.2 PRESCRIPTIVE DESIGN REQUIREMENTS

To ensure the descriptive desired character is achieved the following prescriptive development standards shall apply.

### 2.2.1 RESIDENTIAL DENSITY

R20

### 2.2.2 RESIDENTIAL SETBACKS

Waterfront Lots: A detailed cross section providing a graphical setback representation of a typical waterfront lot is provided in **Figure 4**.

Front	6m as per R Codes
Side	as per R Codes Table 2 and Figure 3
Canal	7m from canal setout line (Refer Figure 4)

Waterview Lots:	Front	6m as per R Codes
	Side	as per R Codes Table 2 and Figure 3
	Rear	6m as per R Codes

Dry Lots:	Front	6m as per R Codes
	Side	as per R Codes Table 2 and Figure 3
	Rear	6m as per R Codes

### 2.2.3 BUILDING HEIGHT LIMIT

Two storeys

### 2.2.4 FENCING

All fencing should be of adequate structural design to meet cyclone construction requirements and will require a building license approval from the Shire of Exmouth

An open style fencing is required throughout all the residential areas to allow the flow of wind between properties eg. picket or tubular weldmesh/pool style. All heights are to be read in respect to natural ground level.

Front Boundary: maximum 0.9m height

Waterways/Canal

Boundary: No fencing is permitted on the canal boundary

Fences at the (canal) 7m setback line shall not exceed 1.5m for the total length of the fence.

Special consideration may be given by Council upon application for tubular weldmesh/pool style fencing to be erected no closer than 1.5m from the canal setout line to a height of no greater than 1.5m.

# Exmouth Marina Village Broad Design Guidelines

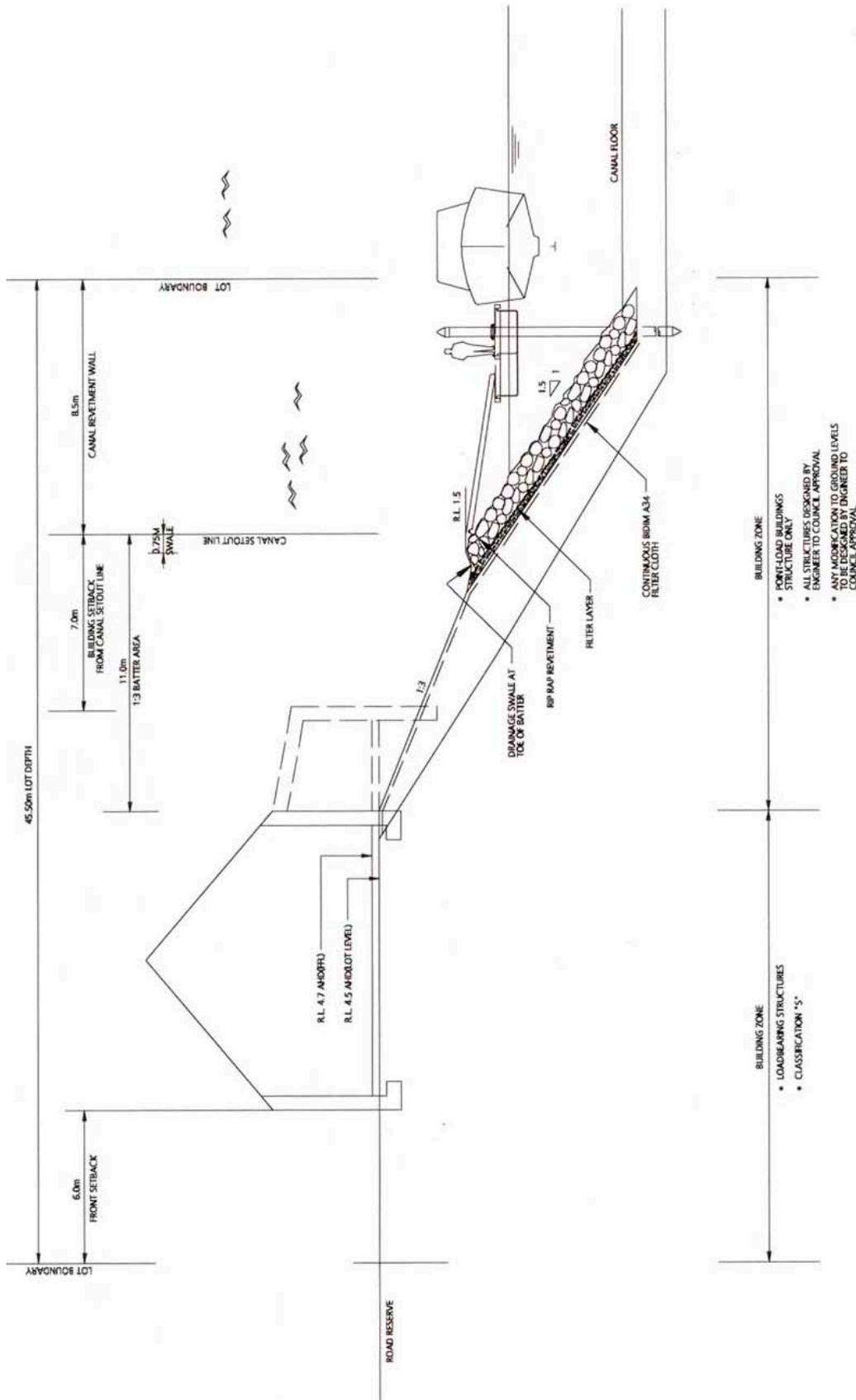


Figure 4: Residential Setbacks

Side Boundaries: No side boundary fence is to be erected within 1.5m of the top of the canal setout line.

No greater than 0.9m within the 7 metre rear (canal) setback area.

Side fences situated more than 7 metres from the canal setout line shall not exceed standard 1.8 metres in height.

Within the front setback area no greater than 0.9m above natural ground level.

1.5m maximum all other areas.

### 3 PRECINCT B – RESIDENTIAL MARINA VILLAGE, WATERFRONT RESIDENTIAL, WATERVIEW RESIDENTIAL, CAFÉ/RESTAURANT/LOCAL SHOPPING/ARTS AND CRAFT

Permitted Land Uses     Single residential, grouped dwelling, café/restaurant, convenience retail, tourist retail, art and crafts, short stay accommodation, professional office, consulting rooms

Landmark Site             Grouped dwelling, short stay accommodation, tourist complex and ancillary uses

#### 3.1 DESCRIPTIVE DESIGN CHARACTER

The marina village shall be a mixed use development neighbourhood pattern. The built form should be predominantly 2 storey plus lofts with an active commercial ground floor. Street pavement displays of arts and crafts and alfresco activities will be encouraged. The sun protection of these activities should be provided by overhanging verandahs and awnings. The colours for the buildings will be in response to the palette developed by the townscape committee. These should be incorporated to reflect the bright vibrant colours of the Ningaloo Reef.

The waterfront park should become a major public gathering place with wide pavements and urban landscaping. This space should be overlooked by the residences and provide security for evening activities. Lighting should be predominantly down lighting to reduce glare and provide a subtle ambiance. Street furniture should provide gathering spaces for the public in this sheltered shady waterfront setting. Public Art should be incorporated to reflect the maritime themes of this precinct.

There are two major landmark sites in this precinct. One on entering the superlot off Murat Road and the other onto the waterway creating an opportunity for a landmark waterfront restaurant development. On Murat Road the landmark site will create the waterfront maritime theme for the canal front development and the built form environment for the Marina Village Precinct.

A perspective of the Marina Village Waterfront is provided in **Figure 5** and a typical cross section for the Marina Village Waterfront and Horwood Road is provided in **Figure 6**.

##### 3.1.1 STREETScape CHARACTER

A variety of materials and a range of roof forms and setbacks is encouraged to give the development a seaside character. Balconies and roof decks to the residential levels will provide opportunities to animate the buildings and for residents to have extensive views of the waterways and the gulf.

The development pattern provides for rear lane access for garages and servicing. This ensures a streetscape that is pedestrian friendly and human scaled.

The road pattern provides for on-street parking and the street trees should give shade to the pavement and the parking zone. The street trees should be developed as a themed tree to give this precinct a special character.



Figure 5: Precinct B Marina Village Waterfront Perspective

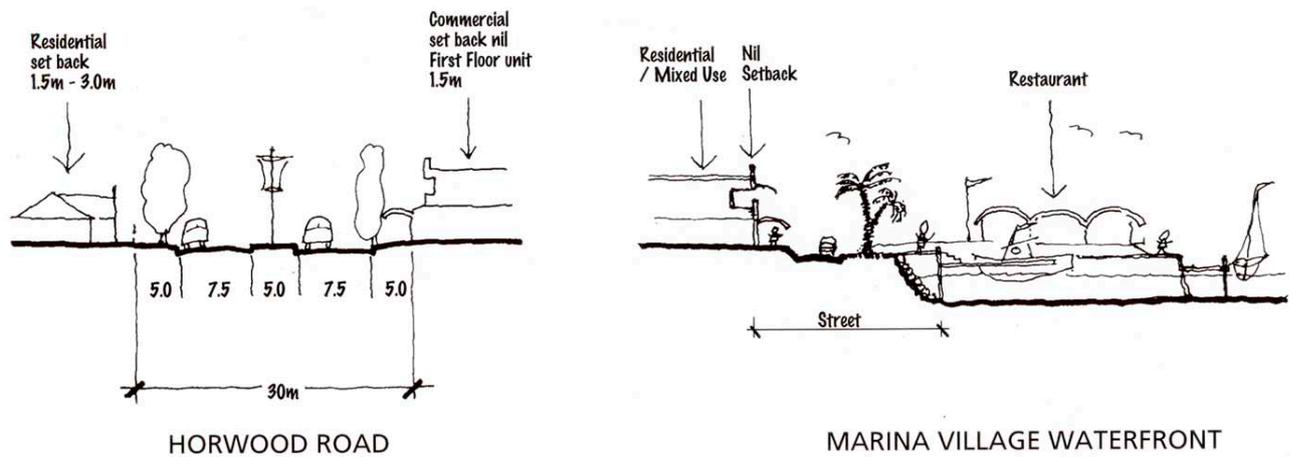


Figure 6: Precinct B Typical Cross Section

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### 3.1.2 PUBLIC EDGES CHARACTER

The canal foreshore edges should promote public access. This may include rip rap edge to cantilevered boardwalks, jetty structures or possibly a full vertical sea wall. In all these configurations, the edge character must be safe for family groups and encourage a high quality marina theme incorporating public art, street furniture, landscaping and lighting.

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### 3.1.3 PRIVATE EDGES CHARACTERS

Within the marina village precinct the private domain has a close interface with the public domain. This means that a zero lot line built from configuration will reinforce the urbanity of the precinct and the direction to create a strong marine focus. When ground floor activities are predominantly commercial the interface between the street and the interior should be as blurred as possible, however in the residential zones a threshold or slight change of level will create the privacy necessary for the residents.

Strong village streetscape character with houses built close to streets.

Where any sites incorporate a private water frontage the owner will be responsible for the care and maintenance of all water edge structures within their property.

## 3.2 PRESCRIPTIVE DESIGN REQUIREMENTS

### 3.2.1 RESIDENTIAL DENSITY

R40

### 3.2.2 SETBACKS

#### MARINA VILLAGE WATERFRONT LOTS:

Front	Nil
Side	Nil
Rear	Variable subject to adequate private parking being provided to Council's satisfaction
Awnings	May project over the footpath

#### HORWOOD STREET

Front Commercial	Nil ground floor 1.5m first floor
Front Residential	1.5m
Side	Nil
Rear	Variable subject to adequate private parking being provided to Council's satisfaction
Awnings	May project over the footpath

#### WATERFRONT LOTS

Front	6m as per R Codes
Side	as per R Codes Table 2 and Figure 3
Canal	7m from canal setout line (Refer Figure 4)

#### WATERVIEW LOTS

Front	6m as per R Codes
Side	as per R Codes Table 2 and Figure 3
Rear	6m as per R Codes

#### DRY LOTS

Front	6m as per R Codes
Side	as per R Codes Table 2 and Figure 3
Rear	6m as per R Codes

### 3.2.3 BUILDING HEIGHT

Two storeys

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### 3.2.4 FENCING

All fencing should be of adequate structural design to meet cyclone construction requirements and will require a building license approval from the Shire of Exmouth

An open style fencing is required throughout all the residential areas to allow the flow of wind between properties e.g. picket or tubular weldmesh/pool style. All heights are to be read in respect to natural ground level.

#### MARINA VILLAGE WATERFRONT

Front Boundary    None permitted  
Side Boundary     N/A

#### HORWOOD STREET

Front Boundary    Maximum 0.9m  
Side Boundary     maximum 1.8m, 0.9 within setback areas

#### RESIDENTIAL

Front Boundary    maximum 0.9m  
Waterways/  
Canal Boundary    No fencing is permitted on the canal boundary

Fences at the (canal) 7m setback line shall not exceed 1.5m for the total length of the fence

Special consideration may be given by Council upon application for tubular weldmesh/pool style fencing to be erected no closer than 1.5m from the canal setout line to a height of no greater than 1.5m

Side Boundaries    No side boundary fence is to be erected within 1.5m of the top of the revetment wall.

No greater than 0.9m within the 7 metre rear (canal) setback area

Side fences situated more than 7 metres from the canal setout line shall not exceed standard 1.8 metres in height

Within the front setback area no greater that 0.9m above natural ground level

Maximum 1.5m all other areas

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### 3.2.5 MISCELLANEOUS

Where laneways are provided to a lot all private parking is to be provided from that laneway access.

## **4 PRECINCT C – RESORT SITE**

Permitted Land Uses tourist accommodation, permanent residential (long stay accommodation west of entry road and built strata north of the resort, as shown on the Outline Development Plan, February 2011, only) licensed premises, conference centre, tourist retail, restaurants/cafe, administration office and ancillary uses.

### **4.1 DESCRIPTIVE DESIGN CHARACTER**

The resort is to capture a number of design characters that reflect the type of accommodation and the landscape setting. The type of accommodation should provide a range from the traditional hotel resort room accommodation to self contained villas and units to permanent residential (with option for medium to longer term holiday accommodation) restricted to the western side of the entry road; and built strata permanent residential to the north of the resort, as shown on the ODP dated February 2011 only (refer **Figure 11** of the ODP) and Resort Concept Plan (refer **Appendix 3** of the ODP).. Restaurants and bars focused around poolside activities with direct links and vistas to the beach. This site should provide a strongly landscaped recreational setting.

The interface with the beach should produce an architecture that reflects the great vista opportunities with open decks and lightweight shading structures. The marina interface should capture some of the urbanity of the marina village across by the park and a general landscape road edge. The built forms should create a strong central focus at the heart of the resort with a landmark building and then break out into a range of settings reflecting the landscape context.

The architecture of the built strata permanent residential site in the northern part of the resort site should display similar themes to the resort architecture, to the extent that it should read as part of the resort.

Indicative architectural floor plans entitled ‘Permanent Stay Residential Development’ are provided in **Appendix 1** indicating the desired built form outcome. A perspective of the resort site area is provided in **Figure 7** and a typical cross section in **Figure 8**.

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#### **4.1.1 STREETSCAPE CHARACTER**

The predominant edge to the resort site is not built form but landscape. The built form shall be low in scale and orientated to create private opportunities for courtyards for guests. Security fencing and lighting should be as concealed into the landscape as possible to present a welcoming face.

Internal streetscapes should have a strong pedestrian focus within the shaded landscape setting. Vehicular movements other than servicing will be external to the site.

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#### **4.1.2 PUBLIC EDGES CHARACTER**

The access to the beach should be in two zones – the central resort access with the main pool, bars and restaurant areas focusing down onto the beach. Either side of the residential areas which should provide a more discreet and controlled access through the dunes to link into the general pedestrian movement patterns. Public access should be limited into the residential areas of the resort.

An indicative design of the public foreshore area including the establishment of a revetment wall is discussed in detail under Section 4.5 of the Outline Development Plan and provided diagrammatically in Figures 13 and 14 of the ODP.

# Exmouth Marina Village Broad Design Guidelines



Figure 7: Precinct C Resort Site Perspective

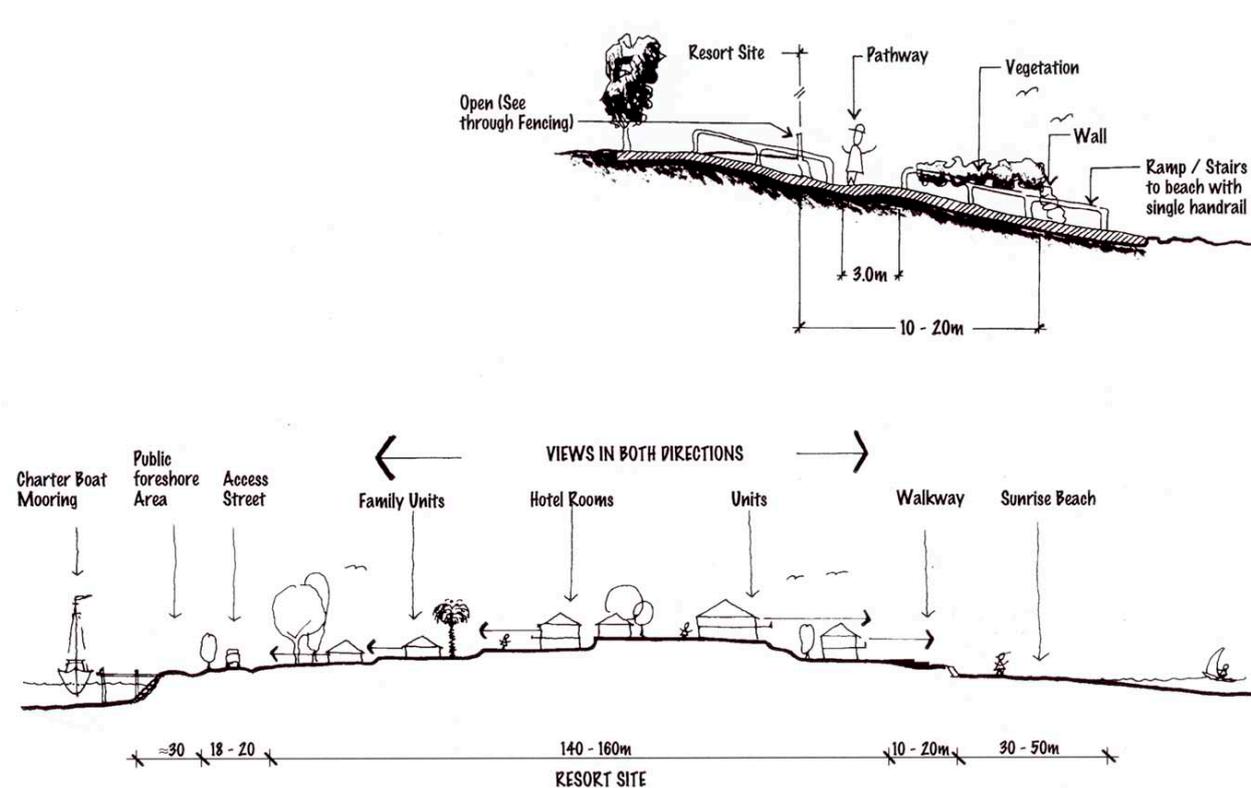


Figure 8: Precinct C Typical Cross-section

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#### 4.1.3 PRIVATE EDGES CHARACTERS

The predominant edge condition of the resort is private and the character of this should be landscaped and fenced. Security, lighting and signage must reflect high quality resort standards and be fully integrated into the landscaped theme.

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### 4.2 PRESCRIPTIVE DESIGN REQUIREMENTS

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#### 4.2.1 SETBACKS

Street	10m
Sunrise Beach	The setback from Sunrise Beach is to be determined upon finalisation of the engineering design and construction details for the revetment wall, determination of the foreshore reserve width in front of the resort, and the calculation of an appropriate coastal building setback distance to protect the resort buildings from wave attack and storm damage.
Height	1 storey adjacent lot boundaries Maximum 2/3 storeys individual developments in internal locations On merit on application for main hotel area
Fencing (boundary)	Open mesh style see-through fencing with vegetation screening.
Permanent Residential	Front 6m as per R Codes
Long term holiday accommodation)	Side as per R Codes Table 2 and Figure 3 Rear 6m as per R Codes

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#### 4.2.2 MISCELLANEOUS

Car parking areas to be mostly screened from public view.

Service areas to be completely screened from public view.

**5 PRECINCT D – DRY LOT RESIDENTIAL, WATERFRONT RESIDENTIAL, MIXED USE-RESIDENTIAL/LOW KEY MARINE SERVICE, CARAVAN PARK, DISTRICT RECREATION**

Permitted Land Uses: Single residential, grouped residential, caravan park/backpackers, recreation/playing fields, mixed use residential/marine service (inc. minor boat repairs, private fishing/tourist charter-docking only, private fisherman etc).

**5.1 DESCRIPTIVE DESIGN CHARACTER**

This precinct’s landscape evolves from public recreation short stay residential dry lot subdivision, semi industrial zones through to waterfront lots and consequently the character will evolve. Arrival from Murat Road into the precinct will require the caravan park and backpackers to be well presented and heavily landscaped with low scale signage the relationship to the public recreation reserve will be diffused to allow the landscaping to flow through.

The waterfront lots should have the similar character to the waterfront lots in Precinct B. The small park between the waterfront lots will incorporate lawned areas for picnics, gazebos for shelter, barbeques and public toilets. Opportunities for public art and children’s play equipment should be introduced. This park must be safe and welcoming for family groups.

The interface to the industrial precinct will be a live work zone which will provide residential opportunities for individual fisherman and commercial water front opportunity marine services. This area should have heavily landscaped tree lined streets that will extend down into the dry lots to create an extension of the landscaped recreation space and also to provide screening to Precinct E.

A perspective of the marine service waterfront area is provided in **Figure 9** and a typical cross section in **Figure 10**.



**Figure 9: Precinct D Marine Service Waterfront Perspective**

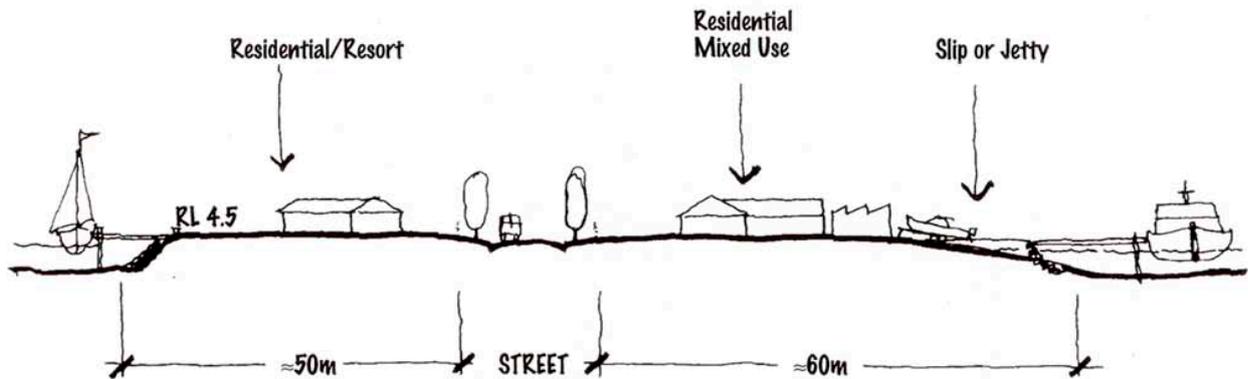


Figure 10: Precinct D Typical Cross-section (Residential, Resort and Residential, Mixed Use)

#### 5.1.1 STREETScape CHARACTER

Generally within this precinct the built form and landscape should present an open breezy part of the site with a strong regime of linear street trees. The built form should be predominantly single storey except into the water lots and into the 'live work' marine sectors.

#### 5.1.2 PUBLIC EDGES CHARACTER

The public edges of this precinct should present the theme via the public recreation area and the foreshore park – each should present a safe secure landscaped space with a strong shady landscaped theme providing services to the public in the form of gazebos, toilets and barbeques.

#### 5.1.3 PRIVATE EDGES CHARACTER

The private edge to Murat Road will continue the linear edge landscape of the rest of the precinct. The character to the wet lot private edges will be a continuation of Precincts A & B. The industrial edge to the precinct will require detailing to provide security and a jetty interface to the rip rap. This fencing should be of a high standard of detailing and finish and should be integrated across all lots to present a continuous effect within an integrated landscape theme.

## 5.2 PRESCRIPTIVE DESIGN REQUIREMENTS

### 5.2.1 RESIDENTIAL DENSITY

R20

### 5.2.2 SETBACKS

Waterfront Lots A detailed cross section providing a graphical setback representation of a typical waterfront lot is provided in Figure 4.

Front	6m as per R Codes
Side	as per R Codes Table 2 and Figure 3
Canal	7m from canal setout line (Refer Figure 4)

Dry Lots:	Front	6m as per R Codes
	Side	as per R Codes Table 2 and Figure 3
	Rear	6m as per R Codes

### 5.2.3 HEIGHT

Residential	2 storey maximum
Caravan Park	Single storey

### 5.2.4 FENCING

Residential	as per Precinct A
Marine Service	as per waterfront lots for canal setback Precinct A
Caravan Park	Predominantly unfenced to roads. Some open style fencing may be permitted where it is combined with screening vegetation. Open style fencing to be provided on common boundaries with other properties.

### 5.2.5 MISCELLANEOUS

Car parking to marine service areas are to be provided at the rear of the residence near the service shed/building.

## **6 PRECINCT E - MARINE INDUSTRIAL**

Permitted Land Uses: fishing club, yacht club, sea rescue, boat maintenance, and other environmentally acceptable maritime and light industrial uses.

### **6.1 DESCRIPTIVE DESIGN CHARACTER**

This precinct is the main provider of employment and the character of the overall project. It shall be an active marine working area with loading and unloading of boats, refuelling, maintenance operations and all supportive share based activities contributing to a vibrant precinct. To provide visual continuity an overall theme of roof form and materials will be required.

Architectural character of Industrial buildings should be of high quality commensurate with the overall project. Attractive materials to be used, no zincalume, mix of brick and glass.

Signage and lighting should be subtly screened from the precincts B & C and noise abatement measure will be implemented to reduce conflict from one precinct to the other. The landscape quality should be extended along the main entry road and will assist in screening the open security fence proposed.

The opportunity for public access is important and should be focused on one setting which allows for an integrated waterfront café providing seafood specialties. This café may be integrated with an industrial seafood processing facility (subject to necessary environmental approvals). This could be a similar theme to that which exists at the Fremantle Fishing Boat Harbour which integrates Ciccerellos and Kailis Seafood Cafes with the shore based facilities of the fishing fleet.

A perspective of the marine industrial waterfront area is provided in **Figure 11** and a typical cross-section in **Figure 12**.

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#### **6.1.1 STREETSCAPE CHARACTER**

The streetscape should be an open paved zone with a direct interface via open fencing to the industrial buildings. The setback of the buildings should provide for vehicle parking and turn around areas. Landscaping should be established in key areas along the street frontage setbacks to provide some relief to the industrial buildings, car parks, etc.

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#### **6.1.2 PUBLIC EDGES CHARACTER**

Any public uses in this precinct should be controlled through defined accessway and parking with clear separation from industrial uses. Signage and lighting will require screening from the residential and resort lots to reduce any glare or conflicts.

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#### **6.1.3 PRIVATE EDGES CHARACTER**

The wharf type edge will require control of commercial signage, refuelling points, lighting and signage. Buildings will require compliance with materials (XSE colorbond – colour to be identified by Townscape Committee), roof forms and open fencing style. Lighting will be downlighting to reduce sky glare and light spill into the surrounding precincts during possible night time operation.



Figure 11: Precinct E Marine Industrial Waterfront Perspective

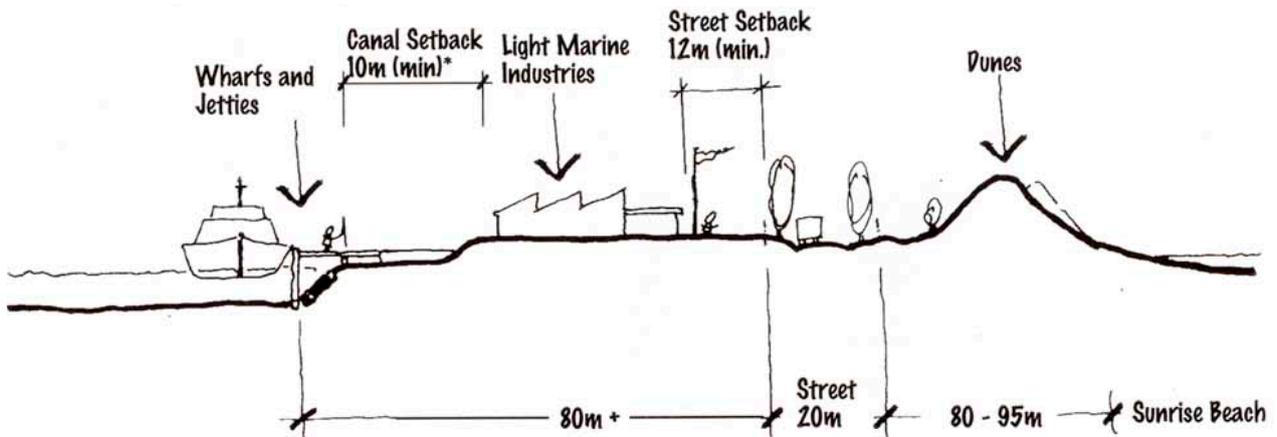


Figure 12: Precinct E Typical Cross-section

## 6.2 PRESCRIPTIVE DESIGN REQUIREMENTS

### 6.2.1 SETBACKS

Front	12m
Canal	10m from canal setout line
Side	3m
Height	8m plate height maximum 11m roof height maximum



## Exmouth Marina Village Broad Design Guidelines

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### 6.2.2 FENCING

- Street Boundary Open mesh style fencing
- Side Boundary Open mesh style fencing
- Canal Boundary No fencing permitted

Materials Front Wall: Masonry, glass, colorbond to not more than 60% of facade

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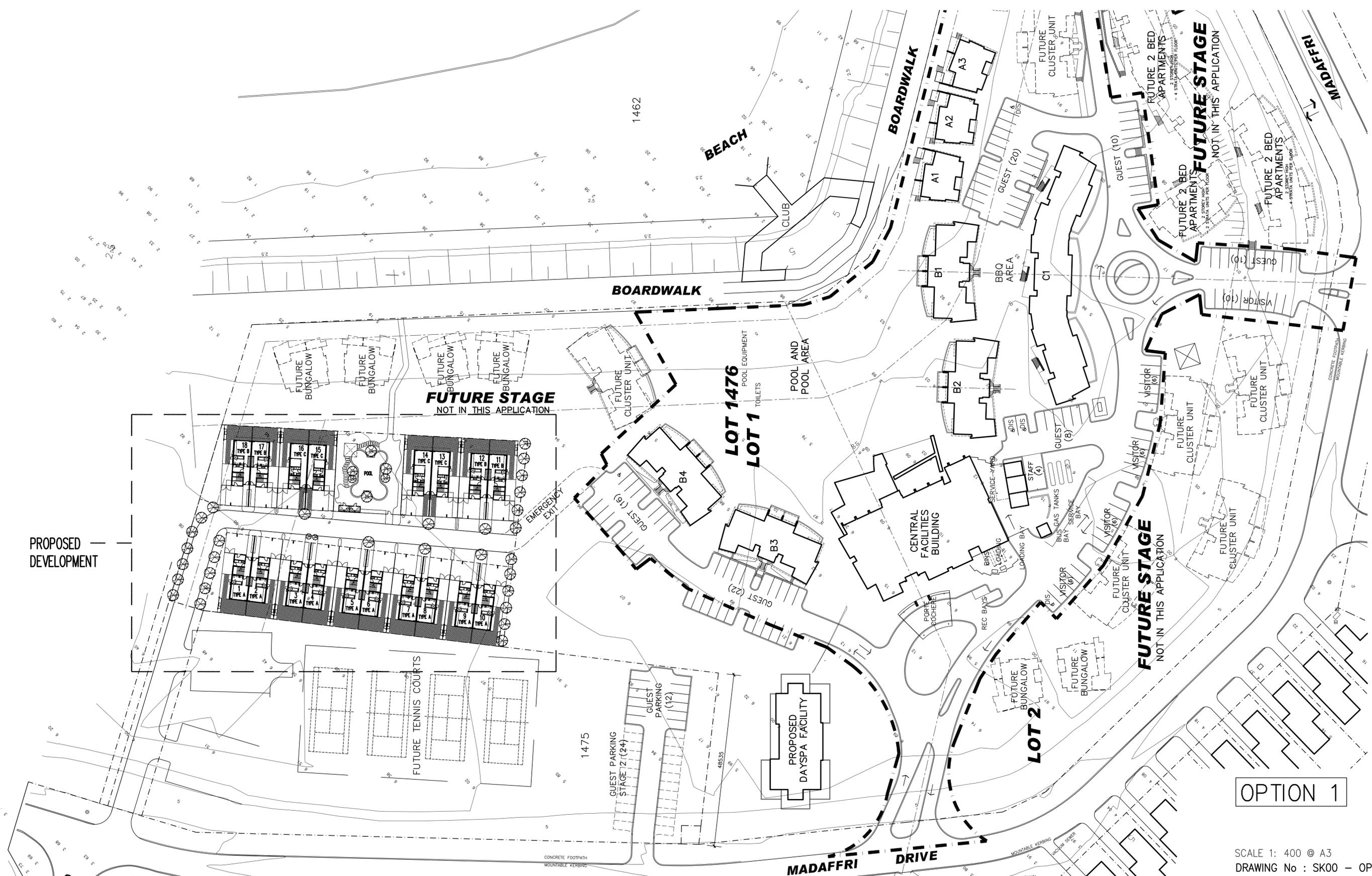
### 6.2.3 MISCELLANEOUS

All service areas such as storage and bin areas to be screened from public view.

Council at its discretion may require landscaping to be established within street front setbacks.

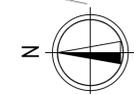


**APPENDIX 1  
BUILT STRATA PERMANENT RESIDENTIAL FLOOR  
PLANS**



PROPOSED DEVELOPMENT

MASTER SITE PLAN  
SCALE 1:200 @ A1



**PROPOSED PERMANENT STAY RESIDENTIAL DEVELOPMENT**  
**(NOVOTEL NINGALOO RESORT)**  
**LOT 1476 MADAFFARI DRIVE, EXMOUTH, WA**

**OPTION 1**

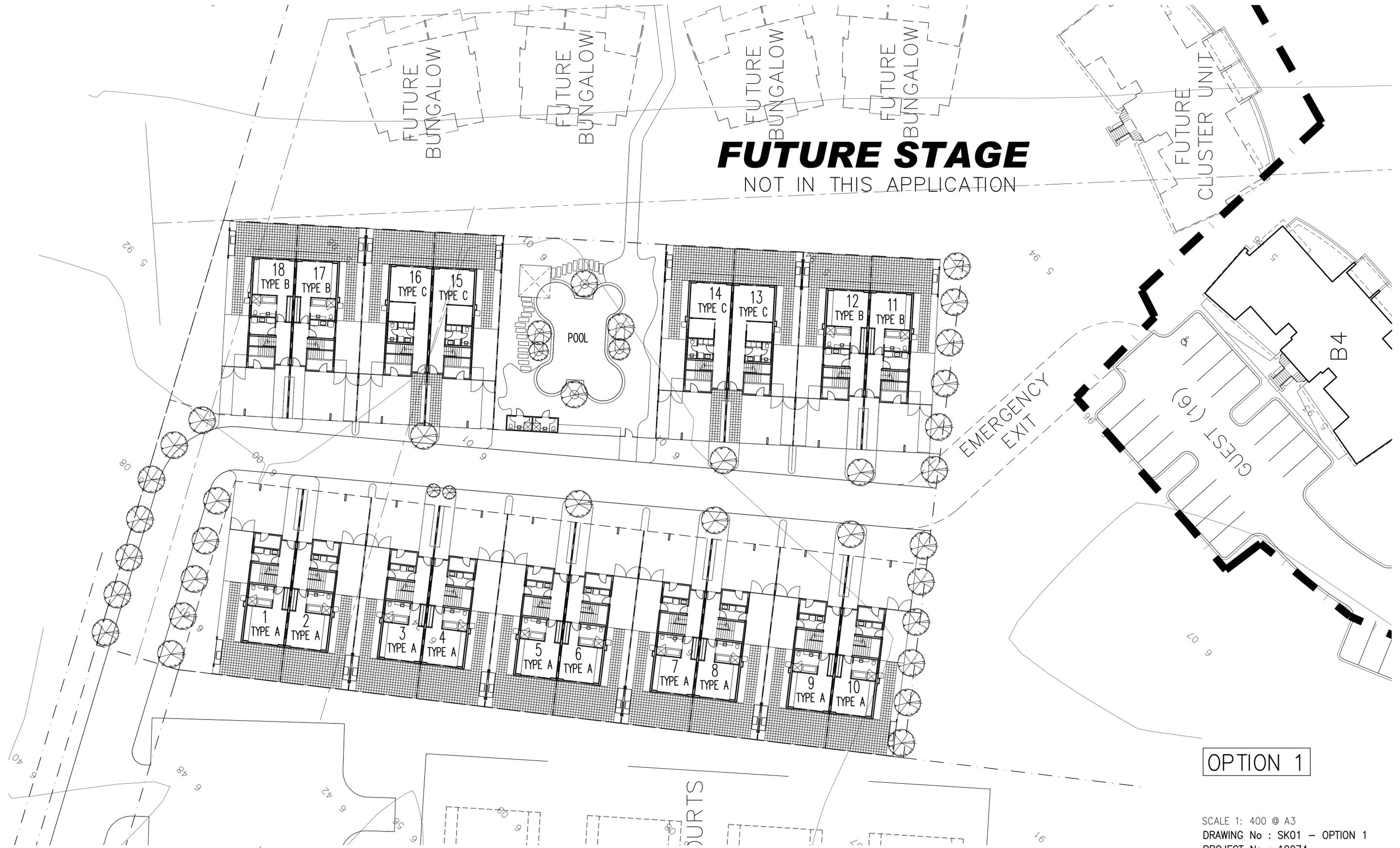
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 DRAWING No : SK00 - OPTION 1  
 PROJECT No : 10074  
 ISSUE No : A DATE: 21 MAY 2010  
 DRAWN: AL CHECKED: FI

**SKETCH**

**OLDFIELD KNOTT ARCHITECTS PTY. LTD.**  
 567 HAY STREET, DAGLISH 6008  
 P.O. BOX 849, SUBIACO, W.A. 6904  
 TEL : (08) 9381 6788 FAX (08) 9381 4619  
 EMAIL : oka@iinet.net.au

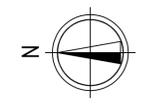
# FUTURE STAGE

NOT IN THIS APPLICATION



OPTION 1

OVERALL GROUND FLOOR PLAN  
SCALE 1:200 @ A1



## PROPOSED PERMANENT STAY RESIDENTIAL DEVELOPMENT (NOVOTEL NINGALOO RESORT LOT 1476 MADAFFARI DRIVE, EXMOUTH, WA

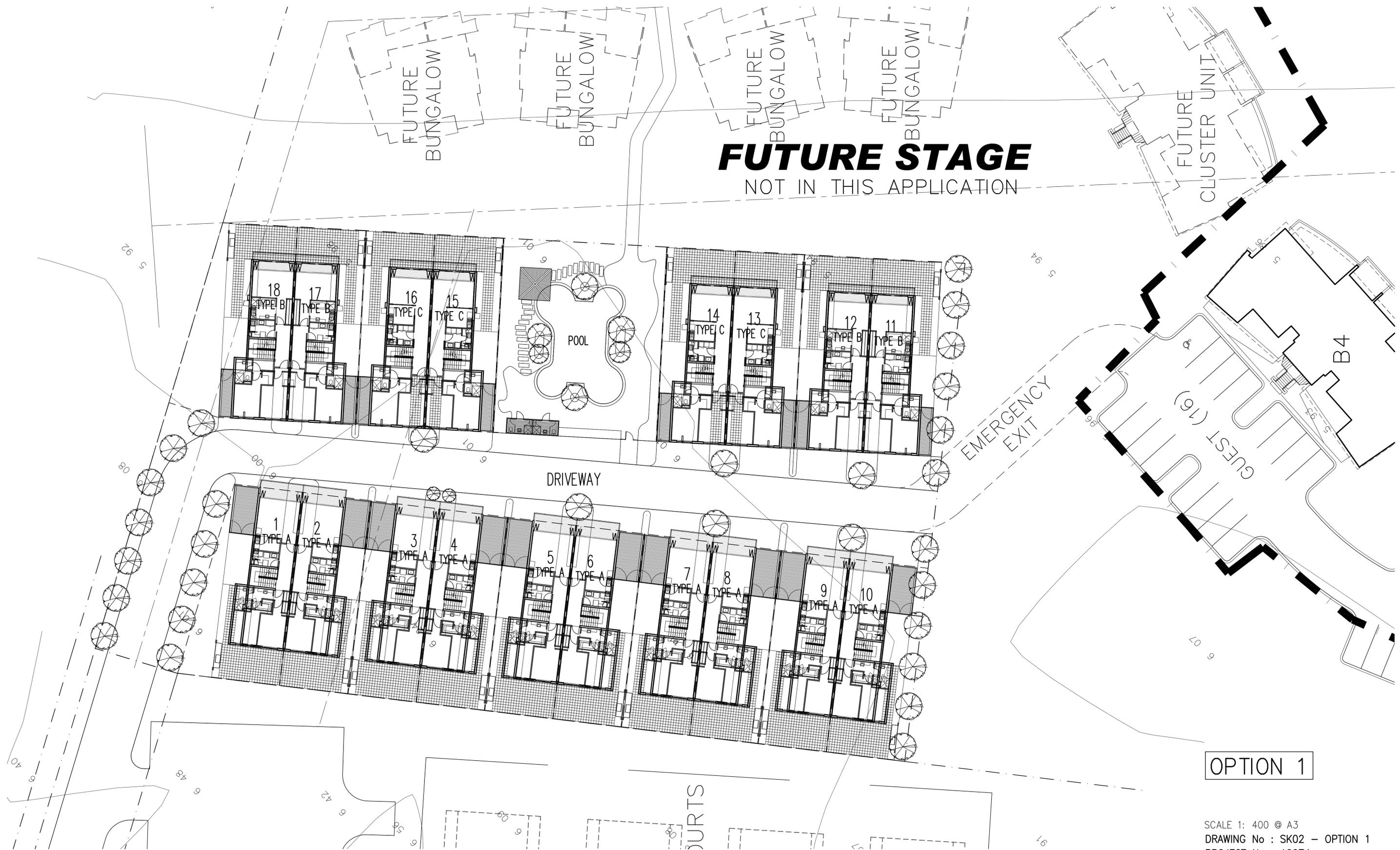
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PROJECT No : 10074  
ISSUE No : B DATE: 21 MAY 2010  
DRAWN: AL CHECKED: FI

**SKETCH**

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# FUTURE STAGE

NOT IN THIS APPLICATION



OPTION 1

OVERALL FIRST FLOOR PLAN  
SCALE 1:200 @ A1



## PROPOSED PERMANENT STAY RESIDENTIAL DEVELOPMENT

(NOVOTEL NINGALOO RESORT  
LOT 1476 MADAFFARI DRIVE, EXMOUTH, WA

SCALE 1: 400 @ A3  
DRAWING No : SK02 - OPTION 1  
PROJECT No : 10074  
ISSUE No : B DATE: 21 MAY 2010  
DRAWN: AL CHECKED: FI

**SKETCH**

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