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Project Disclaimer – Nambucca Shire Council in conjunction with its consultants has prepared this document with financial assistance from the NSW Government through the Department of Environment and Climate Change. Any information contained within does not necessarily represent the opinions of the NSW Government or the Department of Environment and Climate Change.

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1. INTRODUCTION

1.1 Project Objectives

The importance of the Nambucca River cannot be overemphasised regarding its value to not only residents of Nambucca Heads and theregion, but also visitors from other areas.

The existing natural beauty of the Nambucca River and its surroundings will respond well to innovative urban landscape design solutions and benefit from a restrained approach that identifies and illustrates opportunities for improvements which do not overwhelm the relaxed character of the area, yet bring together and improve connectivity and uses in the area.

The river system extends north-west to Bowraville and beyond, south to Scotts Head and south-west to Macksville. It is a navigable waterway for much of its length and is an important recreation, fishing and aquaculture area. The interaction between activities in the river system and the adjoining reserves (e.g. Gordon and Bellwood Parks) and landuses is a critical balance for which the proposed master plan will provide a solid framework for the future.

1.2 Study Area

The study area for the Master plan extends along the Nambucca River from Teagues Creek to the Nambucca River mouth. This area is influenced by surrounding land uses, activities, connections and topographical interactions.

Within the study area seven individual precincts have been identified as outlined below;

- Teagues Creek, Bellwood to the Visitor Information Centre,
- Stuart Island including the golf course and causeway,
- Bellwood Park,
- RSL Club and surrounding area,
- · Gordon Park and Wellington Drive,
- Sand Island, and
- V Wall Park including the Glen, river mouth and training wall.

The location of each of these precincts and the study area are shown in **Section 1.5 Context Mapping**. Each area has been considered separately as well as holistically within the issues paper.

1.3 Structure of Report

The Master plan has been provided in two separate volumes, Volume One is known as The Master plan and Volume Two is known as The Compendium. The Master plan has been separated into four sections.

Section One Introduces the master planning project and outlines the objectives, study area and contents of the master

plan .

Section Two Explains the Vision for the master plan project and outlines the issues that were taken into account from

the study area analysis and from the brief. An explanation of why individual elements were either proposed or not followed through is provided in this

section.

Section Three Documents and illustrates all the elements proposed

within the master plan.

Section Four Concludes the Master plan Volume.

1.4 Planning Framework (Summary)

Strategic Planning Framework

The preparation of the draft Master Plan has been guided and influenced by previous studies and the statutory planning framework. These studies and the planning framework are discussed in detail in the draft Master Plan Compendium.

The key influencing studies are

- Nambucca Shire Structure Plan
- Nambucca River Estuary Management Plan
- Nambucca Valley Tourism Strategy

The following statutory plans, policies and strategies were also reviewed to ensure the draft Master Plan's consistency with the legislative framework:

- Environmental Planning and Assessment Act 1979
- State Environmental Planning Policies
 - State Environmental Planning Policy No 71 (SEPP 71) Coastal Protection
 - State Environmental Planning Policy (Infrastructure) (SEPP) 2007
- North Coast Regional Environmental Plan
- Nambucca Local Environmental Plan (LEP) 1995.
- NSW Coastal Policy 1997
- NSW Coastline Management Manual 1990 and NSW Coastline Hazard Policy 1988
- Coastal Protection Act 1979
- Crown Lands Act 1989 (as amended)
- Threatened Species Conservation Act (TSC) 1995
- Fisheries Management (FM) Act 1994.
- National Parks and Wildlife Act (NPW Act) 1974 (as amended)

- Native Vegetation Act 2003
- Water Management Act 2000
- Maritime Services Act 1935 / Maritime Safety Act 1998.
- Commonwealth Native Title Act 1993
- NSW State Plan (2006)
- Mid North Coast Regional Strategy (MNCRS)
- Crown Lands Policy for Marinas and Waterfront Commercial Tenures (2005)
- Crown Lands Policy for Tourist & Associated Facilities on Crown Land (2006)
- Bellwood Park Plan of Management (PoM), 2003
- Nambucca Heads Foreshores Reserves Plan of Management.

The main implications for foreshore activities carried out by a public authority arise from the **State Environmental Planning Policy (SEPP) Infrastructure**.

This SEPP assists the NSW Government, local Councils and the communities they support by simplifying the process for providing public / community infrastructure. The policy consolidates and updates 20 previous State planning instruments which included infrastructure provisions.

The **Mid North Coast Regional Strategy** provides an overarching 25 year land use planning strategy for the region. As such, it does not provide specific controls for the study area, however, it acknowledges the role that economic development, including growth in tourism, will play in the provision of some 48,500 new jobs that will be required in the region. The Strategy also acknowledges the importance of Aboriginal cultural heritage to communities within the region.

The management objectives of the Nambucca River Estuary Management Plan are based on community uses and values associated with the estuary together with reviews of previous technical studies. These management objectives form the basis on which the key elements of the draft Master Plan are based. They are:

Land Tenure and Usage - Protect and enhance the existing uses and values of the estuary in both the short- and long-term by adoption of best practice land use planning and development controls.

Entrance Condition and Behaviour - Maintain navigation within the lower estuary for shallow draft vessels, consistent with current use, to maintain user amenity, safety and aesthetics, within the natural constraints of ocean and fluvial processes.



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Boating and Waterway Usage - Encourage waterway use that causes a minimum of environmental and social impact, and where possible, enhances user amenity through improved safety controls and reduced conflict. Improve the safety of swimmers of all ages within the estuary.

Water Quality- Maintain and improve water quality within the estuary to support ecosystem function, commercial fishing/oyster production and tourism, and other forms of human recreation including swimming.

Habitat Management - Protect and enhance habitats to improve the health and biodiversity of the Nambucca River estuary.

Bank Erosion and Sedimentation - Improve overall river bank condition on all major streams and waterways of the Nambucca Valley to limit future bank erosion and sedimentation.

Climate Change and Sea Level Rise - Consider the potential implications of sea level rise on the estuary and its surrounds as a result of global scale climate change.

Cultural Heritage - Protect areas and items of Aboriginal and European cultural heritage within the estuary.

Community Liaison - Maintain open lines of communication with the community and local Aboriginal groups in relation to the ongoing management of the estuary.

Fisheries and Oyster Aquaculture - Maintain and improve the viability of existing (and potential future) types of ecologically and commercially sustainable estuary-based aquaculture industries and enterprises.

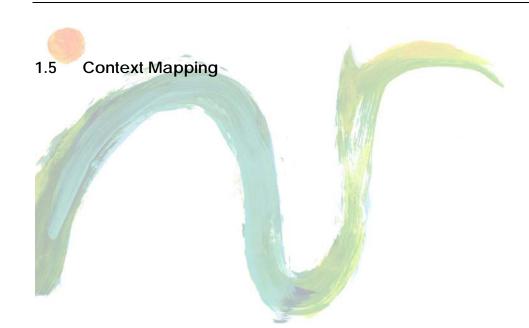
Tourism Management - Maintain and improve the recreational and amenity values of the Nambucca River estuary, without resulting in deleterious impacts on the natural environment.

The Nambucca Shire Council Development Control Plan 3 Residential Development and Development Heights provides controls that impact on the residential land within study area. This DCP provides a maximum 12m height limit on residential land within the Wellington Drive area. Other residential areas are limited in height to 5 and 8 metres.

The Nambucca Shire Structure Plan recommends increasing height in some areas to between 18 and 20 metres. This is presently under discussion by Council and has not yet been resolved. The draft Master Plan will provide the planning basis for a new Development Control Plan that will provide controls for development within the study area, including height limits.

A map showing current land zonings under the **Nambucca Local Environmental Plan 1995 is** provided Section 1.5 – Context Mapping.























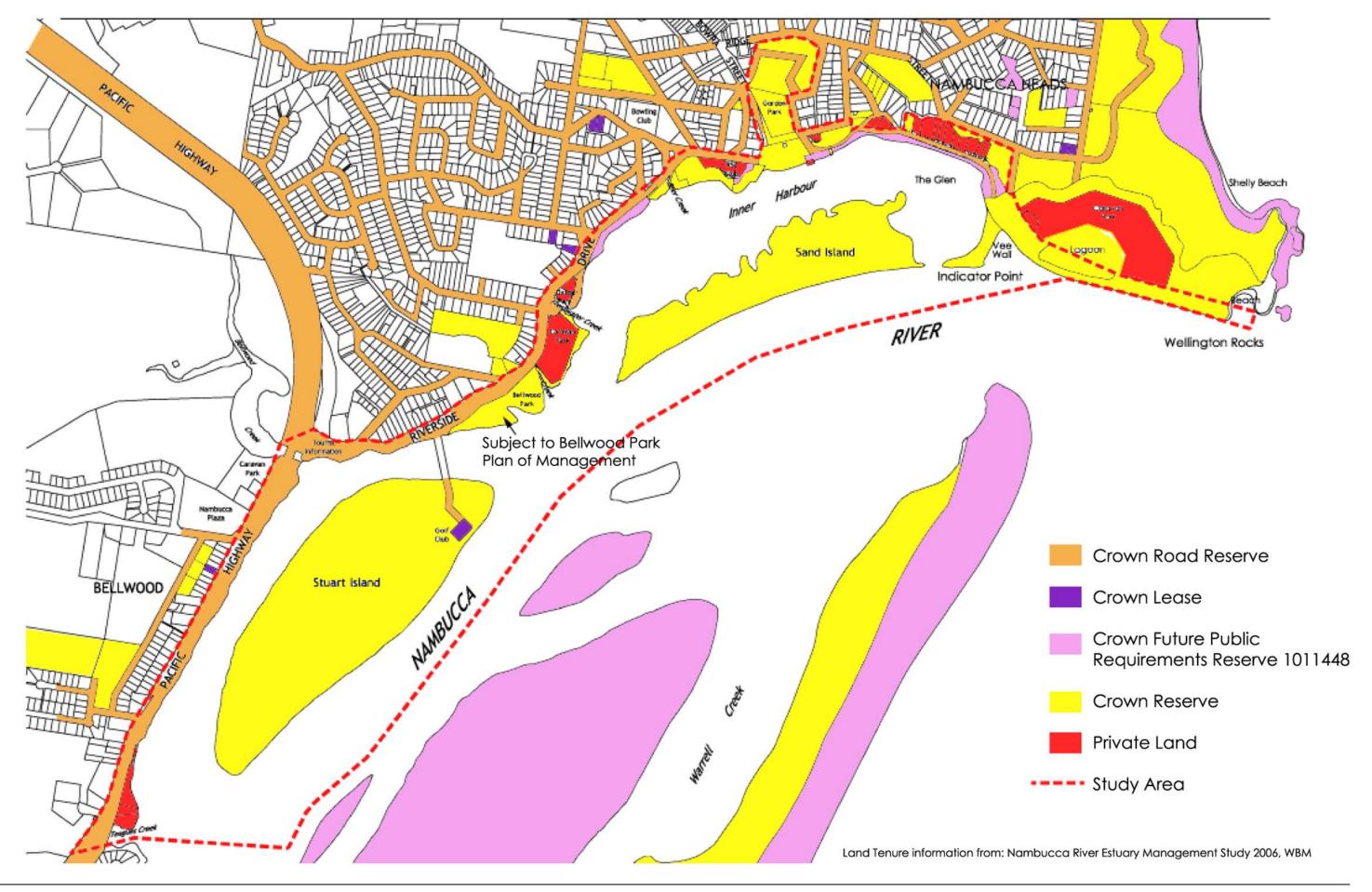
ZONING PLAN

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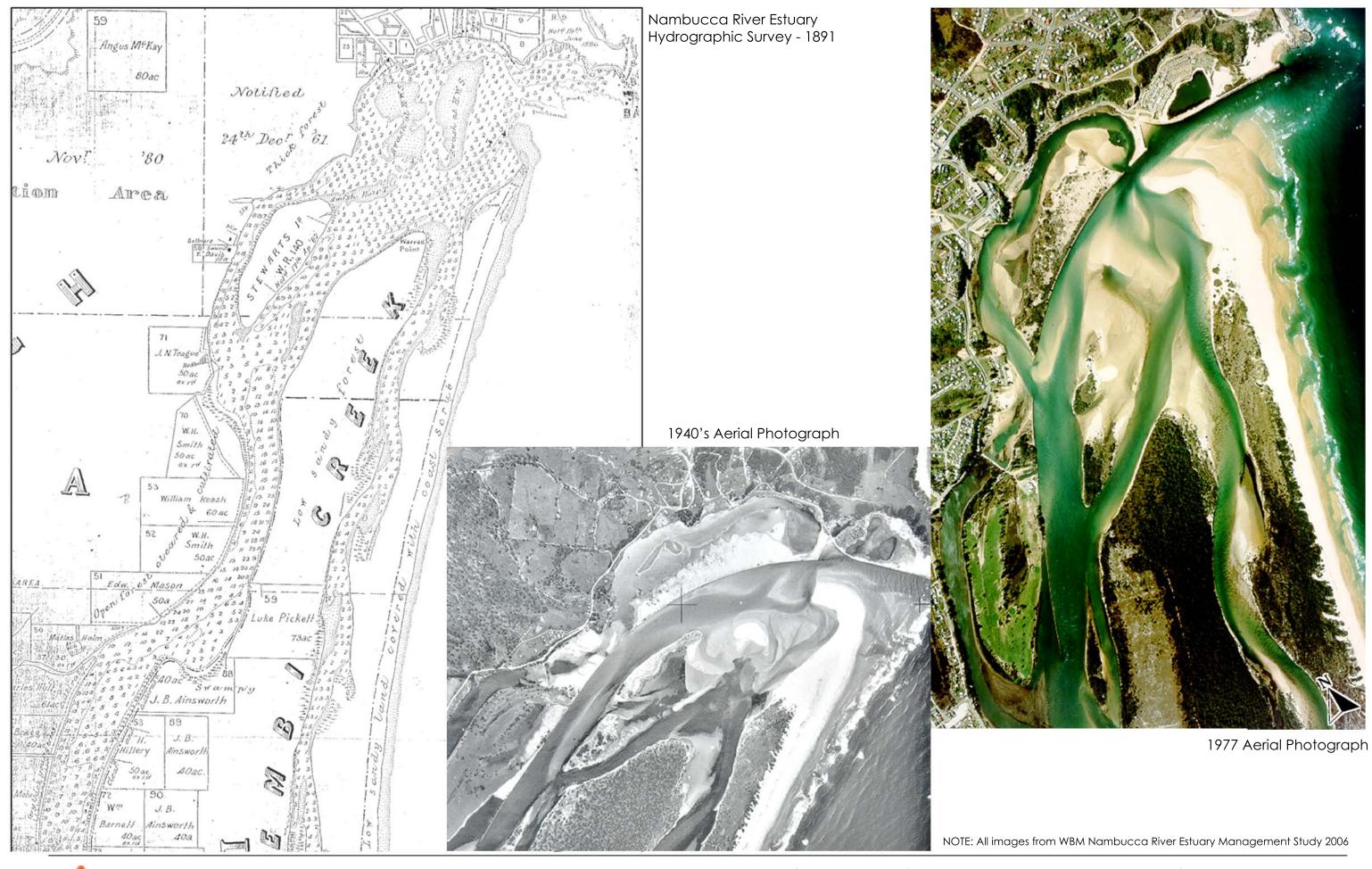




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PEDESTRIAN & CYCLE MOVEMENT







VEHICLE MOVEMENT & CAR PARKING

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RIVER BANK INTERFACE

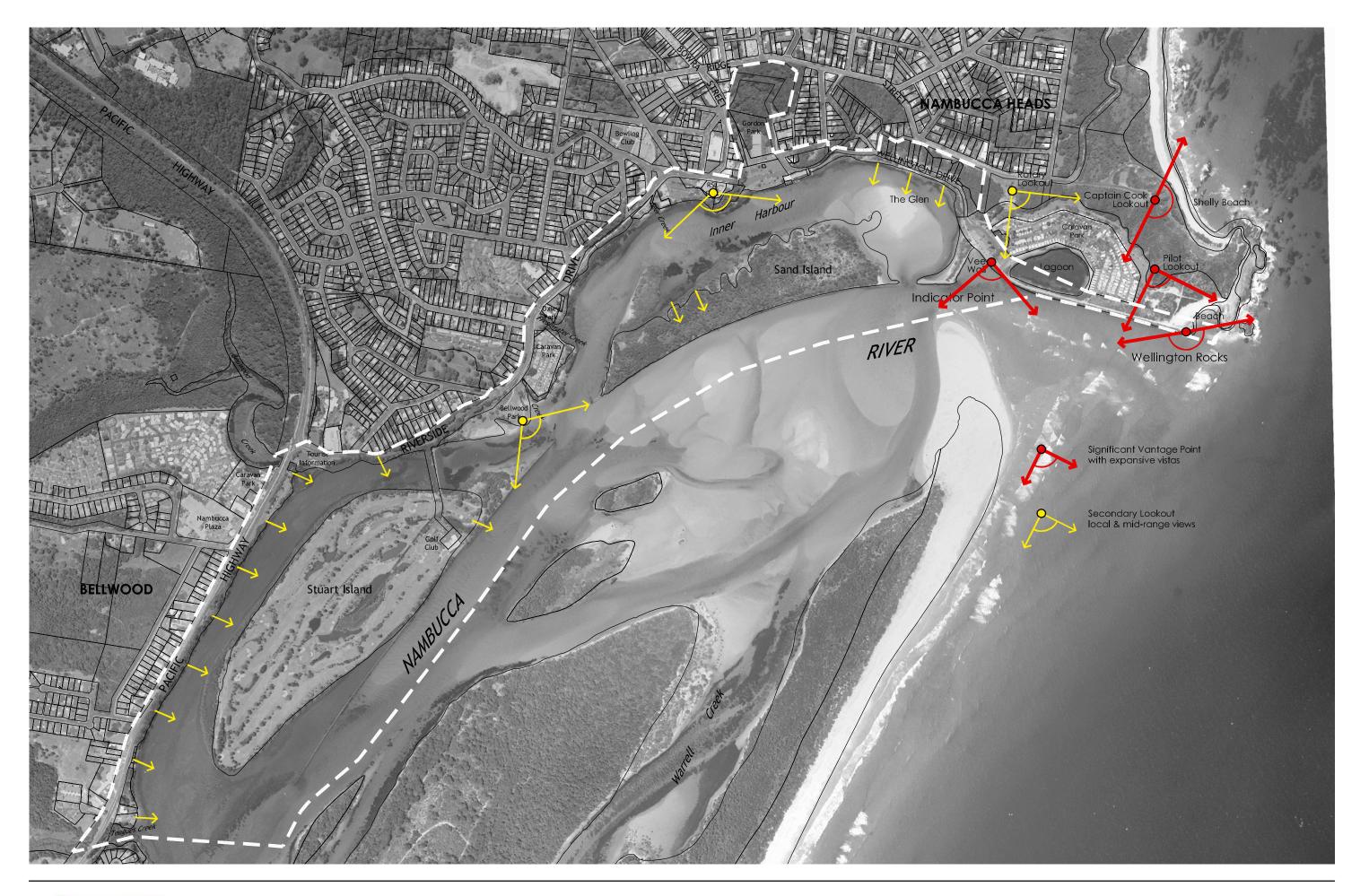
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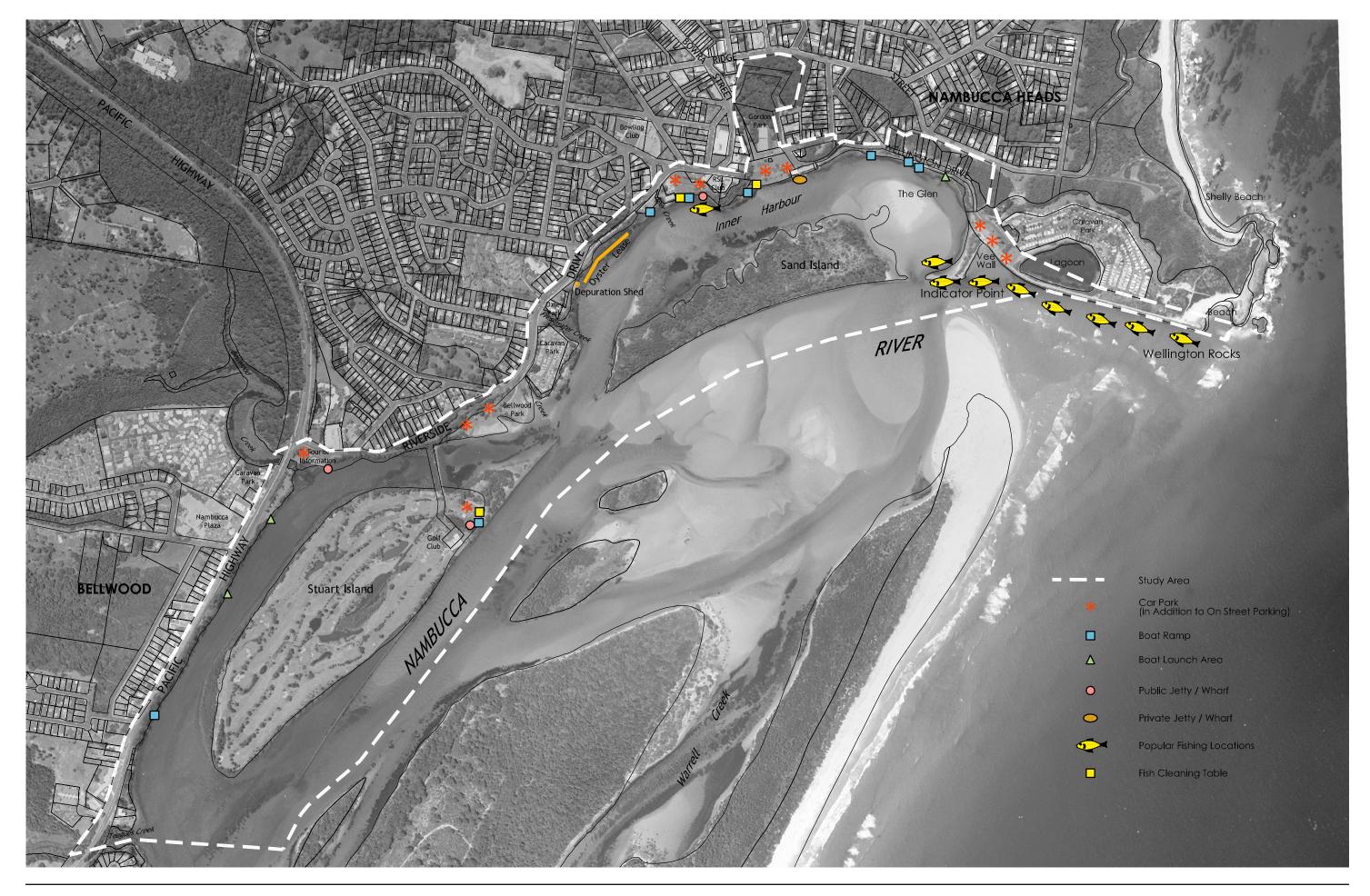
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1.6 Stormwater Drainage & Water Quality Assessment

Section	Description	Comment
1.6.1	Stormwater catchment area definition	Map of study area and relevant adjacent land identifying local catchments
1.6.2	General Stormwater Quality (SWQ) Management principles to be applied where ever possible and practical.	Description of general principles to be considered throughout all contributing catchments
1.6.3	SWQ Issues and options by Precinct	
	Precinct 1	Pacific Highway
	Precinct 2	Stuart Island
	Precinct 3	Freshwater Park
	Precinct 4	RSL
	Precinct 5	Wellington Drive
	Precinct 6	V wall and Albatross Caravan Park
	Precinct 7	Sand Island
1.6.4	Specific SWQ issues and options	Refers to a general Stormwater Management Plan for the study area.
1.6.5	Water Quality Monitoring	Recommendations









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1.6.1 Suggested Stormwater Quality (SWQ) Management Objectives

New development has the potential to increase pollutant loadings in both the stormwater system and the receiving waterways, relative to those occurring under pre-development conditions. **SWQ Assessment (SWQA)** in the planning stage provides the opportunity to review potential stormwater control measures that will assist in maintaining water quality. At this pre-design stage, control measures may be integrated into the development with maximum efficiency and effectiveness, rather than attempting to retro-fit controls after the development has been completed.

In this regard we suggest that the "Coffs Harbour Urban Stormwater Management Plan – June 2000, (CHUSWMP) - Stormwater Management Objectives for New Developments" may be usefully adopted. An extract from that document follows:-

To ensure stormwater quality is considered in the planning of the new developments, three sets of objectives have been adopted:All developments must comply with the objectives listed in Set A
All developments must comply with the objectives listed in either Set B or Set C
Compliance to either Objective Set B or Objective Set C will be determined by the pre-development conditions of the site. The objective set used must be that which provides the greatest treatment of stormwater in that location.

Objective Set A

- A.1 To implement 'best practice' stormwater management techniques
- A.2 To maintain natural drainage patterns as far as possible
- **A.3** To maintain watercourses in their natural form, i.e. watercourses should not be piped or channelled
- **A.4** To maintain adequate vegetation buffers around waterways and sensitive areas, i.e. at least 20 metres

Objective Set B

- **B.1** To ensure no net increase in the average annual load of pollutants entering the stormwater system
 - and receiving waters, above that occurring under pre-development conditions
- **B.2** To improve water quality where possible

It is the responsibility of the developer to meet the higher objectives, as they apply to individual sites. Where the higher objective is unachievable, the developer must provide satisfactory justification for non compliance. Information to be provided includes an assessment of the magnitude of change in pollutant levels."

Objective Set C

Construction Phase

C.1 Soil Type C* To ensure suspended solids concentrations do not exceed 50mg/L for all flow events

up to 25% of the 1 year ARI flow

- C.1a Soil Types F** and D*** To ensure suspended solids concentrations do not exceed 50mg/L for all 5 day rainfall totals up to the 75th percentile rainfall event (75th%ile rainfall event in Coffs Harbour = 34.4mm)
- **C.2** To limit the application, generation and migration of toxic substances to the maximum extent practical

Post Construction Phase

- C.3 To retain 80% of the average annual load of suspended solids
- C.4 To retain 45% of the average annual load of Total Phosphorus
- C.5 To retain 45% of the average annual load of Total Nitrogen
- C.6 To retain litter greater than 50 mm for flows up to 25% of the 1 year ARI peak flow
- C.7 To retain sediment coarser than 0.125mm for flows up to 25% of the 1 year ARI peak flow
- C.8 To ensure no visible oils for flows up to 25% of the 1 year ARI peak flow, in areas with concentrated hydrocarbon deposition
- * Soil Type C = Coarse soils, with less than 33% finer than 0.02 mm
- ** Soil Type F = Fine soils, with more than 33% finer than 0.02mm
- *** **Soil Type D** = Dispersible soils, with more than 33% finer than 0.02mm and more than 10% dispersible materials

1.6.2 SWQ Management Issues

The management of SWQ is broken down into three sections by the NSW EPA (NSW EPA, 1977a). These are described as:-

- The preservation and restoration of existing valuable elements of the stormwater system (e.g. natural channels, wetlands, riparian vegetation)
- The management of the quality and quantity of stormwater at or near the source of the pollutant generation, which may involve a significant component of non-structural measures such as public education, community involvement, policy and procedures, as well as structural measures such as the installation of oil and sediment separators at point sources.
- The installation of "structural" stormwater management practices, such as stormwater treatment measures (STM) to manage pollutant loads and discharges from non-point sources within a catchment.

Increased pollutants in the stormwater are generated from urban development during both the construction and post construction

phases of the project. Managing pollutants in the site stormwater run off during the construction phase is also important. Issues relating to the management of stormwater pollution after construction (i.e. occupancy stage) are detailed below, and include;

- Minimize the disturbance at the site
- Minimize impervious areas across the site
- Maximize onsite infiltration of stormwater
- Minimize flow velocities of run off
- Ensure structural management measures are suitably designed, appropriately located, installed and maintained on a regular basis.

The more common pollutants found in stormwater during the post construction phase of an urban development include sediments, nutrients, litter, bacterial, and oil and grease. Other minor pollutants associated with urban development, such as pesticides and metals, may also be transported via stormwater run off. The primary sources for the stormwater pollutants are road run off (sediments, litter, oil and grease) and garden and lawn run off (sediments, nutrients, litter and bacterial).

For the study area it is considered that these common pollutants outlined above will be the pollutants most likely to be transported by the stormwater and therefore requiring appropriate management.

The pollution control devices or stormwater treatment measures (STM) considered should conform to a number of control parameters including:-

- Being designed to accept specified hydraulic loading
- Being compatible with the environmental character of the surrounding area
- Having limited maintenance requirements
- Minimizing the impact on the hydrology of the area
- Maximizing safety and minimizing health risk to the community

A large body of information has been developed on the design and application of STM devices. All STM devices recommended herein are to conform to statutory, local government and recognized engineering standards.



1.6.3 Proposed SWQ Treatment Measures

The following stormwater treatment devices are recommended for consideration.

Rainwater Tanks (RWT)

Rainwater tanks allow for a range of stormwater harvesting and reuse strategies – providing benefits for both potable water conservation and also for reducing flow regimes towards predevelopment levels. Run off from all structures, house and garage roofs should be directed to a water tank. The stored water from the tanks may be used for toilet flushing, car washing or garden watering.

Buffer Strips (BS)

Buffer Strips (BS) are vegetated strips adjacent to drainage lines (including roadways), rather than constructed vegetated channels (Swales). Buffer strips are effective in the removal of coarse to medium sized suspended solids and bed loads, and are suitable pre-treatment for linear infiltration systems.

Swales (S)

Vegetated swales (S) are open channel systems which utilize vegetation to aid the removal of suspended solids. These systems may be subjected to high hydraulic loading and the removal efficiency is dependent upon the density and height of vegetation in the channel.

Gross Pollutant Traps (GPT)

Gross Pollutant Traps (GPT) capture coarse sediment, trash and vegetable matter carried in the stormwater. Some nutrients carried by the particulate matter are also captured.

GPT development has progressed such that there are a number of different manufacturers in the market today, each with specific and varied characteristics.

Sediment Basin (SB)

This is simply a basin or waterbody reliant on the physical settling of suspended solids as the principal treatment mechanism.

Vegetated filter zone (VFZ)

A vegetated filter zone is a buffer of native vegetation that will treat shallow overland flow through removal of sediment and other particulate pollutants due to slower velocities and filtration. Native vegetation may include grasses, native shrubs and existing and additional trees. Flows entering the vegetated filter strips should be evenly distributed, where possible, as sheet flow.

Biofilters and other quality control devices

Other more complex devices are available however, capital costs and maintenance issues may preclude their consideration.

1.6.4 Stormwater Issues & Options by Precinct.

Refer to the drawings attached below, together with their relevant photographs.

1.6.5 Specific SWQ Issues and Options

In order to promote a rational treatment of SWQ issues throughout the NRMP study area it is recommended that a Stormwater Management Plan be generated addressing all SWQ issues identified, and including:-

- New development both in construction and post maintenance phases.
- Retrofitting existing development with Water Sensitive Urban Design and SWQ control devices
- Identifying areas of erosion and the best management practice for rehabilitation.
- Water quality monitoring

1.6.6 Water Quality Monitoring

Ongoing monitoring of the water in the major creeks and the Nambucca River will provide a valuable reference for ongoing management of the catchment and the water quality. This may take the form of a structured regular testing program by Council.

In addition to the monitoring of the water quality variation within the various catchments, the data collected will assist in formulating the area water quality baseline definition. This in turn will allow the Council to determine water quality target standards relating to future catchment management.

1.7 Traffic Related Issues

Precinct 1 – Pacific Highway Proposed Pedestrian Crossing at Public/Private Pontoon

To reduce the risk to pedestrians a *pedestrian refuge* located in the centre of the road is recommended with relevant signage and line marking

Pull-over Lookout Point

We suggest that a reduced speed environment with relevant signage may assist in reducing the hazard to through traffic of vehicles entering and exiting the parking spaces.

Unfortunately space appears limited and precludes the set-back of the parking spaces to permit a maneuvering zone between the highway and the parking spaces.

Alternatively the parking spaces may be re-aligned to parallel parks, allowing a manoeuvring zone. However, this will reduce the number of car spaces significantly.

Visitor Information Centre - Carpark

Space for vehicles towing boats will be needed within this car park – perhaps using the central island section.

Visitor Information Centre – Pedestrian Crossing

Although not the most desirable location it appears to be the best compromise. A central pedestrian refuge is recommended to break the travel distance over the angled crossing. Other traffic calming devices limiting traffic speed are encouraged.

Precinct 2 – Stuart Island Causeway Crossing

To reduce the risk to pedestrians using the causeway it may be useful to allocate a section of the carriageway as a shared pedestrian/vehicle zone. This will induce pedestrian traffic into a single more manageable zone, and at the same time alert vehicles to the existence of a pedestrian presence.

Precinct 4 – RSL Additional Carparking

The design of this car park should recognize that it is in the overland flow path of major storm events, and profile the car park surface accordingly.

Pedestrian Crossing to the RSL

To reduce the risk to pedestrians a *pedestrian refuge* located in the centre of the road is recommended with relevant signage and line marking

1.8 Waste Water (Sewer) Related Issues

Precinct 2 – Stuart Island

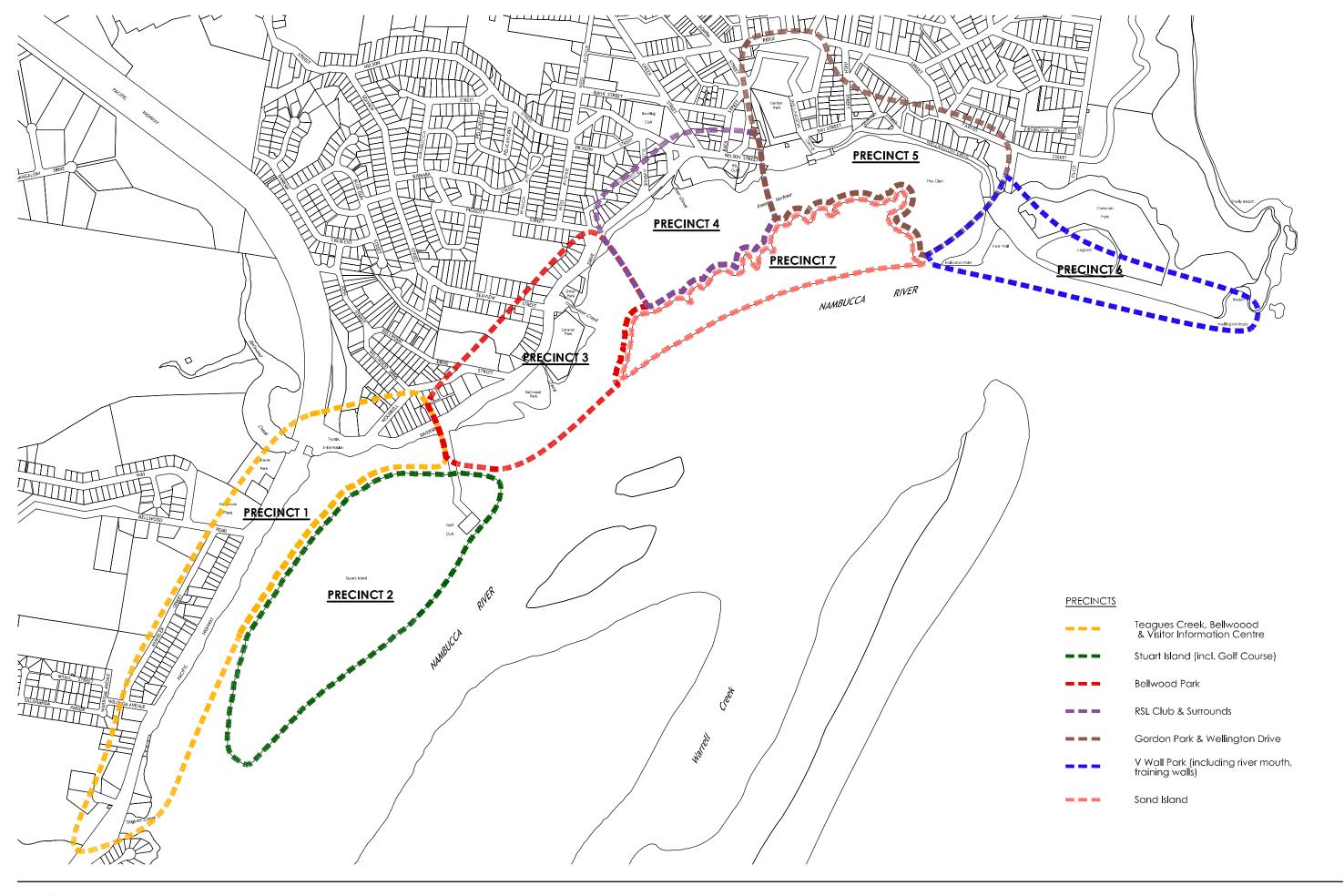
The proposed development of the reserve area includes an amenities facility. The waste water from this facility may be disposed of by a number of means, including:-

- Negotiate with the Golf Course to use their existing treatment and disposal system.
- Install an independent package treatment plant and pump treated effluent to the golf course system for irrigation of the golf course.
- Ditto above but dispose of the treated effluent within the reserve area using a sub-surface (trenched) system.
- Install a small pump station to deliver untreated sewage back to the main Council network.



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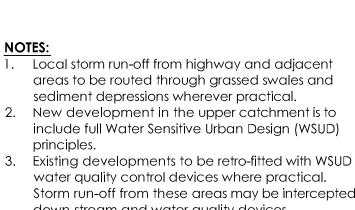






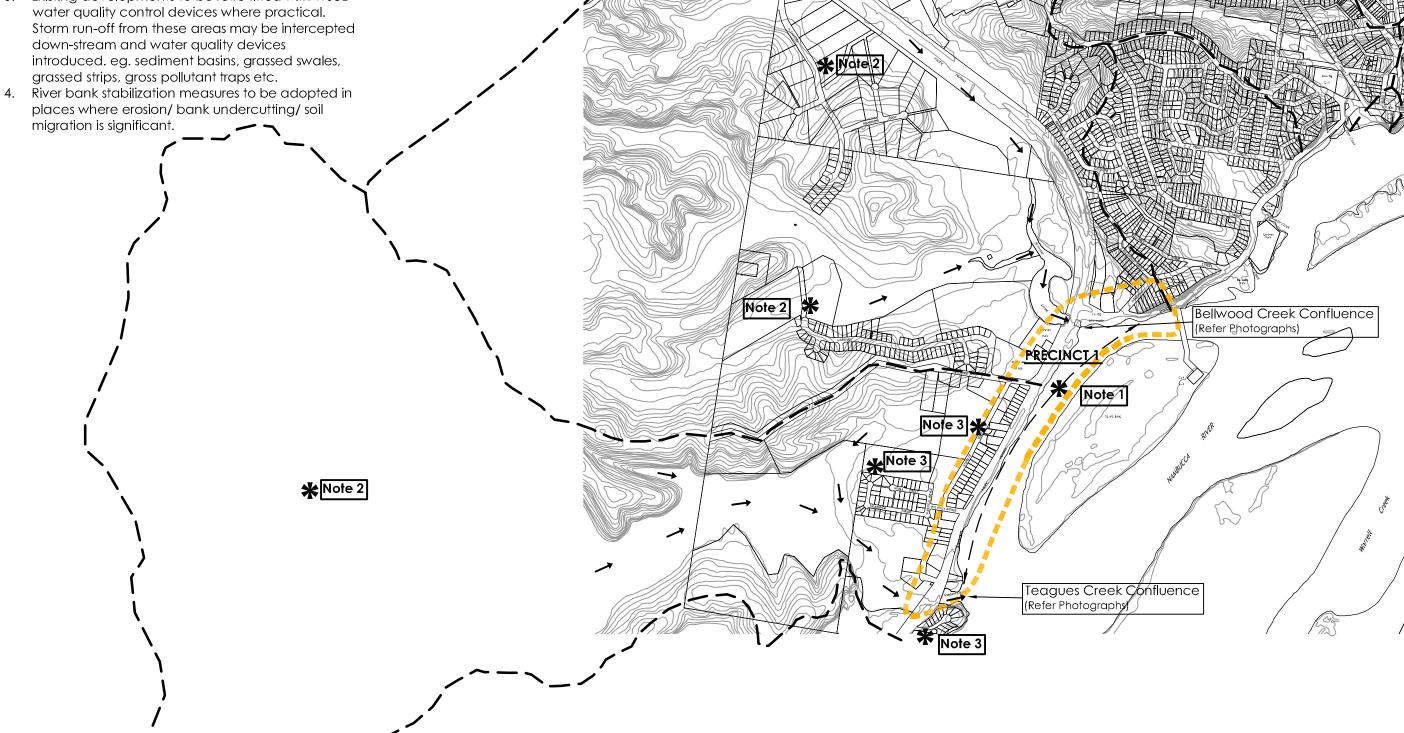


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water quality control devices where practical. Storm run-off from these areas may be intercepted down-stream and water quality devices introduced. eg. sediment basins, grassed swales, grassed strips, gross pollutant traps etc.

places where erosion/bank undercutting/soil

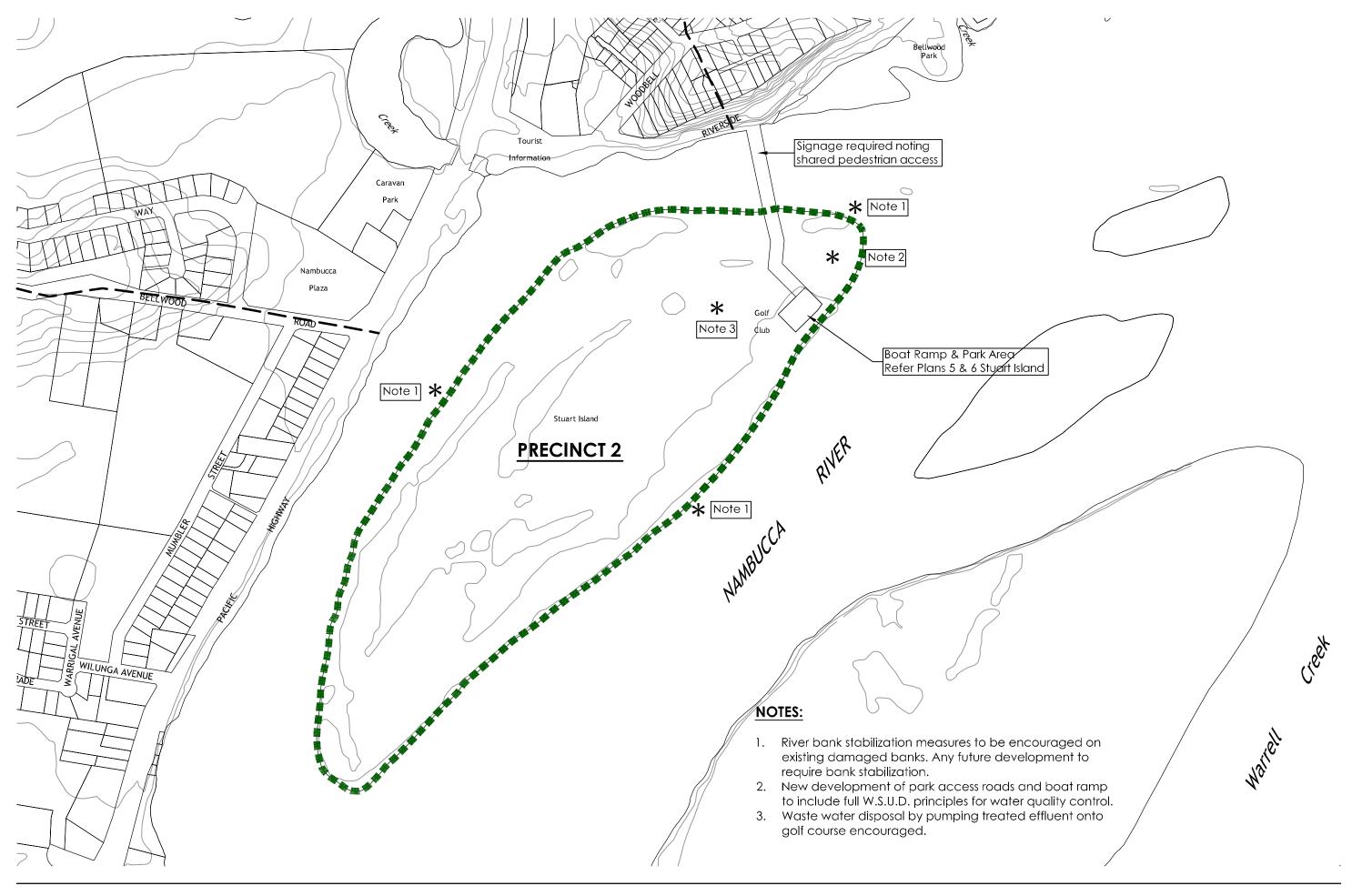




Nambucca River MASTER PLAN



Note 3







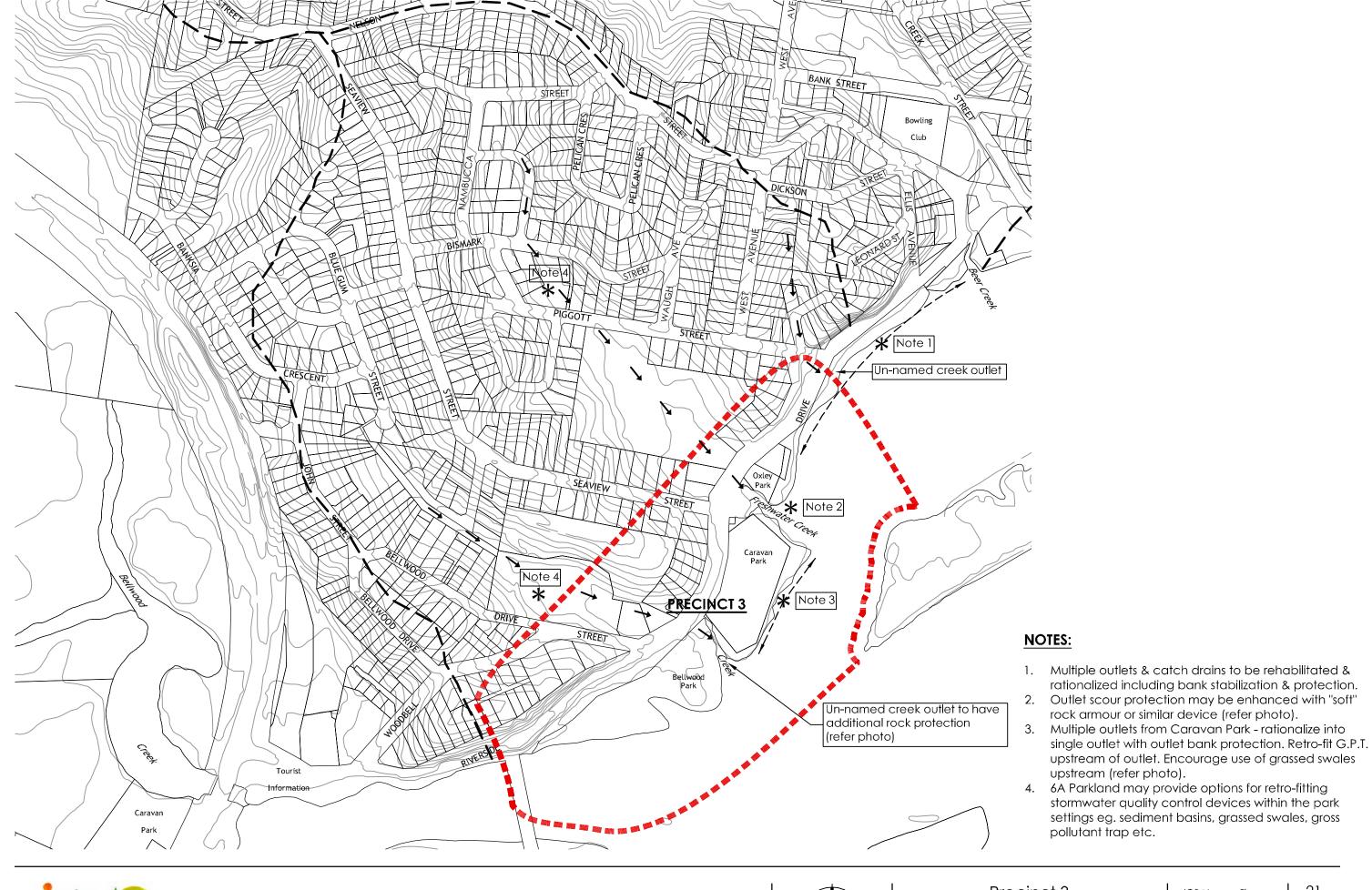
Precinct 2
STORMWATER QUALITY MANAGEMENT

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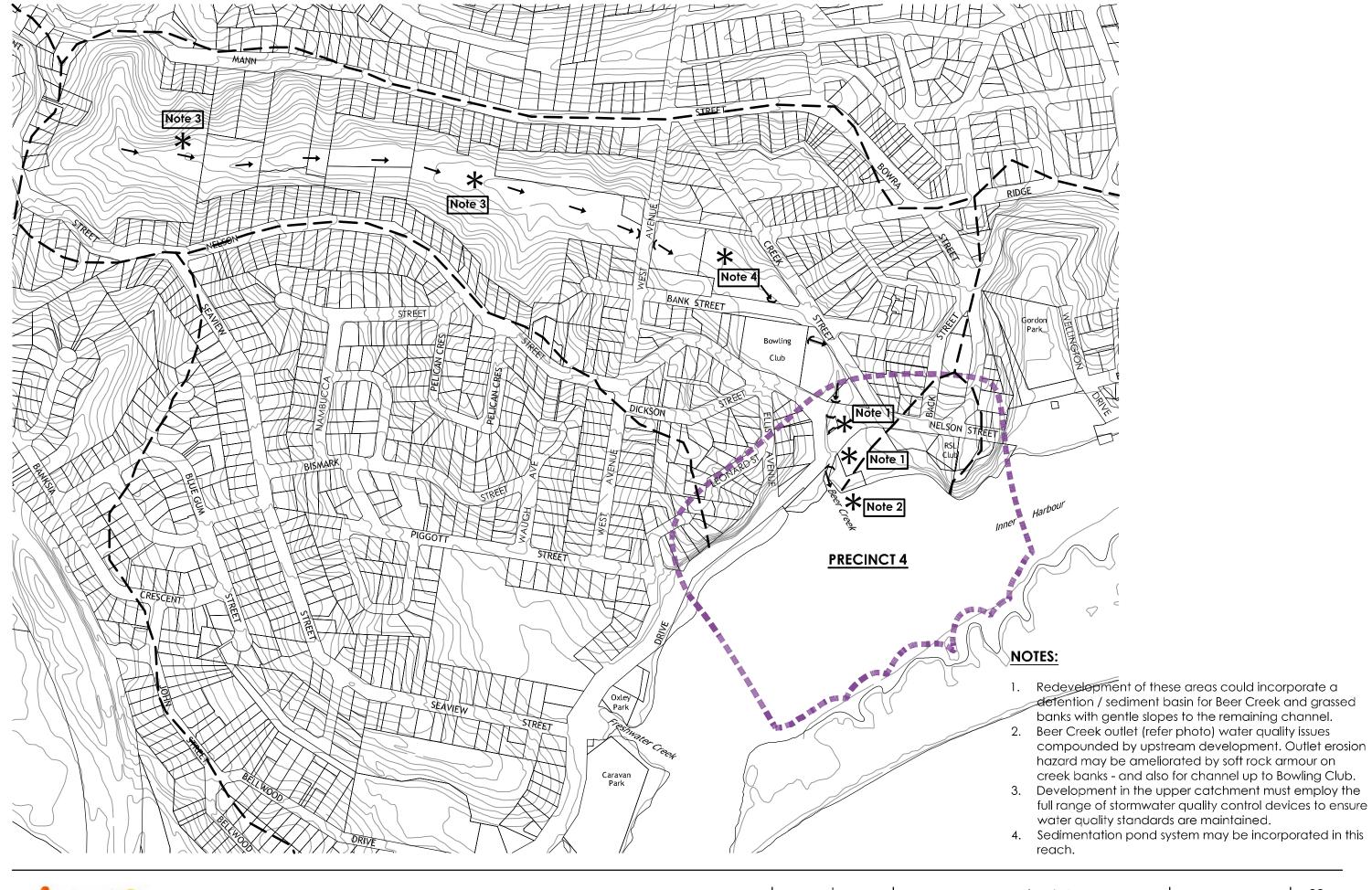
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Precinct 4
STORMWATER QUALITY MANAGEMENT

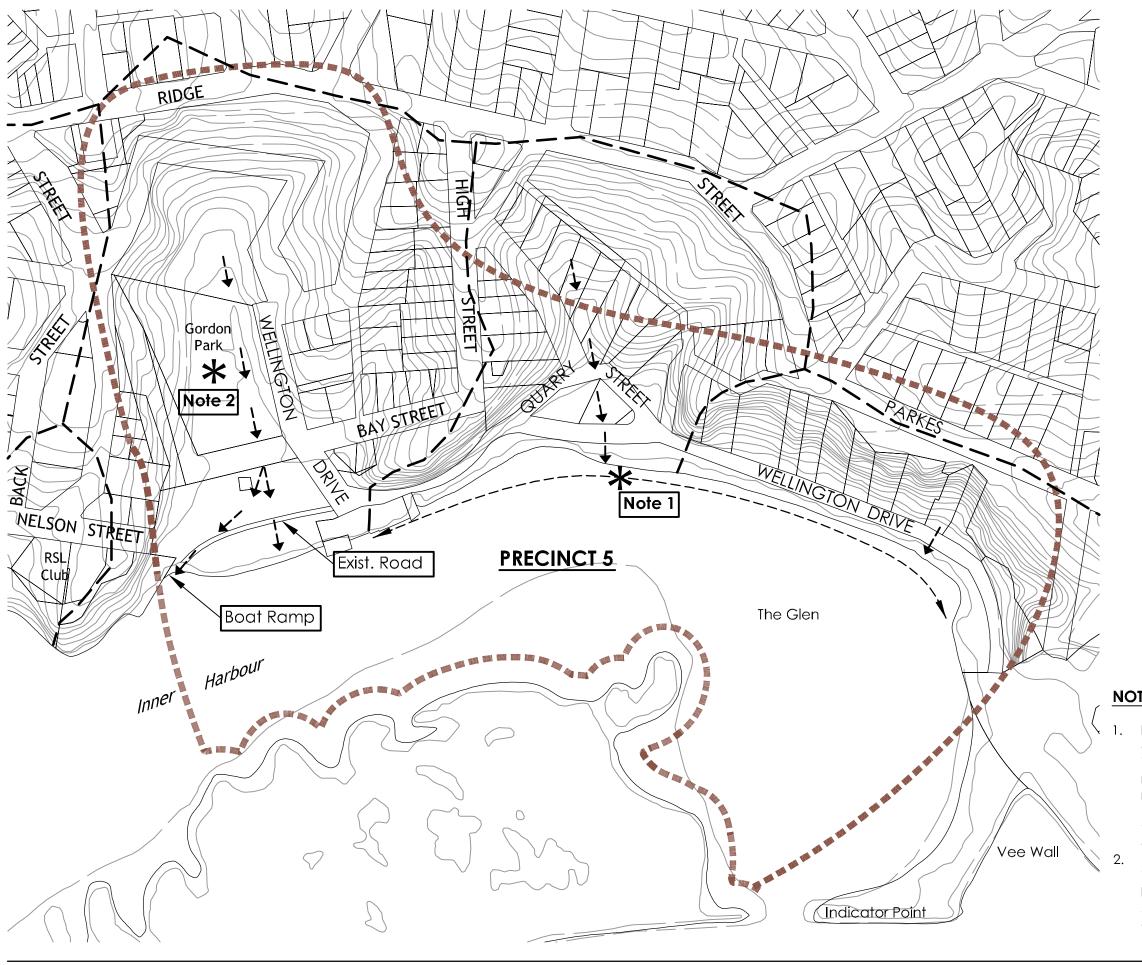
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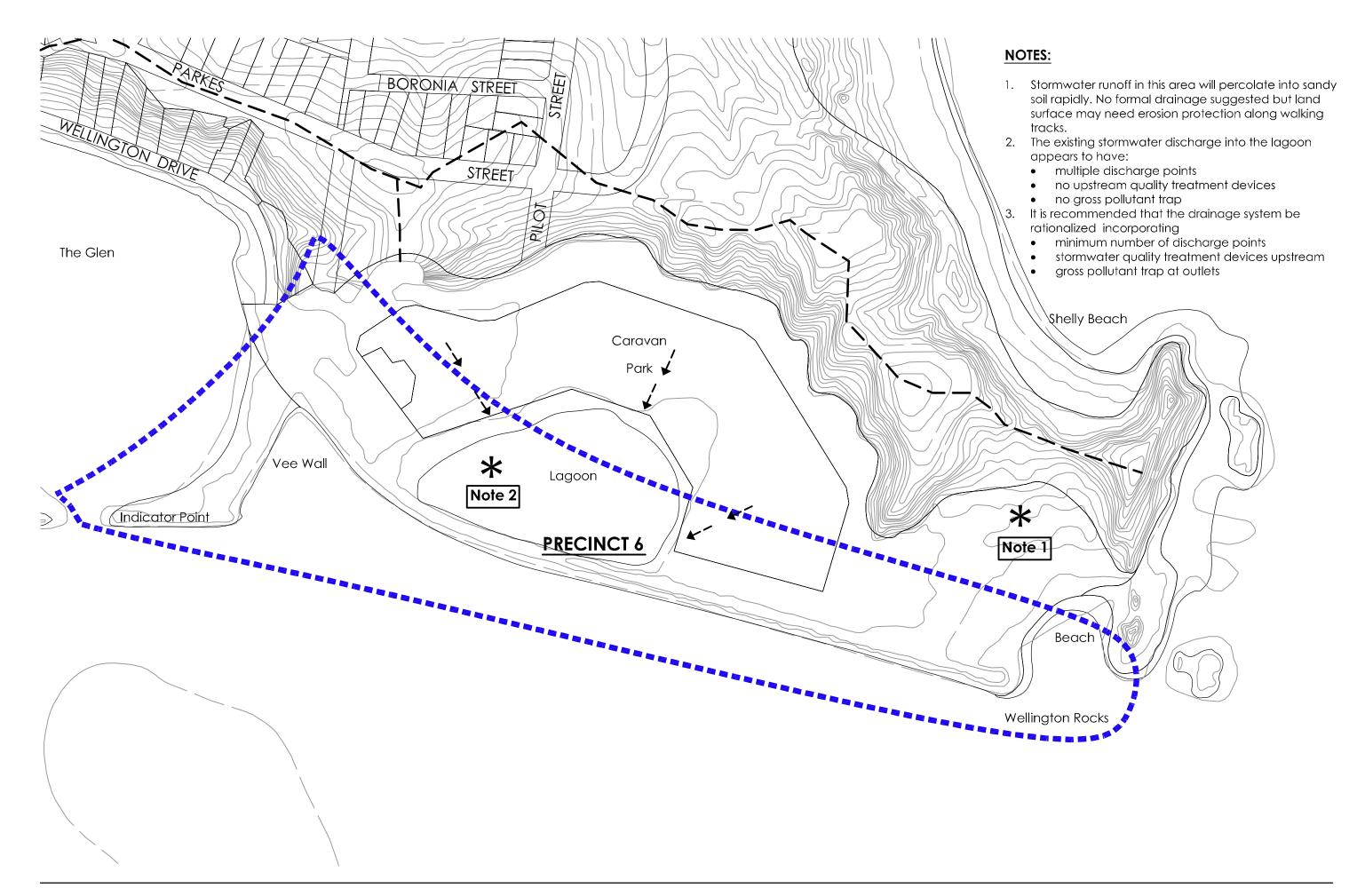
- Existing development along Wellington Drive appears to discharge stormwater directly into the inner harbour. Stormwater quality control devices may not be practical for retro-fitting. However, any re-development should consider appropriate stormwater quality devices including rain water tanks & the use of this asset within the development.
- Stormwater appears to flow overland through to interceptor road and out through boat ramp. Future development to employ full suite of stormwater quality control devices to ensure water quality maintained.



Nambucca River MASTER PLAN

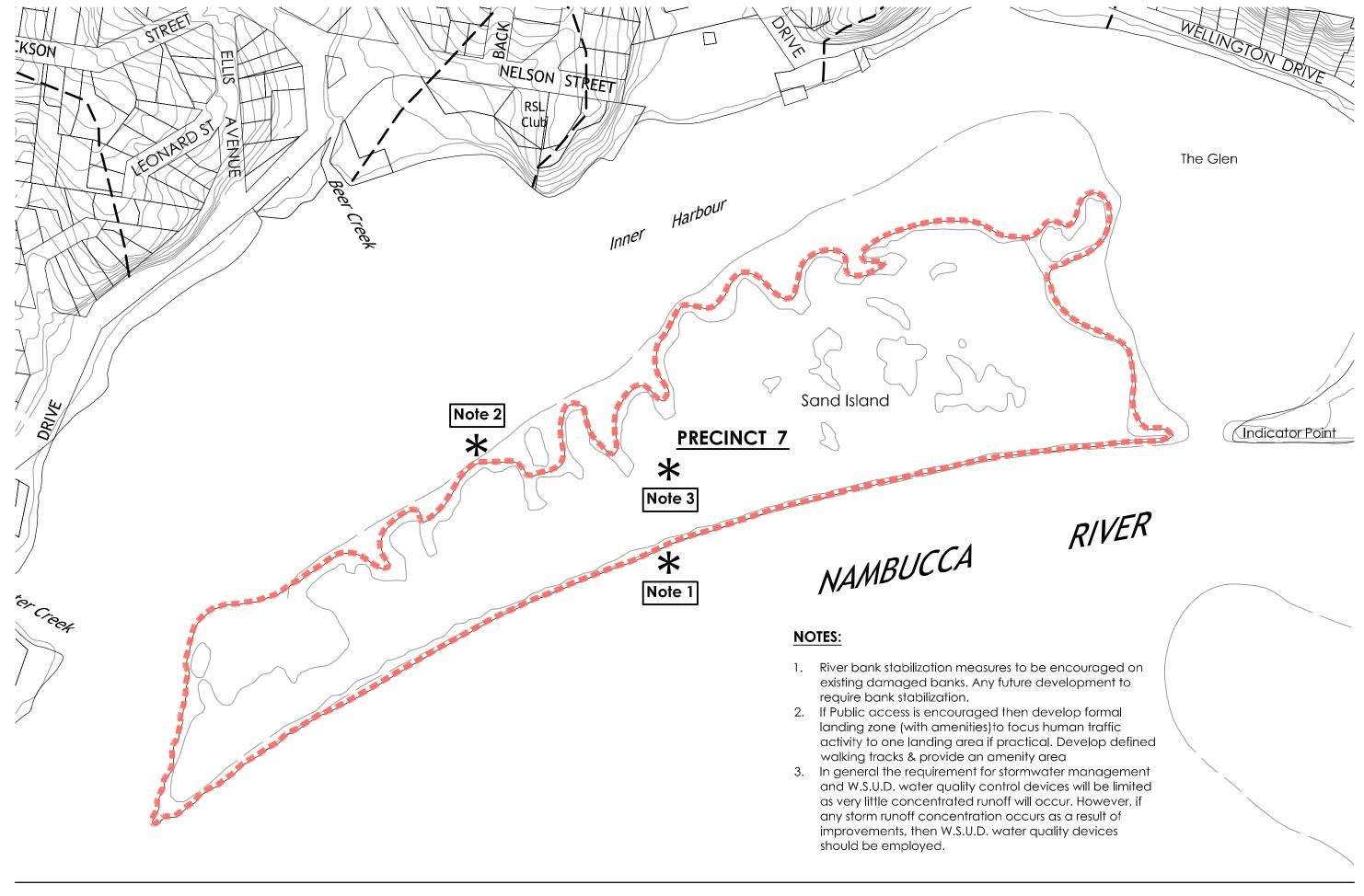


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Teagues Creek entrance into Nambucca River - vegetation cover enhances water quality



Foot bridge over Teagues Creek - well preserved and protected banks



Pollutant Trap at Bellwood Creek outlet - good example WSUD water quality enhancement device.



Bellwood Creek entrance to Nambucca River - devegetation on banks increases risk of erosion & bank damage.

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Beer Creek Outlet - bank erosion potential - employ soft rock armour outside mangrove root zone and re-vegetate.



TBeer Creek - batters to be gently sloping & re-vegetated.



Beer Creek Bridge - bank erosion potential high - employ soft rock armour and re-vegetate.

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Gordon Park Boat Ramp



Stormwater Treatments along Wellington Drive



White Albatross Caravan Park in background

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Stormwater Outlets from Freshwater Caravan Park



Freshwater Creek Outlet



Outlets from Un-named Creek at Bellwood Park

2. VISION, ISSUES & OPPORTUNITIES

2.1 Vision of the Master Plan

The vision for the Nambucca River Master plan is to strengthen and highlight both the use and aesthetics of the waterway for residents and visitors. The restrained approach ensures the unique existing natural environment is maintained and highlighted as an asset to the Nambucca Valley.

The plan aims to establish the area's appeal as a modern destination on the Mid North Coast by improving the built forms and recreational facilities while preserving the area's established relaxed coastal atmosphere and natural environment.

2.2 Issues in the Study Area

Below is a bullet point record of the issues recorded within each precinct during the site analysis.

2.2.1 Teagues Creek, Bellwood, Visitor Information Centre

- The close proximity of the Pacific Highway to the Nambucca River.
- Entry point to Nambucca beginning point for visual identification with Nambucca - Info centre excellent resource and starting point to area with potential for further enhancement as key foreshore location.
- Limited visual connection to the Nambucca Foreshore area for tourists on the Pacific Highway.
- Lack of identity as the gateway to Nambucca Heads.
- Southbound tourist traffic has already passed the turnoff to Nambucca Heads and is less likely to stop once past the turn.
- Lack of connectivity between Bellwood and the Nambucca River.
- Visual connection interrupted by heavy traffic of Pacific Highway.
- Unsafe pedestrian access to foreshore, steep river banks.
- High levels traffic noise.
- No safe pull over areas for vehicles.
- Crime prevention at the Visitor Information Centre
- Limited boat access to the river bank within the precinct, some private informal/unregistered boat moorings.
- Brotherhood Park under-utilised due to proximity to the Highway, no safe carparking, lack of visual exposure and surveillance.
- Lawful public access to the waterfront is limited in some areas due to private ownership.
- Pedestrian pathway from Bellwood Plaza to Visitor Information Centre is very exposed to highway traffic.
- Security issues for pedestrian underpass. Needs to be suitable for higher volumes of mobility scooter style traffic.
- Existing signage to be rationalised / compiled within a new format of 'thematic' signage for the study area.

- Existing commercial operators wanting highway exposure.
- Elements of private ownership of land between Pacific Highway and Nambucca River between Teagues Creek and Brotherhood Park - affects the potential for public access immediately adjacent to the river, but may also provide opportunities for other land uses/commercial opportunities along the waterfront.
- Erosion of river bank along the river between Teagues Creek and Brotherhood Park.
- Views of river along existing highway provide a "wow' factor however few opportunities to stop and explore the environment.
- The depth of the river at this point makes it a potential docking point for larger river craft.
- Opportunity to enhance free movement along this section of waterfront and tie it into the expanding residential area of Nambucca.
- No food outlets at the Visitor Information Centre.
- New jetty not accessible for boats / could provide better access for fishing.
- Consider potential land uses along the Pacific Highway in view of future highway deviation.
- Need for design guidelines / DCP for area on border of study area e.g. western side of Pacific Highway

2.2.2 Stuart Island

- The north eastern portion of Stuart Island has no formality / very ad hoc.
- Existing access and car parking areas are not well defined or controlled.
- Replant vegetation within existing tracks and restrict further access
- No public amenities are located at the boat ramp. The provision of public toilets, showers, fish cleaning facilities would enhance the usability of the area and help to resolve current issues with use of the facilities within the Golf Club.
- The existing boat ramp may need pontoon and bollards/moorings for tying up boats.
- Very popular boat ramp for recreational fishing.
- Golf Course Clubhouse may not be fully capitalising on their considerable assets, unique location, high aboriginal heritage value, historical sites and its potential for a tourist heritage trail, Opportunities for increased patronage by tourists for recreation activities other than golf.
- Irrigation and run off from golf course may impact on water quality.
- Issues with congestion at car/trailer parking area.

- Lack of protection to remnant vegetation i.e. all areas are being utilised and understorey to remnant vegetation is becoming compacted.
- Dated facilities and no distinct character/theme/materials to facilities.
- Lack of signage indicating that access to Stuart Island is available to the public.
- Need to allow for potential sea level rises/ surges.
- Improved river crossing access to Golf Club.
- Stuart Island is a place of great cultural significance, with both bitter and sweet memories for living Aboriginal people. It was the site of 20-30 burials of infants (McIntyre-Tamwoy 2003, 42).
- Aboriginal burial site may be present on Stuart Island however, McIntyre-Tamwoy quotes others as saying that the burial site has been damaged.
- There was a school (which is now part of the museum) a number of living Aboriginal people attended as children.
- Aboriginal Elder Ms Val Cohen had a bait shop near the boat ramp.
- The present bridge to the island has significantly altered the natural flow of the river, and the health of the river, and the diminishing of its suitability for swimming and fishing from the bank, greatly disturbs many Aboriginal people.
- Another reason to restore the river flow is that the current situation is adversely affecting fish stocks and water quality.
- The bridge culverts are not aesthetically pleasing.

2.2.3 Bellwood Park

- Intersection with Riverside Drive needs attention.
- Limited exposure to Riverside Drive.
- · Access to Stuart Island.
- · Functional but has limited aesthetic appeal.
- Riverside Caravan Park has ugly storm water outlets and foreshore treatments.
- Restricted pedestrian accessibility eastward from Bellwood Park.
- Poor links between urban spaces/ architecture and water links/ board walk.
- User safety along boardwalk between Visitor Information Centre and Bellwood Park i.e. boardwalk not easily surveyed and lack of escape routes if users do have difficulties.
- Poor handrail design (visual/ functional).
- CCA treated pine in boardwalk in contact with water.
- Unattractive wooden retaining wall.
- Rocks have been dumped along the foreshore as an emergency response to erosion.



- Lack of connectivity along foreshore walk north of Bellwood Park
 i.e. at caravan park.
- Foreshore access east of caravan park is along road and has little relationship to foreshore.
- Potential to continue the boardwalk along foreshore area eastward of the caravan park.
- Explore the possibility of a Tourist Trail which includes both European and Aboriginal heritage and the oyster trade on the river.
- Two species seagrass present in the Bellwood Park area (Bellwood Park PoM)
- Surrounding area has Aboriginal cultural significance Stuart Island burial ground, adjacent Caravan Park land has mythological significance (Bellwood Park PoM)
- No current business leases, however, recreational leases are permissible under the PoM
- Social value family gatherings, carols by candlelight

2.2.4 RSL Club & Surrounds

- Maintain character of a 'low-key' family recreation area.
- Beer Creek aesthetically unattractive (typical creek turned into storm water drain).
- Up stream area is weed infested and has limited access.
- Water quality may conflict with oyster nursery area particularly during high intensity rainfall.
- Boat ramp provides no boat friendly foreshore area (Oyster covered rocks) – needs bollards, moorings and / or beach.
- Potential for boat users to moor their craft and use the BBQs, café and amenities.
- Riverside Café well patronised.
- Existing BBQs well used, consider providing additional BBQs.
- Dis-used jetty structure unsafe.
- Boardwalk is very narrow and not suited to cyclists or personal scooters.
- Boardwalk is nearing the end of its 'life' good opportunity for redesign.
- High capacity car park, but limited day time use.
- Lack of connectivity along foreshore at restaurant/boat hire facility.
- Visually unattractive and polluted/littered quality of Beer Creek.
- Erosion along river bank where boardwalk recommences outside RSL.
- Land slippage behind former 'Nambucca Motors'.
- Boardwalk is dated and narrow, pier no longer in use.
- User safety along boardwalk i.e. lack of surveillance.
- Quality of boat ramp as boat launching facility.
- Visual impact of large car park and proposed extensions to RSL on foreshore amenity.

- Consider engineering solution to Beer Creek pollution locate works away from scenic foreshore.
- Impact of car parking facilities adjoining foreshore, in particular potential for second level of parking at RSL Club.

2.2.5 Gordon Park & Wellington Drive

- Wellington Drive / Bowra Street Intersection treatment.
- Entry Statement or some visual cue to what's below.
- · Lack of connectivity and accessibility to town centre.
- Provide visual connection between town centre and river where possible.
- Existing pathway from the CBD to the area is located along the Bowra Street road reserve, there is potential for upgrading this linkage.
- The drive down through rainforest provides a sense of arrival, there is potential to enhance this through landscaping and signage.
- Visually unattractive buildings e.g. Woolworths and others opportunity to develop urban design guidelines / DCP to guide future development that may 'soften' the harsh visual impact from these buildings.
- Popular boat ramp for commercial fishermen and some ocean fishermen.
- Marina has previously been considered for this area.
- Foreshore treatment is in need of maintenance and upgrading existing retaining walls is collapsing and undermining.
- Limited opportunities provided to access river (no wharves or jetties).
- Pedestrian access and public infrastructure limited by private property, there may be potential for elevated walkway along the seaward side of the privately owned buildings.
- Urban interface generally uninteresting buildings.
- Heritage connections are missing, this is a former ship building and public baths area. An old well may be located within the rainforest area.
- Commercial opportunities café, tourist oriented retail.
- Caravan facilities parking, drainage, recharging batteries etc whilst shopping in Nambucca.
- Limited through traffic opportunities.
- Lack of significant/clear link to main town centre as significant foreshore park.
- Erosion of retaining wall along waterfront.
- · Lack of quality facilities at main foreshore park.
- Dated facilities and no distinct character/theme/materials to facilities.
- The area doesn't maximise potential to link with remnant rainforest and locations of historical significance along Ocean Avenue.
- Potential congestion at boat ramp and potential conflict with park users/pedestrians.

- Lack of connectivity along waterfront at private units east of Gordon Park.
- · Improved access and usage of Gordon Park.
- Limited private development opportunities along Wellington Drive.
- Investigate potential to provide rear access to land along Wellington Drive.
- Foreshore access diverts back to Wellington Drive behind private units and volunteer coastguard facilities.
- Boardwalk dated /poor design.
- Carpark congestion at eastern end of Wellington Drive.
- Uncontrolled access to beach and erosion of remnant Casuarinas and understorey access and public areas should be defined.
- Highly used location and potential lack of facilities.
- Erosion / slippage of cliff face behind Wellington Drive.
- · Strong currents and safety of water users.
- 'Ocean liner' 3 storey building out of context.
- Possible 3-7 storey development which is compromised by rising sea levels.
- Impact of predicted sea level rises.
- Building design and height guidelines for the Wellington Drive area.
- Emergency access in and out of Wellington Drive
- Potential for café / restaurant associated with tennis club.

2.2.6 V Wall Park (including The Glen, River Mouth, Training Wall)

- Car parking limitations.
- Emergency vehicular access along training wall and no turn around area at end of Break wall.
- · Water safety no lifeguard.
- No quick access to river for emergency watercrafts.
- Opening / closing of the 'hole' in the V Wall.
- Impacts from dredging.
- · Swimmers and boat user conflicts.
- Further public and private commercial opportunities required.
- Lack of amenities.
- Opening in training wall ~ dangerous on outgoing tide.
- V Wall Cove popular swimming spot ~ dangerous on outgoing tide.
- Scenic lookout above V Wall Tavern should have access from the foreshore area.
- Poor connectivity to ocean beaches.
- Impact of car parking facilities adjoining foreshore at V Wall area.
- · Emergency access to V-Wall.



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2.2.7 Sand Island

- No formal use of the island.
- People camp and walk through the island damaging its ecological properties.
- May have better use.
- Sand island resulted from past dredging spoils
- Sand island recreational opportunities are limited due to access issues. – Low key / eco tourism may be suitable.

2.3 Issues to be Considered form the Master plan Brief

2.3.1 Marina, Berthing & Mooring facility

The concepts behind a Marina and/or boat berthing facilities were clarified in the community consultation arena where it was revealed that the desire was for improved boat launching and tie up facilities for day storage. A marina suitable for full time storage of blue water or deep draft boats was not wanted by the majority of the community. An improvement of the facilities for small to medium boats which are suited to the river and its physical constraints (shallow draft boats, tinnies etc) is sought by community.

Section 3 proposes a number of new boating facilities in line with the requirements of the community.

2.3.2 Waterfront Tourism Promenade on Wellington Drive

The concept of a tourist promenade developed on Wellington Drive was considered as required in the brief. This area was found to be impacted on by a number of environmental elements that rendered the area unsuitable for this type of high density use development.

A tourist promenade would require suitable access for vehicles with adequate parking and servicing areas to provide for restaurants and shops etc that would be included in a promenade. Wellington Drive has only a single vehicle access and exit point which at present suffers from congestion during peak times. Increasing this with a new development is not seen as a practical and efficient use in this area. The promenade concept has been proposed as part of the master plan in a more suitable and serviceable location. There were a number of public submissions which did not support the further development of the Wellington Drive area. It must be noted that

there was limited support for this type of development. Wellington Drive is one of the lowest sites above sea level within the entire study area and with only a minimum of protection from any rise in sea level or a swell surge, geotechnical stability, environmental concerns and lack of public support indicated that a tourist promenade on Wellington Drive was not seen as suitable.

2.3.3 Bowra Street Road Extension

The extension of Bowra Street to Wellington Drive was raised in the consultation process as an option to be investigated in the master plan . The extension of Bowra Street would provide direct vehicle and pedestrian access from the main town centre (Bowra Street) to

the waterfront and Wellington Drive, providing a better connection and vehicle flow between the two activity nodes.

The major barriers to extending Bowra Street were the engineering and construction magnitude combined with associated costs, due to the marked grade of the existing road reserve.

Retaining the existing vehicle access through the rainforest was supported by elements of the community and seen as an asset to Nambucca. High quality directional signage and identifying elements have been proposed to ensure a strong physical and visual connection is made and maintained between the town centre (Bowra Street Shops) and the river and waterfront areas.

2.3.4 Closing The Hole in the V-Wall

Part of the brief was to consider and further investigate options and make recommendations on the possible closing or maintaining the opening in the V Wall. Previous reports concluded a Hydrology Study was required to understand what impacts a change would have on the water and sand movement within the river system. Nambucca Shire Council is currently undertaking this study.

This issue was also discussed at length with people from the community. The majority believed that the opening should remain as it is as closing the hole creates flooding to areas up river. There was also an opinion that closing the hole will increase water flow in the main channel creating a deeper channel. This can only be justified with modelling of the hydrology, which has not been undertaken and is outside this master plan.

If the hole in the V Wall was to be closed an investigation into its impacts on the possible flooding of areas needs to be undertaken as well as the possible changes to the channel.

It is the recommendation of this Master plan that the hole in the V Wall remain. There is no foreseeable benefit or strong community desire for the hole to be closed. Presently the hole allows for ocean access for boats launching from Gordon Park.

Once the Hydrology Study is completed and the impacts of the potential closure understood then it may be possible to close this gap if desired, however ocean access must be maintained from Gordon Park.

2.3.5 Dredging The Nambucca River

Part of the brief was to consider the investigations and reports already carried out and assess the social, environmental and economic benefit and impacts and sustainability of dredging the river for improved navigability and account for the removed material.

This issue was discussed at length with people from the community and created strong opinions for and against dredging the river.

Social – The social benefit to the Nambucca area will be the major positive if the river was dredged. The concept behind dredging the

river is to improve the entrance in terms of safety and allow for easier navigation within the river mouth. Larger vessels would also be able to access the river.

As outlined in the Nambucca River Estuary Management Study October 2006, sediments in the estuary are highly mobile. There are no assurances that any amount of dredging would ensure the desired outcomes of a safer, deeper channel into and out of the Nambucca River.

Economic – The cost of constant dredging is considerable and cannot be offset by selling the dredged material. The entrance is owned by the Crown and will require all dredged material to be reentered into the coastal system. No economic gains can be made from the dredged material;

It is the recommendation of this Master plan that dredging the river is not a viable or practical option. Any dredging is cost prohibitive with no assured positive outcomes as a result.

The proposed master plan concepts promote use of the river by suitable craft that can navigate the river will relative ease and safety.

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3. PROPOSED MASTER PLAN CONCEPTS

















LANDSCAPE AND URBAN ANALYSIS

Preamble

The Nambucca Foreshore is a beautiful, relaxed and rich landscape. The study area is dominated by nature and the river processes that have swept through the region for eons. The landscape that exists today reveals how man over the years has interacted within this environment. On the immediate foreshore there is a plethora of facilities to enable the enjoyment of the area. This analysis has however revealed the need to:

- upgrade and rationalise these facilities;
- create or reinforce distinctive themes along the foreshore;
- provide an effective framework for linking areas to each other and give a visual context in which the Nambucca River is clearly legible to locals and visitors alike;
- introduce new elements that will create a vibrancy in strategic locations along the foreshore;
- establish new codes for development which will ensure relevance to a coastal character and environmental/cultural context of the study area; and
- provide design solutions that will promote the use of indigenous vegetation and techniques to ensure a healthy sustainable foreshore.

Built form, open space use, signage and planting are a focus for analysis and future design resolution.

River Use

The geomorphology of the river itself has changed over the years leading to the build up of sandy shoals that are ever changing. This has meant that the large boats can no longer navigate the river mouth. Use of the river itself within the majority of the study area is restricted many natural features and it is within the scope of the study to enhance these while exploring the opportunities for greater use and appreciation. This analysis has revealed the potential to increase:

- public mooring facilities within the river;
- the extent of boardwalks;
- · the potential for small craft/boat hire; and
- the diversity of commercial premises that have relevance to the enhancement of the river foreshore.

Sense of Place

A sense of place relates to those characteristics that make a place special or unique, as well as those that foster a sense of human attachment and belonging. For the Nambucca River and its foreshore, it seems the strong sense of place is an intertwined reaction to the natural beauty of the location, the communal and recreational ways the river is used and the way in which people feel a sense of belonging to the area.

The physical attributes of the area that contribute to creating a sense of place in the study area include the meandering river and its foreshore, the steep escarpments, the nearby pristine beaches and the broad mountain views. Those activities that would seem to foster attachment to the river and its environs include the range of recreational pastimes focused on the river with community hubs at locations such as Bellwood Park, Gordon Park and the V Wall. On the ridge above the river, the Bowra Street shops create a sense of a town centre. The human scale, of both the town centre and foreshore, encourages human interaction creating a strong sense of community.

Both the town centre and the river foreshore include historical elements. Some, such as heritage buildings are visible and obvious. Others, such as historical happenings and significant sites may only be known, remembered or noted with a memorial. These elements add to the sense of place that is the Nambucca River and its environs.

Proposals for the study area need to respect and enhance all the aspects that combine to creating this strong sense of place.

Landform - Skyline - Views

The vegetated skyline of Nambucca is spectacular and contributes markedly to the beauty and character of Nambucca Heads. Distant and close views rely on a green backdrop being present to nestle the urban areas within. Vegetated banks are also essential to limiting the occurrence and likelihood of landslip.

The estuarine system itself is expansive and undeniably beautiful. The estuary is an ever changing landscape as tides, and other processes alter the character of the river constantly. Any changes made within the estuarine environment must be sensitive to the changing influences of the river and aim to work with them, rather than place obstacles which may later be undermined.

Views available into and out of the study area are spectacular and as urbanisation of the coastal environment continues these views will only become a greater resource to protect and promote. It is essential to retain the views out over the Nambucca River as essentially a natural phenomenon. Opportunities to gain views should be made more legible in the landscape so that the true scenic potential of the Nambucca region can be more widely appreciated and promoted.







Vegetated skyline as a backdrop for development along the river



Vegetation

Indigenous Vegetation

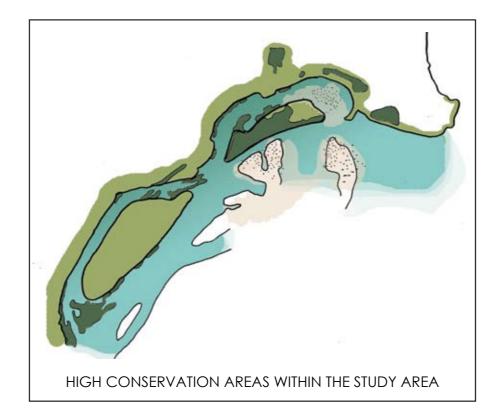
There is diverse range of indigenous species found within the study area. It is vital to retain all indigenous vegetation and, where physically possible, to strengthen its occurrence. The vegetation provides for bank stabilisation, habitat preservation, water quality control, improved visual and physical amenity. Importantly the vegetation also helps define the specific coastal character of Nambucca Heads.

Vegetation communities include Mangrove, Swamp Oak, Paperbark, Mixed Estuarine Forests, Littoral Rainforest, Blackbutt-Tallowwood Forests, Banksia and Coastal Dune. These communities are remnant in nature but the species contained within them are still extensive.



A variety of vegetation communities on river foreshore

Sand Island has been ascribed a very high conservation significance along with all areas of Seagrass and Littoral Rainforest by Ecological Australia in their review of Ecological significance within the study area, February 2009.



Generally the foreshore vegetation appears to be in danger of decline as there are very few areas where natural regeneration is occurring. The exception to this rule is where boardwalks have been constructed and mangrove communities are healthy and thick. The introduction of elevated boardwalks elsewhere in the study area would have a positive effect on the ability for mangroves to naturally re-establish themselves and therefore stabilise the river edge.

In general where vegetation is sparse within the study area there is a direct correlation to an unstable bank edge. If a permanent strategy to bank stabilisation is to occur it must incorporate some level of indigenous planting or create an environment that will encourage natural plant regeneration to occur. There is also the potential to utilise a 'rock fillet' method of bank stabilisation in areas that are currently eroding to encourage mangrove reestablishment.



Mangroves regenerating where boardwalk limits pedestrian access

Seagrass communities are healthy and wide spread and do not appear to be unduly effected by adjoining land or river uses. Seagrass communities must not be allowed to deteriorate and a simple monitoring program should be instigated to track changes in seagrass densities and locations.

Street Trees

Street trees do not currently have a major influence on the character or legibility of the Nambucca Foreshore. The use of street trees can help in visually connecting places and providing visual cues for way finding and is therefore a strategy recommended for use within the study area.

Street trees can improve the human scale and enjoyment of the landscape. They can also play a role in improving safety and providing shade to areas that otherwise may appear harsh or inhospitable. Nambucca Shire Council already has a Street Tree Guideline (2005) and this report makes further recommendations on species selection. It is suggested that species selection be divided into 3 areas and that trees be chosen to give a distinct character to these precincts. These areas are:

Precinct 1: Pacific Highway once it has been relocated

Precinct 2: Riverside Drive Precinct 3: Wellington Drive

Weeds

A range of weed species has invaded the river foreshore environment. Weed species found within the study area reflect those commonly found along disturbed coastal sites of the mid-north coast and include but are not limited to: Lantana camara (Lantana), Senna pendula (Winter Senna), Chrysanthemoides monilifera (Bitou Bush), Ipomea cairica (Purple Morning Glory), (Cocos Palms) and numerous herbaceous and climbing garden escapees. Weeds growing within the study area detract from the beauty and use of the foreshore. In some places weeds compromise and out-compete the native species and offer little stabilising force to the river bank edge.

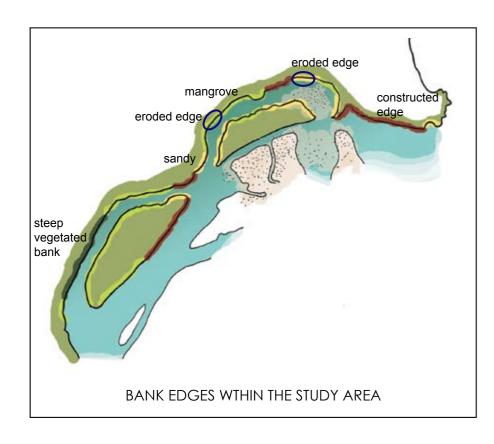


An example of environmental weeds along the foreshore



Bank Edge

The character of the bank edge varies throughout the study area and, in general, the bank edges appear relatively stable. The river edge varies from 4-5m high vegetated banks, to shallow mangrove and seagrass communities, to totally manmade edges with introduced rock ballast and timber/concrete retaining structures. Wherever hard edges are introduced there is always more potential for erosion to occur and structures to be undermined. In locations where manmade elements are used without incorporating vegetation there is currently evidence of bank erosion. In a few stretches where vegetation on the immediate edge is sparse some localised erosion is also occurring. These are located in stretches along Riverside Drive between Freshwater Creek and Rotary Park and the section of foreshore along Wellington Drive where the bank edge is on an outward bend of the river. In these sections a proactive program to stabilise banks is recommended that incorporates vegetation.





Steep, vegetated bank



Mangroves regenerating at edge



Rock edge with erosion



Constructed edge at Bellwood Park being undermined

Bellwood Creek Teagues Creek CREEKS WITHIN THE STUDY AREA

Creeks – Stormwater

Creek lines that empty into the river tend to be highly modified. They generally lack vegetation cover and in places have become weed infested. Maintaining the environmental quality of the Nambucca River is imperative to its future and vegetation management along creek lines is vital to ensuring that goal. Beer Creek in particular is currently showing signs of stress from upper catchment mismanagement.

When improvements to foreshore facilities are undertaken they should be accompanied with a planting scheme that utilises indigenous species as a way of not only environmentally enhancing the foreshore but also ensuring that future generations will also benefit from the stunning natural environment that attracts people to the Nambucca foreshore today. Utilising Water Sensitive Urban Design (WSUD) measures such as gross pollutant traps may be another solution to improving water quality.





Beer Creek is in poor condition with erosion, weed growth and pollutants

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Urban Fabric

The urban character of Nambucca Heads has been derived by the interaction of the natural landscape, historic events and planning rules. The study area has two distinct precincts; the upper ridge and the river foreshore. In the 19th century the centre of town was along the foreshore with the focus on the shipbuilding industry and much needed transportation links with the sea. The main town centre now sits on the upper ridge while the foreshore serves more marine, recreational and community service functions.

The Town Centre overlooks the Pacific Ocean to the east, and the Nambucca River and flood plain to the south. It is linked to the Pacific Highway by two main access ways; from the north along Mann Street and from the south along Riverside Drive following the river's edge. Generally built form in the town centre is a mix of low-density houses and shops and medium density apartments. Some bulky commercial and residential buildings reside on the main hilltop; particularly noticeable is the Woolworths building, which serves as a focal point to the town centre.



Nambucca town centre located on Bowra Street



The southern entry into the town centre with the Woolworths outlet in the foreground and mountain views as a backdrop

ackie amos + fiona bennell + anne harrison

Along the foreshore the river is clearly the dominant natural feature and serves not only as an entry way to the town, via the Information Centre, but also as a tourist attraction. Buildings are generally low density and few buildings either engage with or enhance the river edge.

The road pattern is largely dictated by the topography. There are roads meandering along the foreshore or escarpments including Riverside Drive and Ridge Street and those radiating from these such as Nelson, Creek and Liston Streets.

The development of the two distinct precincts; ridge and river edge with some built form wrapping around the hillsides between; has contributed to the following effects:

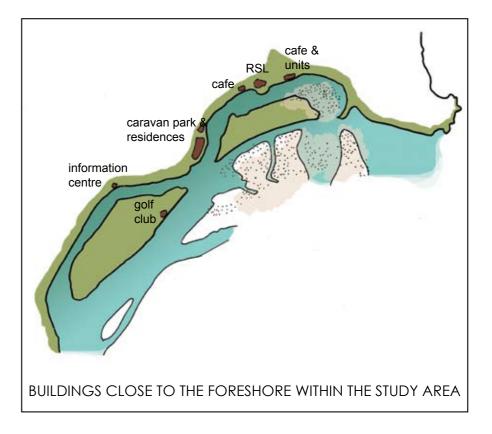
- generally a lack of linkages between the town centre and the river; and
- a lack of legibility and "way finding".

Building Character

Along the riverfront there is an eclectic mix of low density housing, small scale retail shops and a range of buildings that service the local community.

The built form is dominated by 1-2 storey dwelling houses that are generally set back behind the streets that run parallel to the river; the Pacific Highway, Riverside Drive and Wellington Drive. Several buildings sit within 10-20 metres of the waters edge including:

- the Information Centre;
- the permanent structures within the caravan park east of Bellwood Park;
- a limited number of residences adjacent to the same caravan park;
- the Golf Club clubhouse on Stuart Island;
- the RSL and adjacent motel and nearby cafe/restaurant;
 and
- the cafe and residential unit building east of Gordon Park.





Information centre



RSL



Cafe and units at Gordon Park

Few buildings interact directly with the water. Those that do are the café/ restaurant near the RSL carpark, the cafe/restaurant and 3-storey unit building adjoining Gordon Park, the facilities associated with oyster farming and the boat storage facility for the Volunteer Sea Rescue.

Most structures within the study area are small and of lightweight construction with simple roof forms (skillion, gable and hip) reflecting the history of a working class society. Fibre cement, timber and corrugated iron are the dominant materials used in construction, although brick and tile structures are also common.



2 storey residences along the Pacific Highway



Retail outlet at Bellwood



2 storey residences on Wellington Drive



Residences along Riverside Drive



4 storey unit buildings on Wellington Drive

Generally the architecture of the river front is dated in style but coastal in scale and character and exhibits a palette of commonly used colours including greys, browns, off-whites, creams and reds.

Most buildings have the potential to be upgraded to conform with environmentally sustainable design principles.

Larger masonry structures, including the RSL and Woolworths buildings, dominate the built form towards the town centre. These buildings have a large bulk and scale and would benefit from some design articulation to create a more human scale and coastal character.

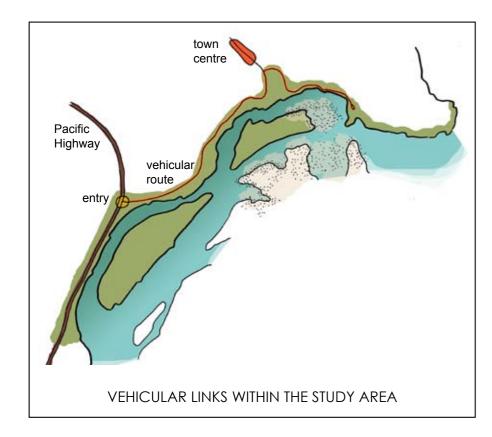
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Entry, Movement and Way Finding

Way finding along the foreshore, both by vehicle and on foot, is difficult to determine in places, particularly, relative to the town centre. Providing an understanding of where facilities are located in relation to the town centre will enhance the use of the foreshore.

Nambucca lacks a distinct entry point that provides recognition of its wonderful river and setting. Despite the proximity of the river to the southern entry, there is nothing visually to draw visitors into the town. Vehicle users have a serendipitous route if they try to stay in contact with the water and for visitors it is imperative that visual cues are provided to retain contact with the river and to identify opportunities where they can interact with that feature.

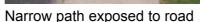


The highway runs adjacent to the river which gives great visual exposure but splits the urban/residential areas away from the river environment. There is currently no designated pull off area in which to enjoy the views and the highway noise and vehicular movement conflicts with the enjoyment of the area.

The narrowness of Wellington Drive and the lack of a proper turn around facility at the end of the foreshore drive have the potential to place the general public in an unsafe situation with emergency vehicles unable to manoeuvre adequately.

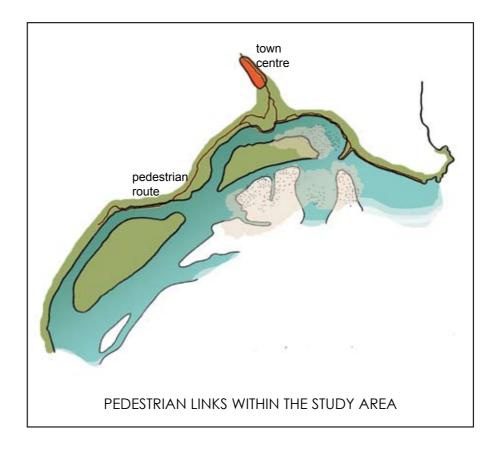
At pedestrian scale, the foreshore is more legible. There is an excellent path network along most of the foreshore with sections containing new concrete paths constructed to standards that accommodate motor scooters and bicycles as well as pedestrians. However, in places the links between paths is unclear and the path itself is too narrow to cater for the full range of potential users. In some situations private ownership of foreshore areas restricts public access. Recently built boardwalks may also have a limited lifespan due to inappropriate construction materials used. New boardwalks must be constructed to endure within the marine environment.







Exposed path at Wellington Drive



Interpretative Signage and Memorials

Throughout the study area there are rich and diverse cultural heritage elements revealed through signs and memorials along the existing path network culminating with the ongoing evolution of the V Wall rock paintings. These cultural elements enrich the Nambucca community and should be enhanced and strengthened as part of proposals for the river foreshore. At present there is a plethora of ways this information is revealed. It is recommended that design guidelines be developed for signage across the study area to create a visually cohesive pattern of elements and a signage palette that is linked with the river setting. In conjunction, it is suggested a brochure be developed that reveals information and story tellings associated with the Nambucca River and the "Nambucca River Way".





A sample of the range of signage within the study area



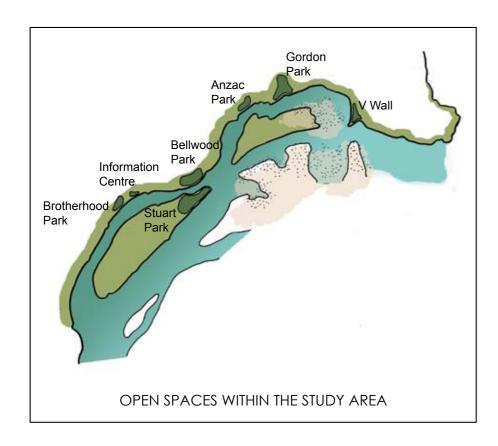
The painted rocks at the V Wall are a cultural icon for Nambucca

Foreshore Use and Activities

There is a vast range of activities undertaken within the study area. Use of the foreshore is essentially made up of low key activities that include walking, bike riding, picnics, social gatherings, fishing, swimming and small craft boating. There are facilities already in place to cater at some level for all of these, but there is potential for updated and more appropriately built facilities to be put in place. There is also the potential to build upon existing themes at each parkland and at strategic locations introduce facilities/structures which will enhance the vibrancy and use of the foreshore.

Open Space System

Seven main park/open space areas have been identified along the foreshore. All have great views of the river and, due to their natural beauty, attract some level of use. All contain tables and chairs, but only four have assigned toilet facilities and two have children's playground equipment. Car parking is well catered for at some locations while at others poor design and layout is limiting the efficient use of space. There is also limited commercial activity close to these parks and opportunities to purchase drinks, ice creams and meals along the foreshore, are restricted.



In general, the foreshore appears suited to continued low key development with use intensified at strategic location through the introduction of new facilities and commercial/retail premises. Use of the foreshore can also be diversified and increased through enhancing links to urban areas and the town centre. Specifically:

- The highway when realigned will offer potential for increased use of the foreshore between Teagues Creek and Brotherhood Park.
- The Visitor Information Centre is a great facility for the community but again is constricted in size and only offers generic information to visitors
- Stuart Island is identified as a location to undergo redesign to improve both facilities, usability and vegetation cover.
- Bellwood park has an existing family/water park theme and it is envisaged this should be expanded upon.
- The Anzac Park area is constricted in size and would benefit from expansion.
- The RSL car park/boat ramp area presents opportunities for redesign to allow the expansion of potential commercial use of the foreshore. There is a huge underutilised area of bitumen carpark that may benefit from redesign.
- Gordon Park is identified as a location in which links to the town centre can be greatly improved. Due to its proximity to the CBD it is also identified as an area in which physical development which brings a more urban character to the foreshore is appropriate. The continued use of the public boat ramp at Gordon Park was identified as important.



Vegetation along the river at the highway provides great potential for improving the foreshore amenity after the highway is realigned



Stuart Island needs strategies for updating facilities, rationalising vehicular circulation and preservation of existing vegetation



The RSL carpark represents an opportunity for redesign to increase potential commercial use of the foreshore





Gordon Park has the potential for the strenghtening of pedestrian links to the town centre and to be enhanced as a key foreshore park

Facilities - General

Facilities across the study area tend to be dated and low key. They are constructed using a variety of materials, colours and standards. There is little commercial activity, particularly dining / food premises within the study area that take advantage of the captive recreation users of the foreshore or the beauty that the landscape has to offer. One exception being the current cafe at Anzac Park which is well patronised and its scale and form is well suited to its foreshore location. This type of business could be expanded.

Amenities buildings are generally of brick and tile construction, dated in style and in need of refurbishment or replacement.

Picnic structures are usually of timber construction, some in need of maintenance or refurbishment.

Facilities such as the Visitor Information Centre are constricted by size and the available adjoining limited car park spaces.

There is potential for further commercial premises to be placed at strategic locations within the study area, without compromise to other values. New and redeveloped facilities should fit into the coastal location and be of a scale and design appropriate to expected use. Boat hire, bait shops, bike hire, cafes, dining, tourist enterprises that are water based are all appropriate business activities.

The bus shelter near Bellwood park is of glass and steel construction in a style that suits the traditional skillion roofing apparent in the area. The more contemporary profile of this shelter may serve as inspiration for future guidelines for other shelters, across the study area.



Existing bus shelter near Bellwood Park





Facilities across the study area tend to be dated and low key

Water Based Facilities

There is at present a lack of public mooring facilities within the study area. The finger wharf at Rotary Park is the only public mooring facility and is currently underutilised due to a lack of a floating pontoon, which is proposed but not yet built.

There is an oversupply of boat ramps; this issue is dealt with separately in the following section.

There is one boat hire/bait shop premise at Anzac Park; this type of use could be expanded.

There is no structured public access to the water along the highway precinct. This is a location that has direct access to deep water upstream, a fact which could be capitalised on by provision of a wharf/pontoon.

Swimming at the V Wall is presently popular as it has parking, shaded grassed areas, showers, and a sandy beach which all facilitate easy access and use of the water. It is noted however that dangerous currents and a conflict with boat users is present. For these reasons it has been assessed that to promote this location as a suitable place to swim is inappropriate.



Existing jetty at the information centre



Potential to expand the existing boat hire at Bellwood

Boat ramps

There are numerous boat ramps within the study area with a number of ramps in extremely poor condition and rarely used. In some locations the presence of a boat ramp has compromised the potential for other activities to be undertaken. Rationalisation of boat ramps will actively assist the successful redesign of foreshore areas for the improvement of all users.

Stuart Island boat ramp has been identified as one of the high use successful boat ramps that gives access to deep water upstream of the study area. Gordon Park is identified as the other highly used boat ramp that gives more direct access to the river mouth and is currently used by boats to access the ocean on days that open ocean access is too difficult. At both these ramps there are issues with vehicular movement and inadequate parking.

Safety and Security

Generally across the study area there is a lack of lighting in foreshore open spaces and along walkways. A lack of illumination can result in inappropriate activities occurring in public spaces and can also contribute to the perception of unsafe locations. Proposals for the foreshore need to align proposed uses with appropriate lighting. Lighting proposals should also consider the use of sustainable energy sources such as solar lighting.

Some parks, particularly Brotherhood Park and Gordon Park have minimal, or interruption to, active street frontage. This lack of surveillance of these spaces can create potentially unsafe public spaces.

Locations that lack public surveillance of facilities may suffer from graffiti and vandalism. Generally the foreshore does not appear to be subject to such activities. There are signs of graffiti at less surveyed locations such as the pedestrian underpass to the Pacific Highway between the information centre and Bellwood.

At some locations, there are issues with public safety in terms of the supply of inadequate pathways. For example, the pedestrian pathway along Wellington Drive is narrow and at some locations is exposed to an eroded foreshore edge. At other locations, east of Bellwood Park, pedestrian access diverts back to the vehicular route, with the pathway located next to a busy road. New guidelines for the foreshore need to provide safe access that facilitates use by pedestrians, cyclists and disabled persons.



THE STUDY AREA

To facilitate the understanding of the study area the project team divided the study area into seven precincts. Each precinct has similar characteristics and physical attributes which give it a distinctive character. Refer Precinct Plan for the mapping of area boundaries.

- 1. The highway precinct. It is characterised by a steep, partially vegetated, narrow bank and is heavily influenced by the presence of the highway and the traffic movement it contains.
- 2. Stuart Island. The Golf course dominates the island and has become one of the best courses within the region. The north eastern tip contains a boat ramp and day use area.
- 3. Bellwood Park Precinct. This precinct currently contains a family orientated water themed park and children's playground. A swimming area lies between it and Stuart Island. There is a caravan park located in the northern part of this precinct.
- 4. The RSL Precinct contains an oyster lease, Anzac Park and the RSL Club and headland. The precinct contains boat ramps and is used for fishing and swimming.
- 5. Gordon Park. This precinct extends up to include the forested escarpment bordering the town centre and extends along Wellington Drive to the start of the V Wall. There are two public boat ramps and an informal mooring/beach site.
- 6. Sand Island. Includes the Island and waters surrounding it. This is currently a natural feature containing no man made facilities.
- 7. V Wall Precinct. This area is dominated by the expanse of bitumen car park and the painted rocks that form part of the structure of the V Wall. Included in this area is discussion of the dune area between the V Wall and Shelly Beach.

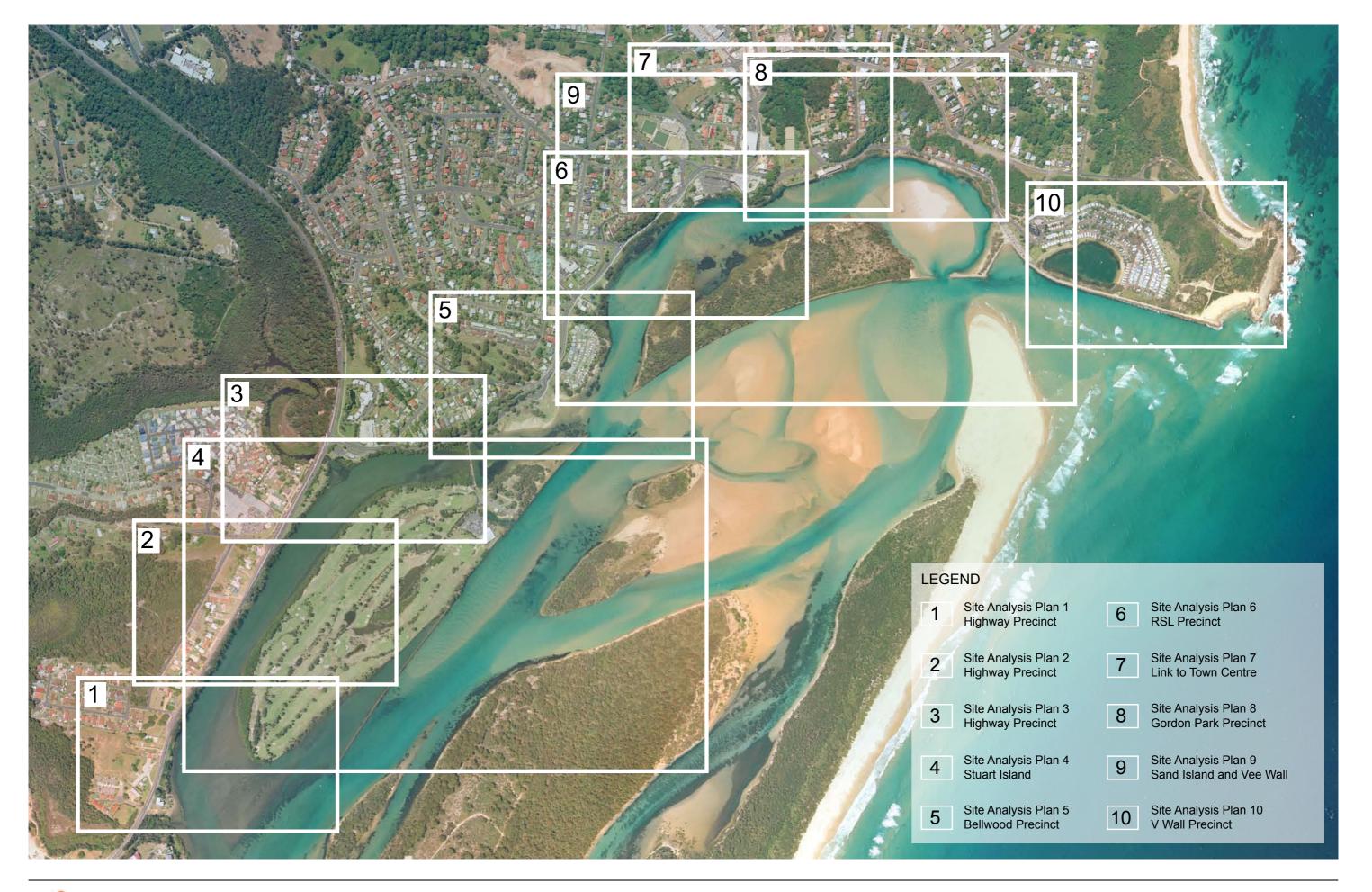
To make sense of the study area the precincts were further broken down into areas, which could have detailed analysis comments prescribed. Refer Site Analysis Key Plan for the breakdown of areas to be analysed.







Nambucca River MASTER PLAN







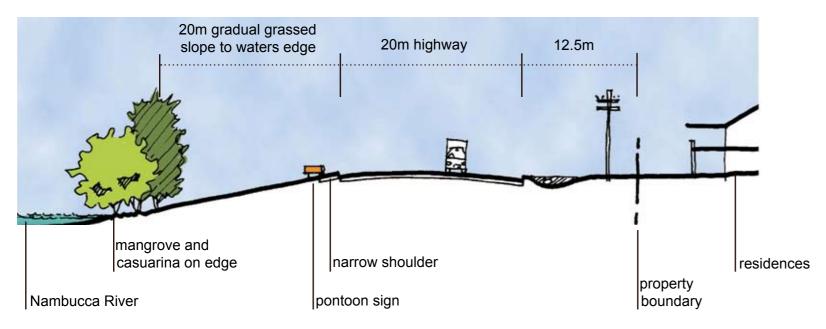
Nambucca River MASTER PLAN







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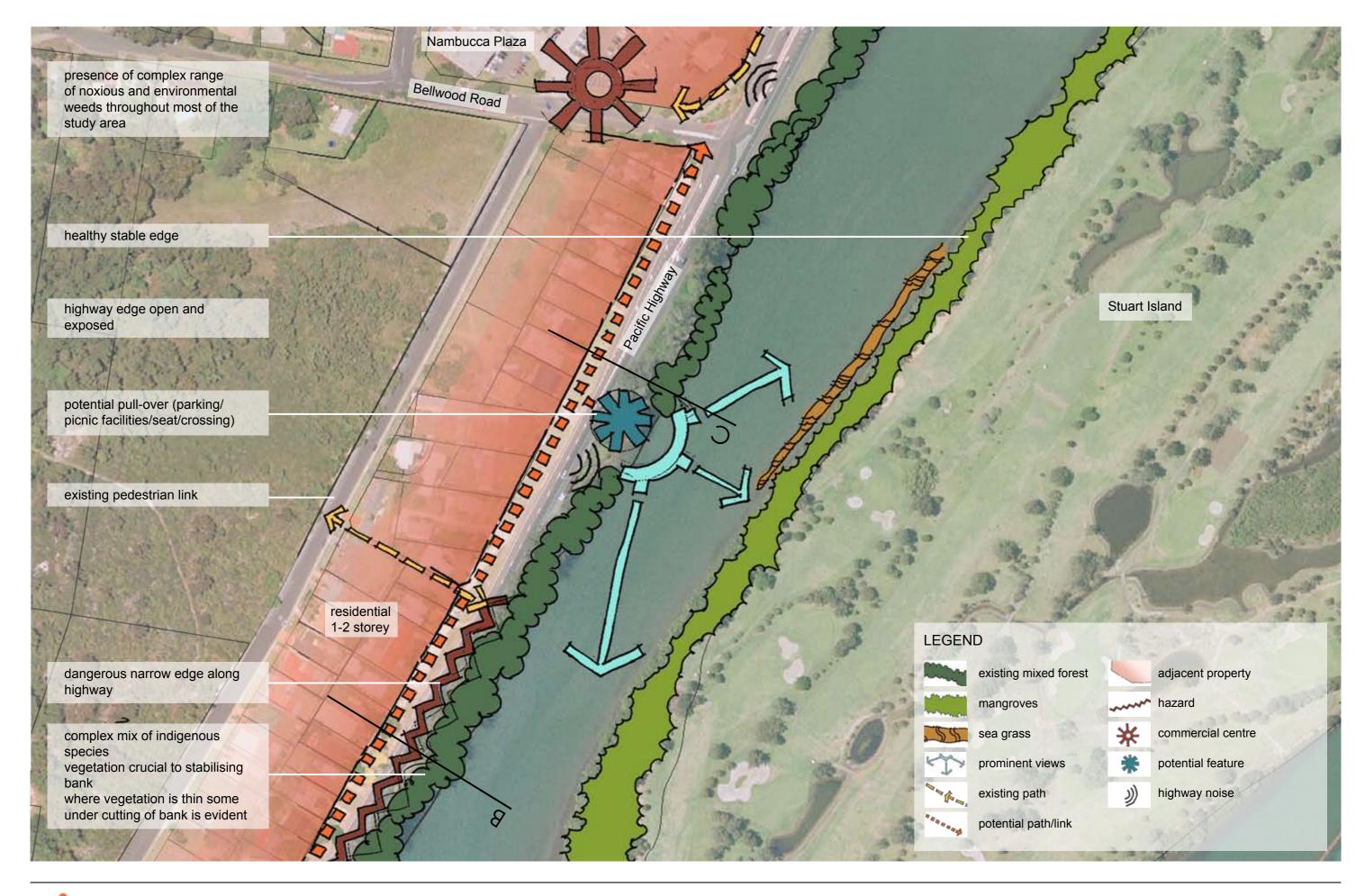




The highway/river interface at this location is under private ownership. The river bank is either grassed or planted out with common garden species with some remnant riparian vegetation along the bank edge. The western road reserve of the highway contains a wide open verge with overhead power lines and is currently used for drainage. There is the potential for pedestrian access and new tree planting along this side of the road. In the future the road may be narrowed as part of the highway relocation and additional land may become available for river recreation and revegetation.

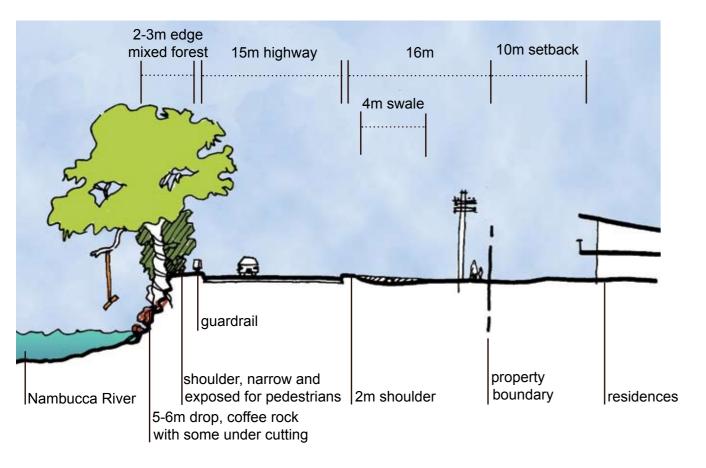
PACIFIC HIGHWAY PONTOON MOORING

jackie amos + fiona bennell + anne harrison







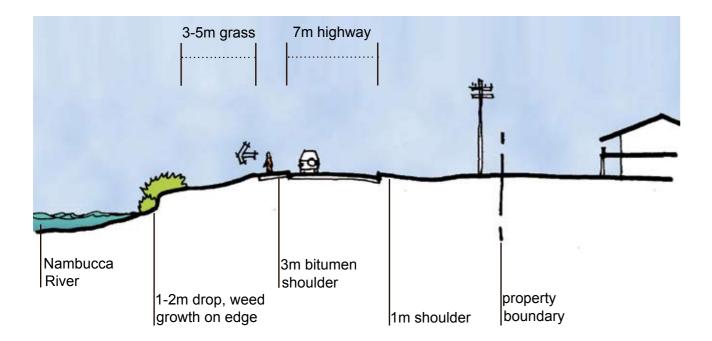






The highway/river interface at this location is extremely narrow with a steep river bank profile. There is undermining of the river bank edge and informal access down the bank is adding to erosion. The western side of the highway is more suited to pedestrian access and has the potential for new tree planting. Large trees along this section of steep bank add to the bank stability and the visual amenity of this foreshore location.

B PACIFIC HIGHWAY NARROW STEEP BANK



C PACIFIC HIGHWAY STOP OFF



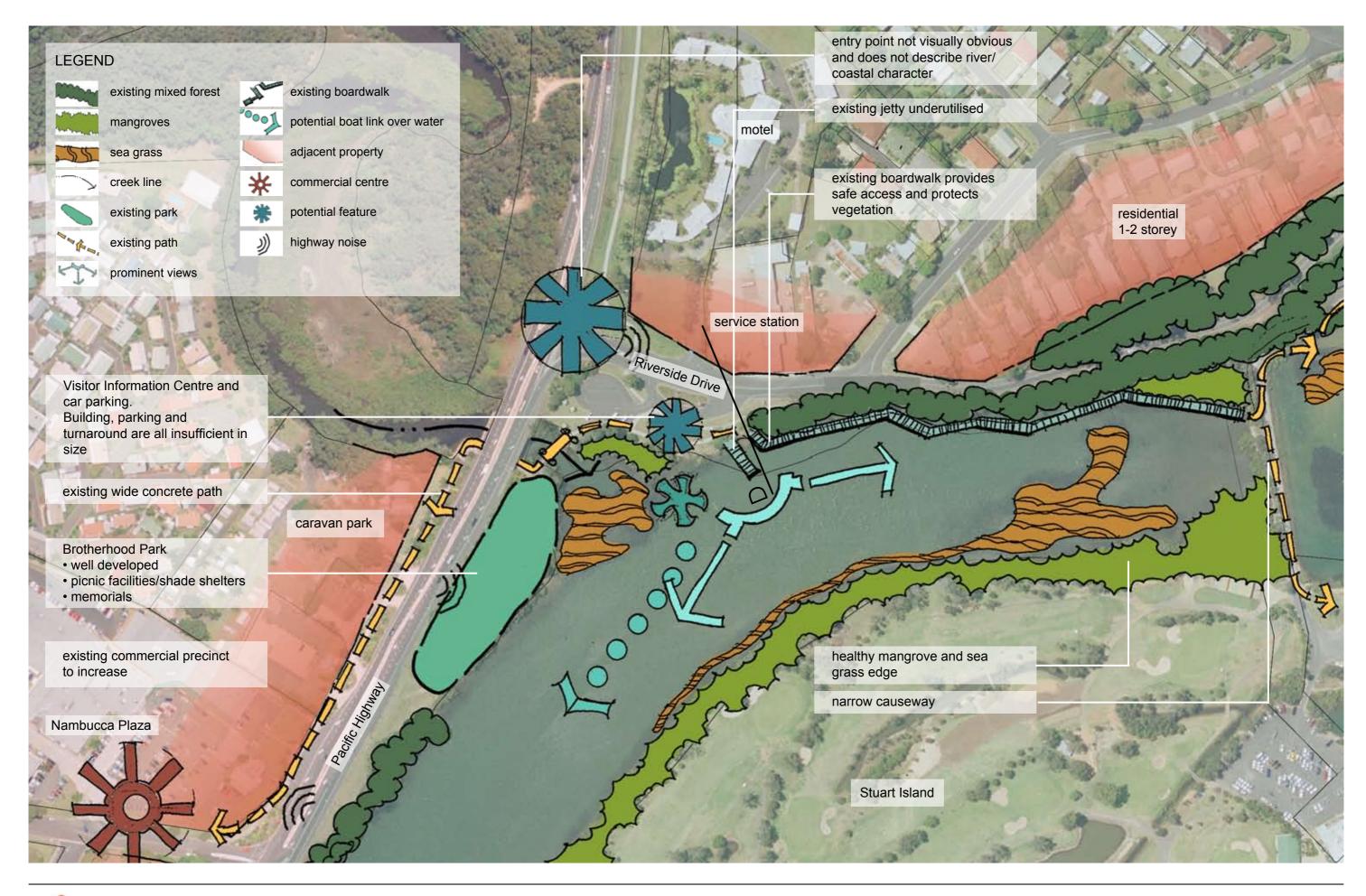
This highway/river interface represents an opportunity to create a potential stop off/picnic location next to the river. At this location an existing gap in the riparian vegetation facilitates good river views. Any stop-off proposals need to consider safe parking. The eventual relocation of the highway and the redefining of this road as a local road will improve the potential for this location to be developed as a safe vehicle and pedestrian riverside stop.



Nambucca River MASTER PLAN

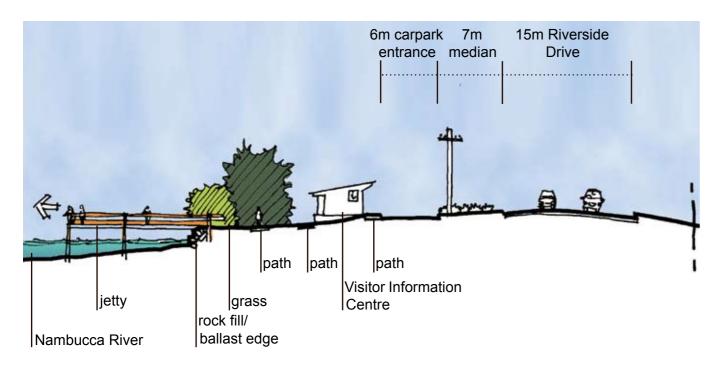
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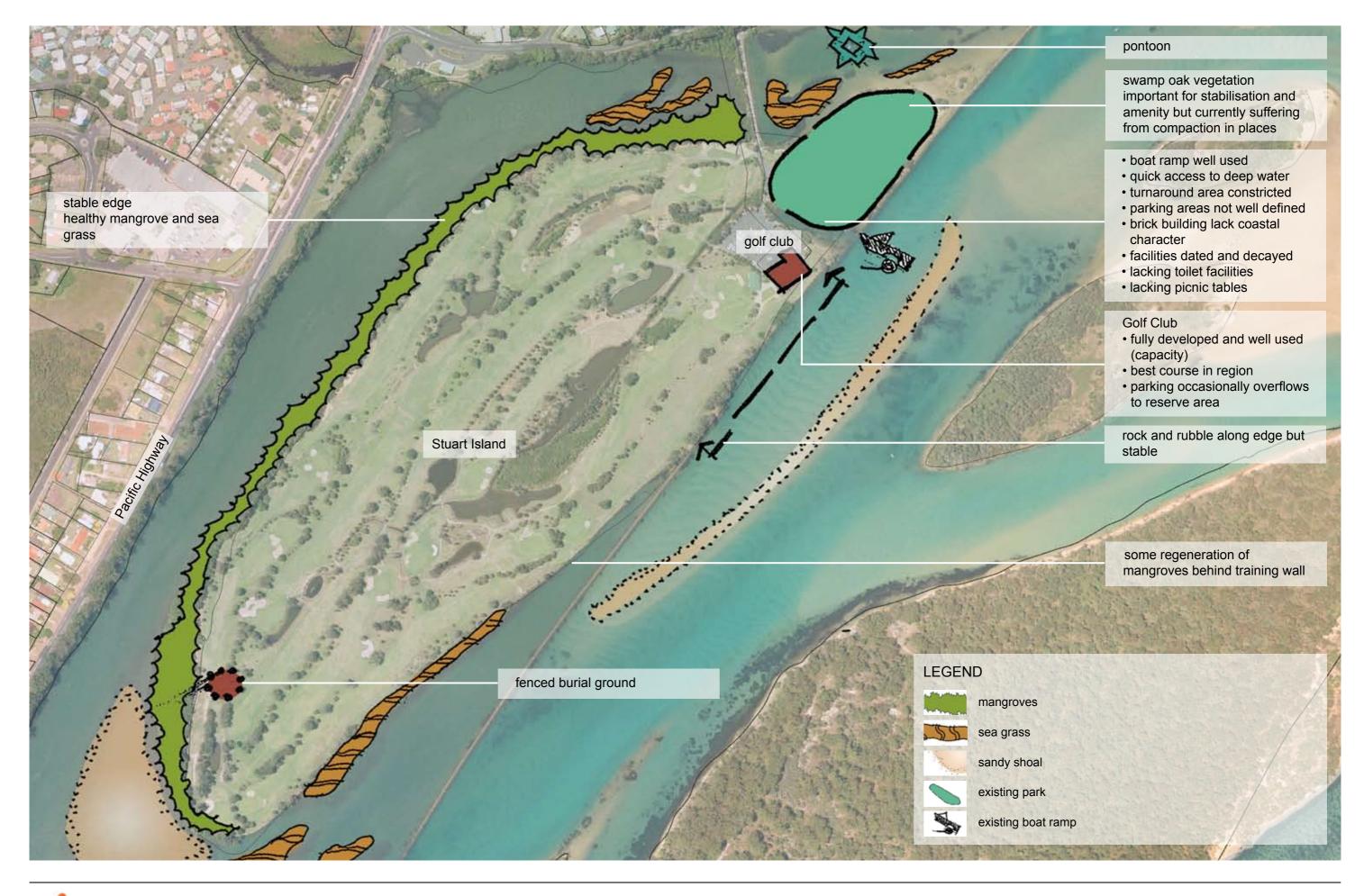








This location is at the southern entry to Nambucca and represents the first opportunity to interact with the Nambucca River on entry to the town. Despite the excellent river views, existing jetty and information centre, the location is currently undercapitalised as the main entry into Nambucca and first point of contact with the river. Vehicular circulation and parking is tight and any redesign of the location must consider providing carparking and circulation to accomodate any new/additional uses. Proposals for this area also need to create an entry landscape that is reflective of the nearby natural beauty of the Nambucca River.

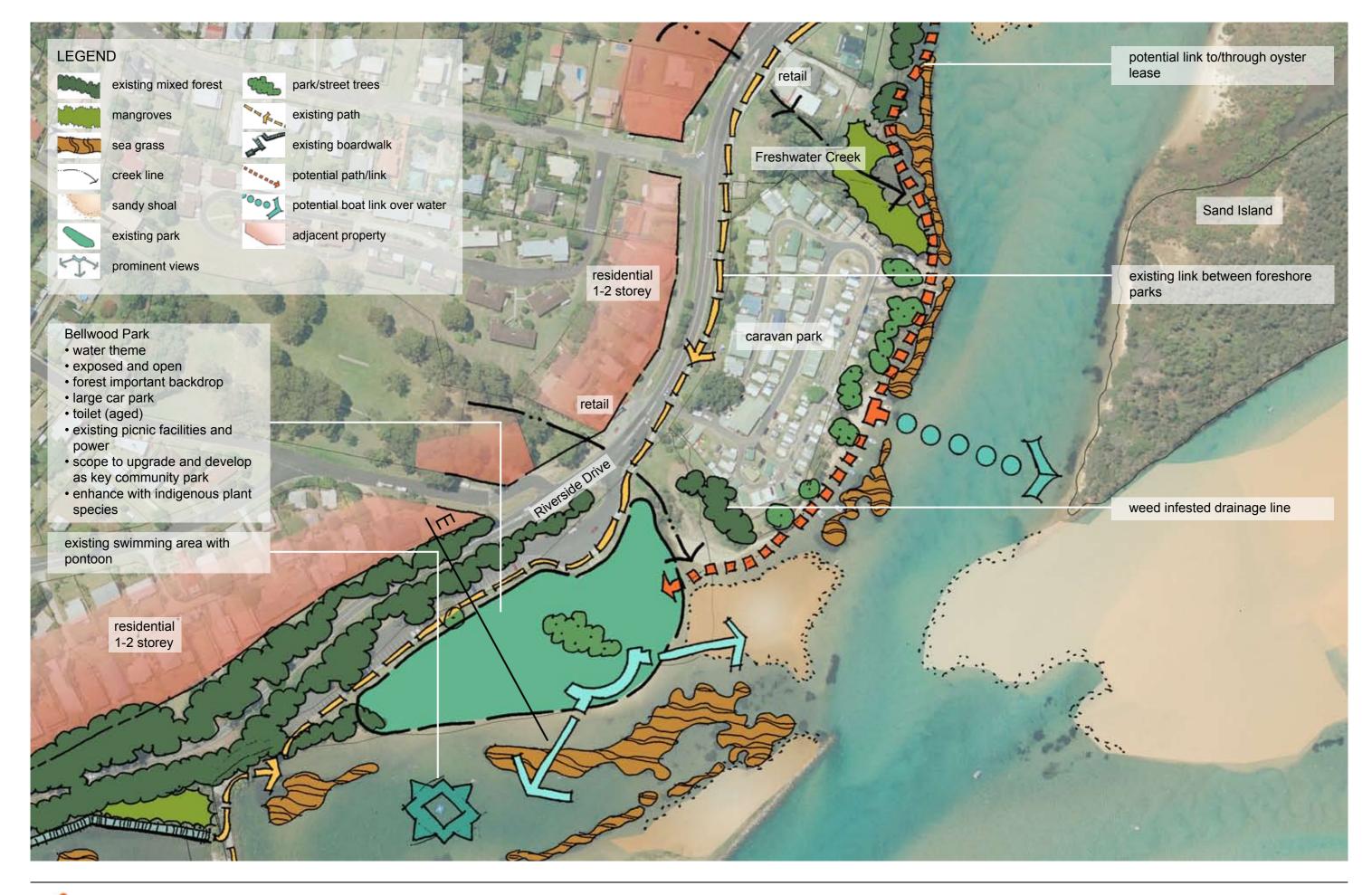






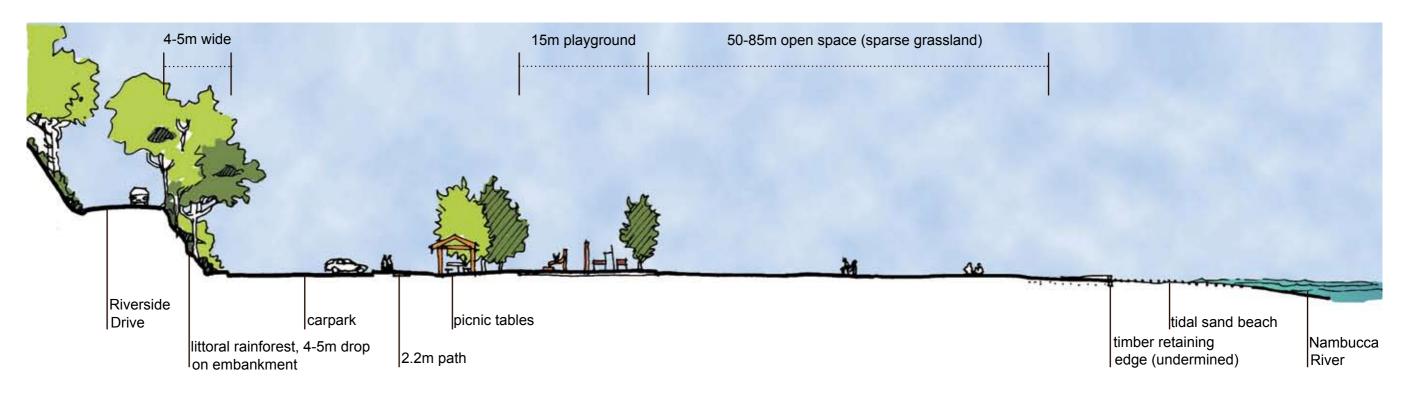
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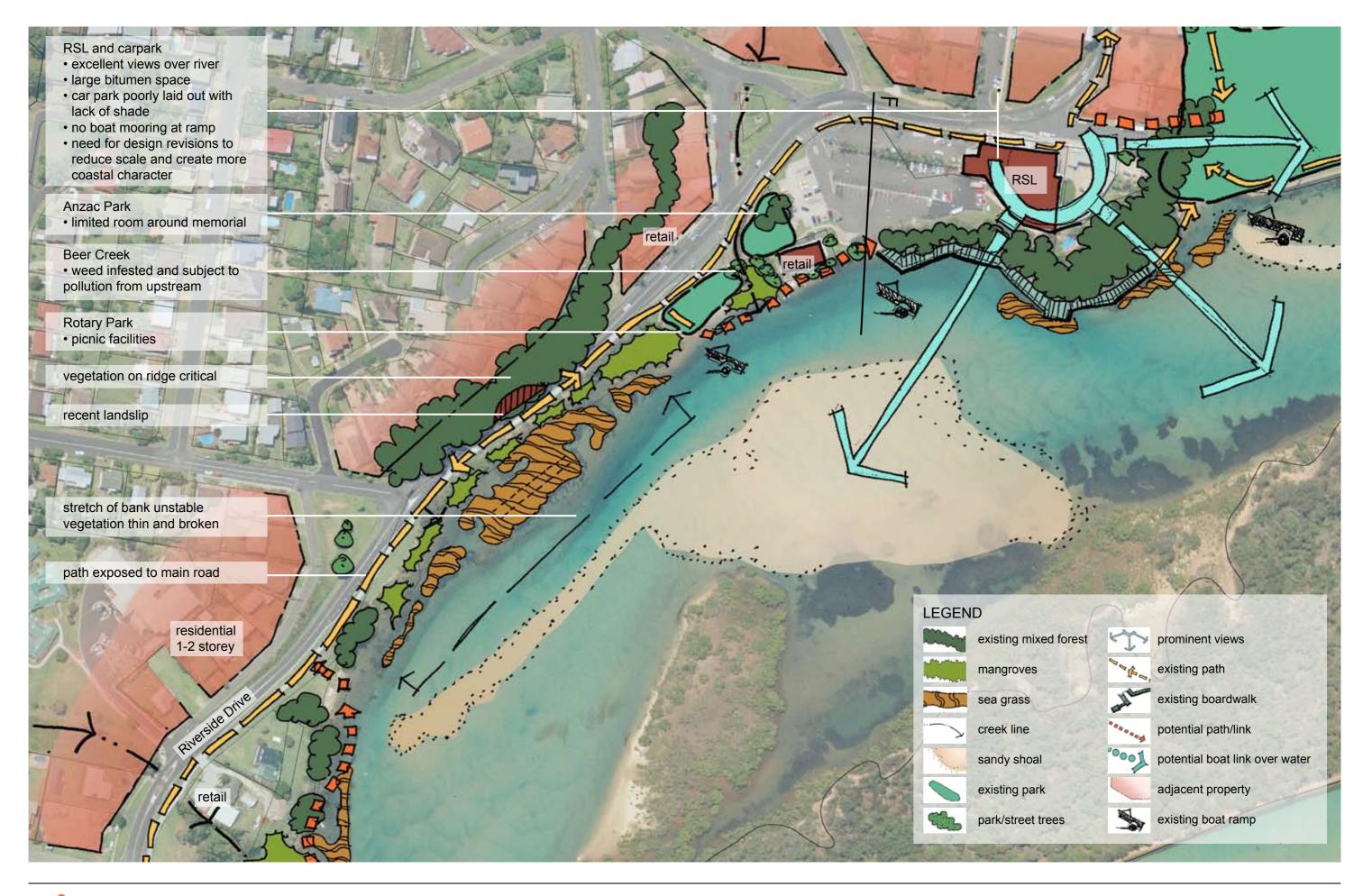
E BELLWOOD PARK







Bellwood Park represents one of the most significant and popular open spaces located on the Nambucca River foreshore. The area is particularly popular with families as it includes picnic and BBQ facilities, an amenities block, a childrens playground, open play areas and a swimming pontoon at a relatively safe swimming location. There is also ample carparking. The facilities, whilst popular, are generally dated and there is a lack of shade across the park. Grass cover to the park is struggling due to the sandy subgrade and the tidal effects of the river. A lack of signage and landmarks makes it difficult for visitors to be aware of the park's existence and to identify the link across to Stuart Island.

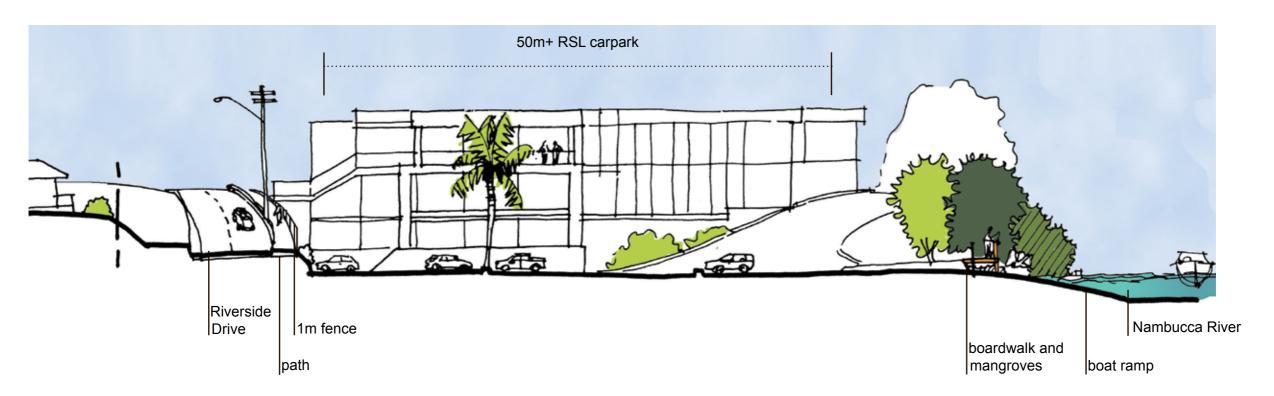






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F RSL CARPARK

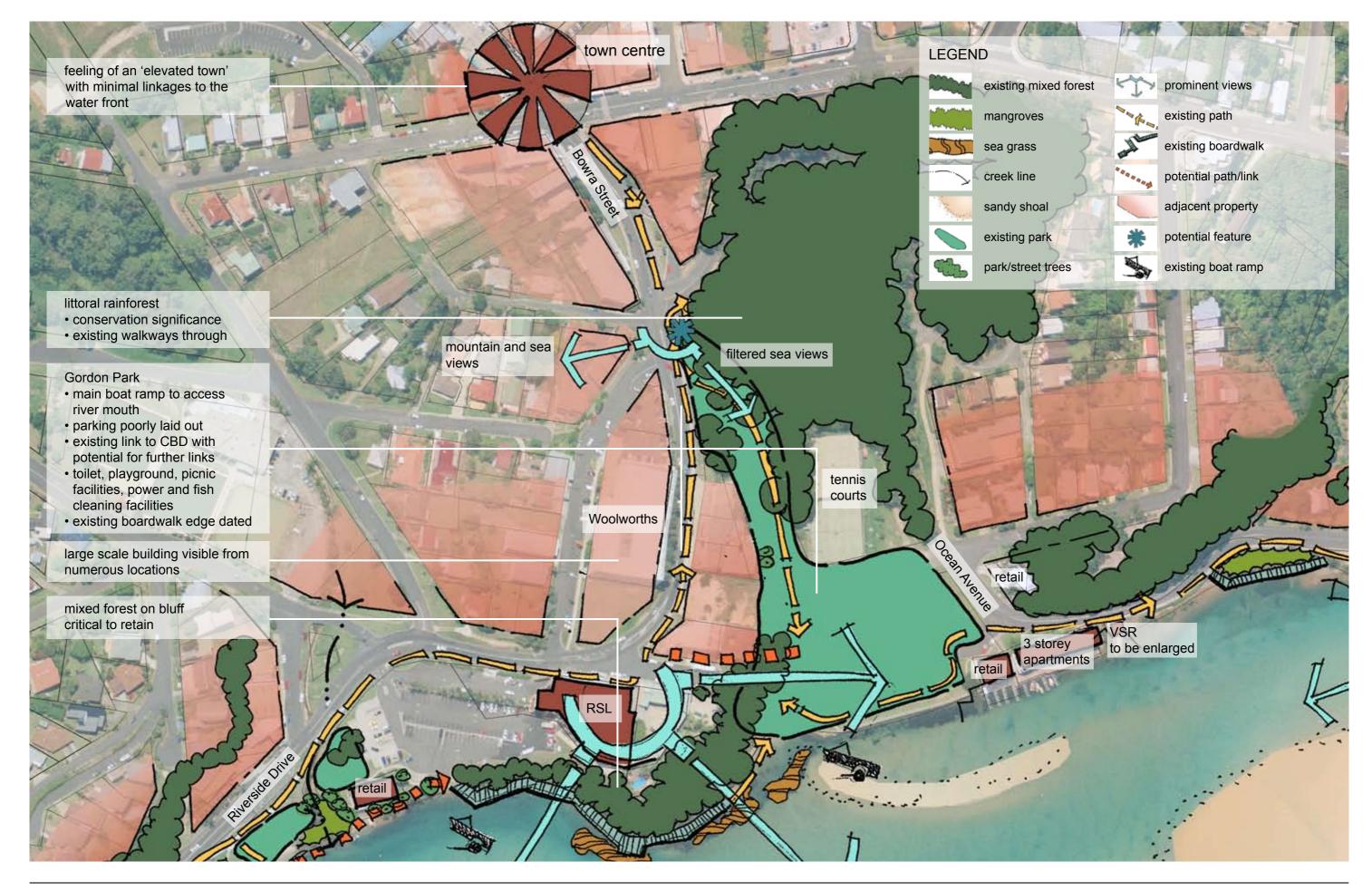








The RSL and its associated carpark are located immediately on the waterfront. The building and carpark are large built forms that dominate the natural landscape. At this location, vehicular access is diverted from the foreshore into the Nambucca Town Centre. Pedestrian access along the foreshore is achieved via a constructed boardwalk that links a walkway from Anzac Park to Gordon Park. Any proposals for this location need to coordinate the RSL's need for carparking with foreshore amenity and access. Proposals could also recognise the existing commercial function of this precinct and recommend additional such uses.





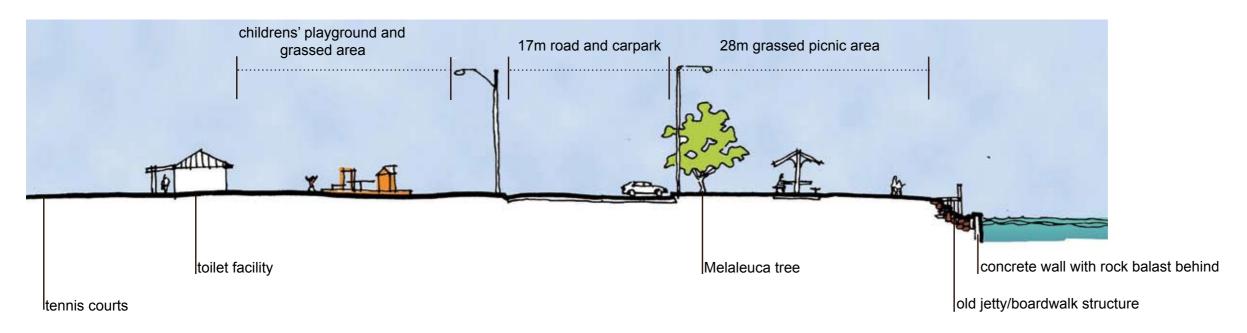


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G GORDON PARK

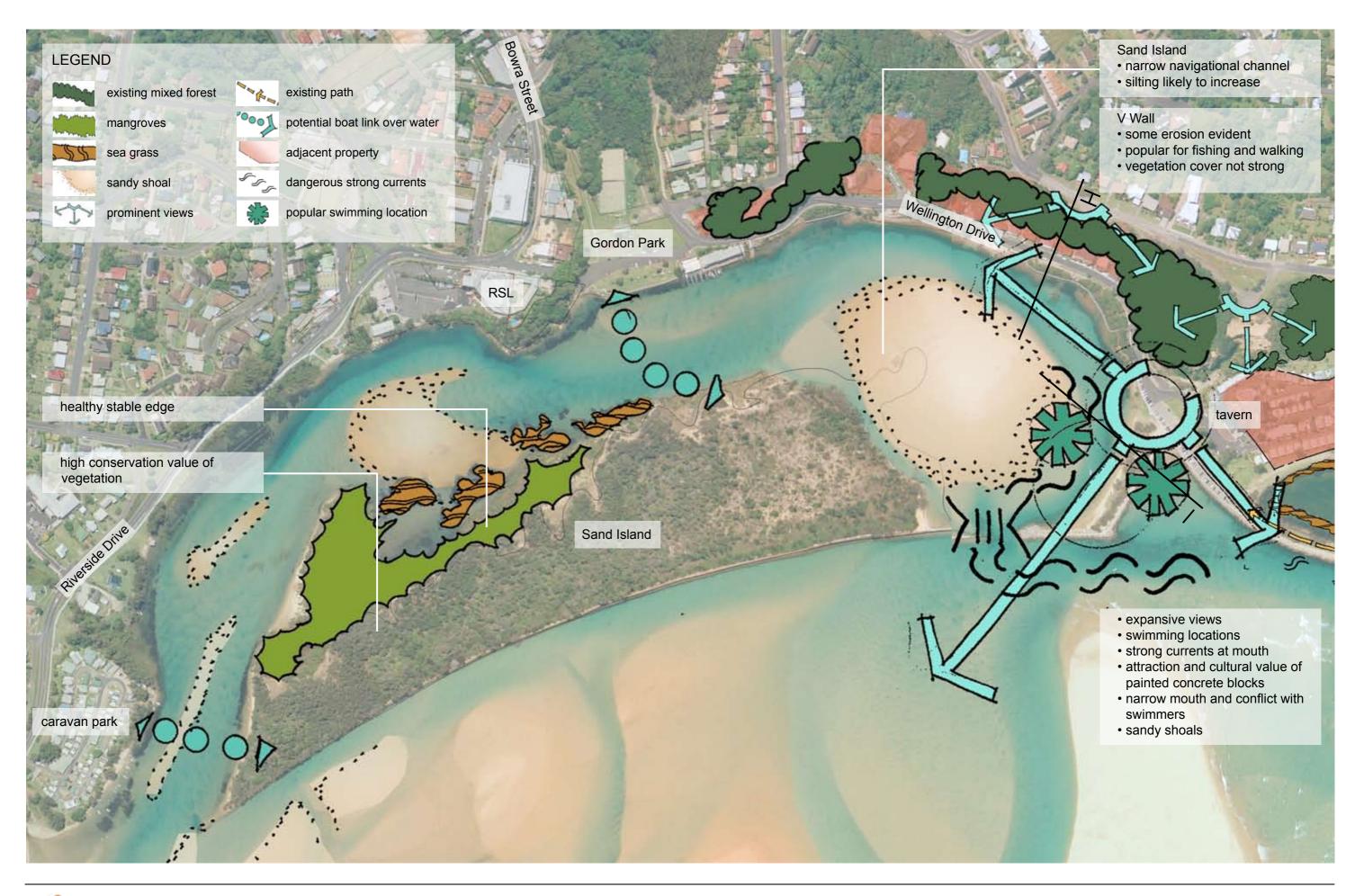








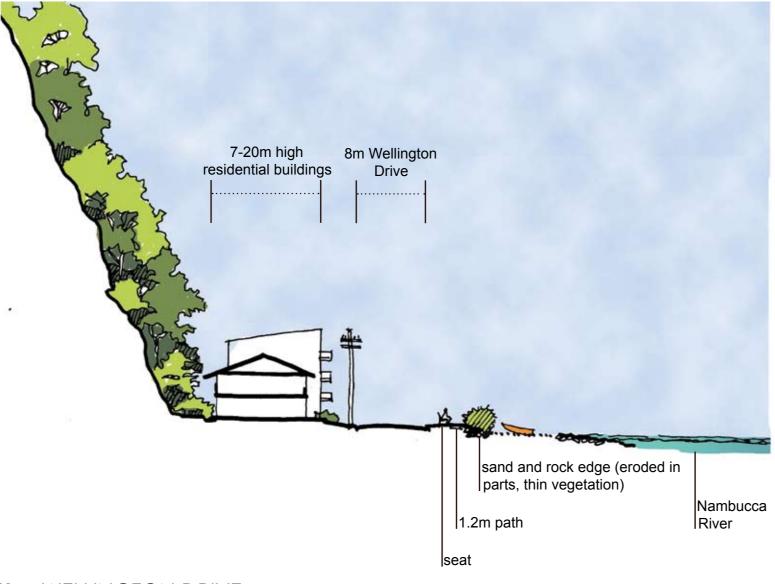
Gordon Park is one of the significant open spaces on the Nambucca River foreshore. The park is linked to the town centre by a pedestrian pathway and to the foreshore at the RSL via a timber boardwalk. Vehicular access to the park is by Wellington Drive. The park includes one of the most used boat ramps and is also popular for fishing and picnics. The park includes picnic and BBQ facilities, a childrens playground and tennis courts. Most of the park facilities are dated. The timber retaining wall and associated pathway are also dated. The main usable park areas are currently divided by vehicular access to the boat ramp and by the carpark. The park has excellent views across to the sand island.







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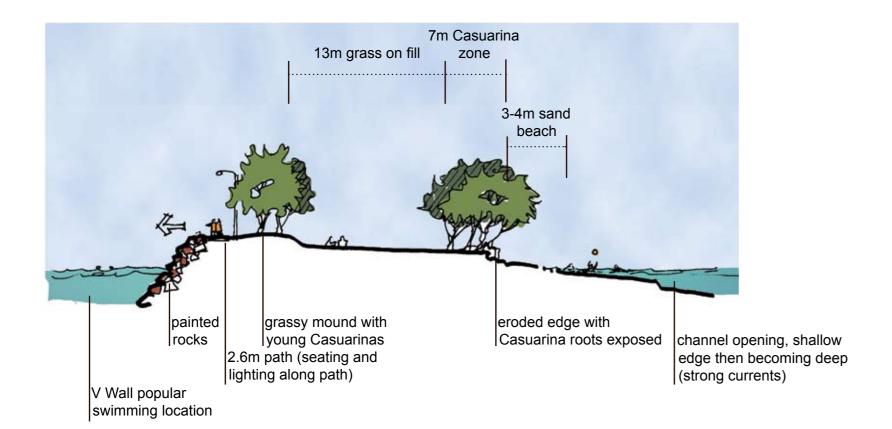






At this location, and for much of the Wellington Drive interface, the foreshore area is limited by space. The escarpment behind the residences provides a distinct natural feature but also defines the extent of the foreshore zone. The riverside parkland is linear in nature and generally includes a narrow concrete path located within a grassed reserve. The forehore edges varies and includes grassed banks, rock edges and, at limited locations, a concreted retaining edge. There is informal mooring of small boats and some small sandy beaches. The limited extent of remnant riparian vegetation along this stretch of foreshore is being threatened by erosion. There is generally a lack of shade, seats located at inappropriate locations, a decayed and unstable pathway and eroded foreshore edge. Any proposals for this location need to consider that the narrowness of Wellington Drive does not encourage on-street parking and that this area is more suited as a pedestrian zone rather than as a driving destination.

H WELLINGTON DRIVE











The V Wall represents one of the most popular locations along the Nambucca River foreshore. The area includes two popular swimming locations, however, neither locations are safe with the presence of strong river and tidal currents. The seaward side of the wall includes concrete blocks. These are part of the canvas for the ongoing public artwork along the V Wall and along the sea wall. The river side of the wall includes fill with planted Casuarinas and a grassed understorey. This location is popular with swimmers and picnickers as is provides shade close to the water. The surrounds includes an amenity block and limited carparking.

This area also contains the tavern and an expansive bitumen carpark that caters for patrons of the tavern and day visitors to the V Wall. Vehicular movement is unclear at this location and carparks spaces are not obvious. Pedestrians are made to walk within carpark zones and no turnaround facility for large vehicles exists.







SITE ANALYSIS PLAN 10 V WALL PRECINCT

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MASTERPLAN CONCEPTS, STRATEGIES AND RECOMMENDATIONS

Nambucca has enormous natural beauty. The foreshore is one of its best assets and its successful management and development is crucial. Nambucca attracts families as well as the 'grey Nomads' to holiday and enjoy its natural assets. The local community is diverse and changing. Nambucca has a strong Aboriginal heritage as well as still maintaining connections to boat building, forestry, fishing and oyster farming.

It is vital that Nambucca protects its natural assets and develops in keeping with high standards of environmental awareness, with regard to its cultural past and in a way which enriches its coastal character. To help attain this goal this study recommends a series of management strategies and design concepts which can be implemented through a staged approach. Overall strategies and design concepts include:

- The protection of remnant vegetation, the strategic enhancement of vegetation and in some places establishing new areas for revegetation. It is critical to protect all riverine and escarpment indigenous vegetation.
- 2) The long term realignment of the highway to allow for more diverse use of the river bank and provide for its long term stabilisation.
- 3) The enlargement of the Nambucca Visitor Information Centre, as an entry point, to further promote tourism and interpret local industries to the wider public.
- 4) The instigation of a coordinated cultural route or "River Way" experience, which will update the existing plethora of interpretive material into one style with a set of standards applied to guide finishes, dimensions and content. This is to be located along the existing and proposed path network. All material is to be placed on a brochure with the option of providing further understanding of the many features of Nambucca. It would be advantageous if the Aboriginal community could become actively involved in the formation of this "River Way" experience.

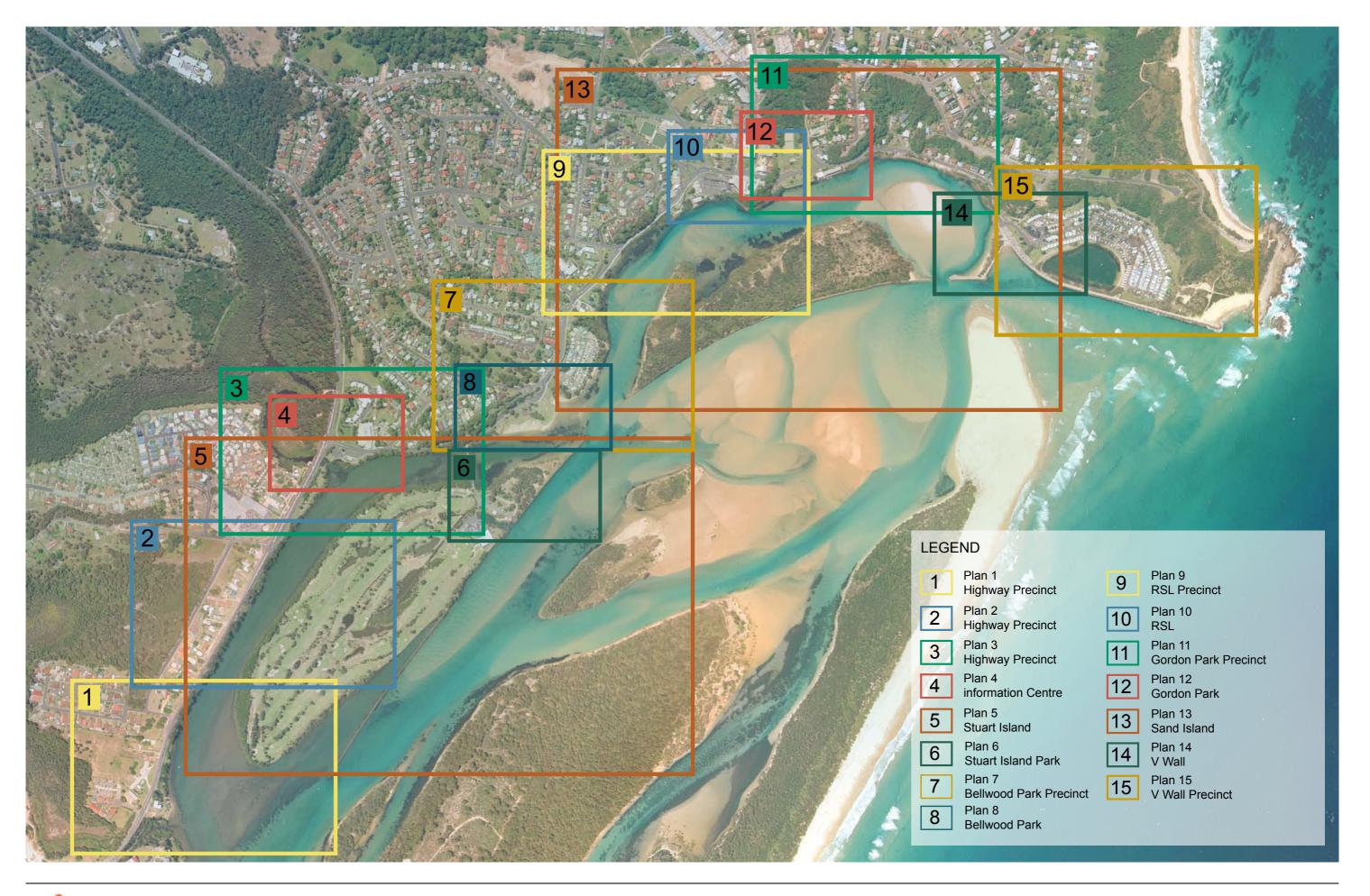
In conjunction with the path network is the introduction of both large and small sculptural elements which will give Nambucca a new legibility. The elements will borrow from Nambucca's cultural history to project a unifying theme. A large element is recommended at the entrance to Nambucca at the start of Riverside Drive. The other main element is proposed to sit at the top of Gordon Park with the idea of it being visible from numerous vantage points around Nambucca. It will

- also facilitate the linking of the town centre to the Nambucca foreshore (a pivotal point).
- 5) Updating all pathways / boardwalks to a width of 2.2m so that all users can be accommodated. All pathways are to be linked and this connectivity is visually reinforced through the use of street trees, coordinated signage and sculptural elements.
- 6) Upgrading facilities on the northern tip of Stuart Island, which will provide for improved parking, an amenities block, day use facilities, constructed roading, and the enhancement of existing vegetation cover.
- 7) The upgrading of Bellwood Park into a water themed family park and further encouraging swimming in the Nambucca River between Bellwood Park and Stuart Island.
- The possible introduction of rock fillets to regain bank edge stability at specific locations (to be further investigated for feasibility).
- 9) The eradication of weeds within the study area.
- 10) Monitoring and protection of seagrass and mangrove communities.
- 11) The redesign of Anzac and Rotary Park to facilitate greater use and unite the areas with the adjoining RSL precinct.
- 12) To remodel the RSL precinct to create greater vibrancy and commercial activity along the water's edge.
- 13) To redesign Gordon Park and its approaches so that it can be accessed by pedestrians from all sides. Gordon Park is to be revitalised as a central green gathering space that has additional parking, commercial activities and a revitalised public wharf and mooring area that will facilitate increased river/foreshore use.
- 14) To redesign the V Wall and Tavern car park area to rationalise parking, enable a turnaround, provide for emergency vehicles and allow a new green park to be placed along the foreshore edge.
- 15) The creation of a dune care project which addresses upgrading access to Shelly Beach whilst rehabilitating the dune/foreshore area.

The following plans detail measures to be taken within separate precincts of the study area. The designs are conceptual. It is envisaged that each plan would become the basis for a design and development brief which can then be tendered out as separate projects or detailed up by Nambucca Shire Council, depending on the project emphasis.

The ideas are based upon a logical process of overlapping existing features such as, land use, landscape character, vehicular/pedestrian movement patterns, ecological sensitivity, and existing infrastructure. The ideas range in nature from simply protecting what exists, for example protecting existing vegetation on escarpments via written controls within a DCP, through to high urban design changes which will alter significantly the use and physical look of the foreshore, for example at the RSL and Gordon Park precincts. The aim is to revitalise the foreshore and yet be in keeping with the relaxed character of Nambucca Heads.

Within this project the design team has utilised a vast range of previous studies to help guide the direction of development as well as taking on board a number of suggestions made by local people during the early consultation phase. The recommendations specifically incorporate and further the management objectives and strategies put forward by WBM Oceanics Australia in their Nambucca River Estuary Management Study, October 2006.



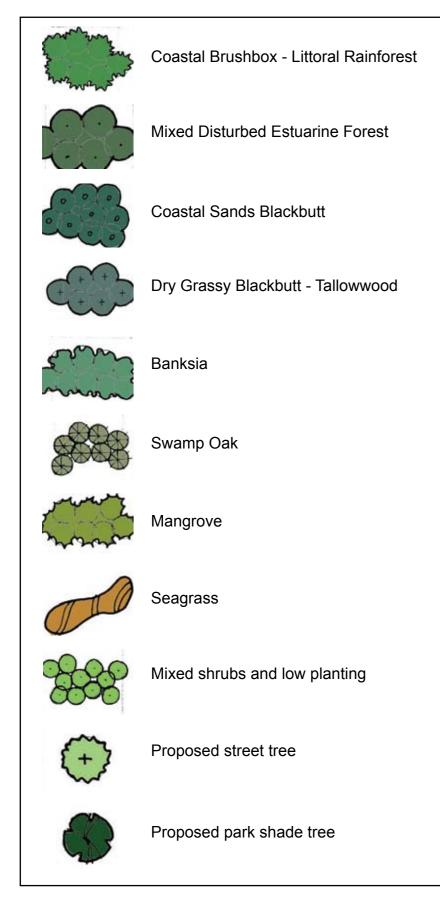


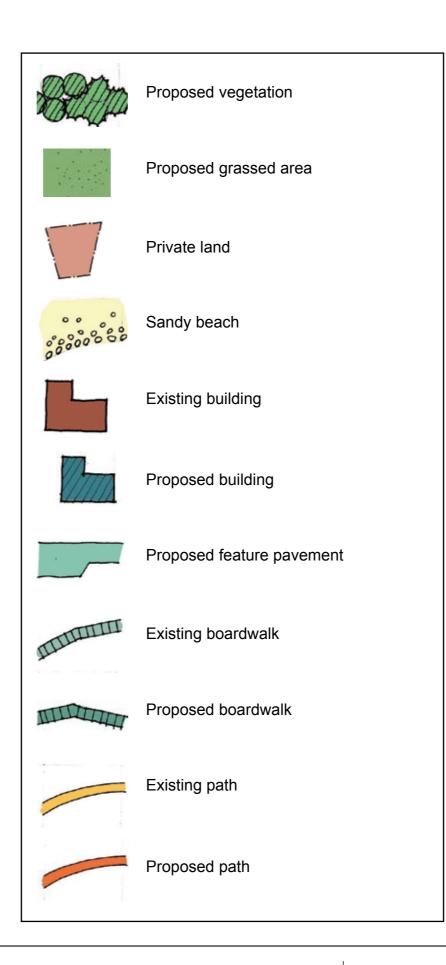


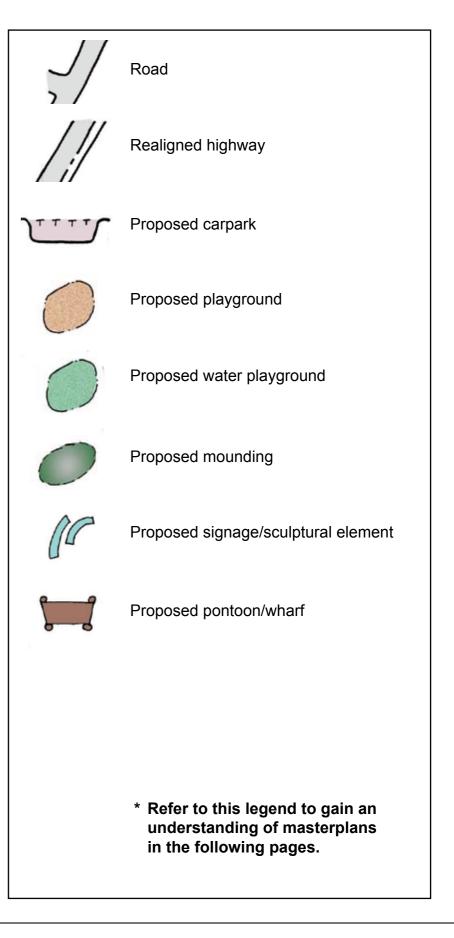
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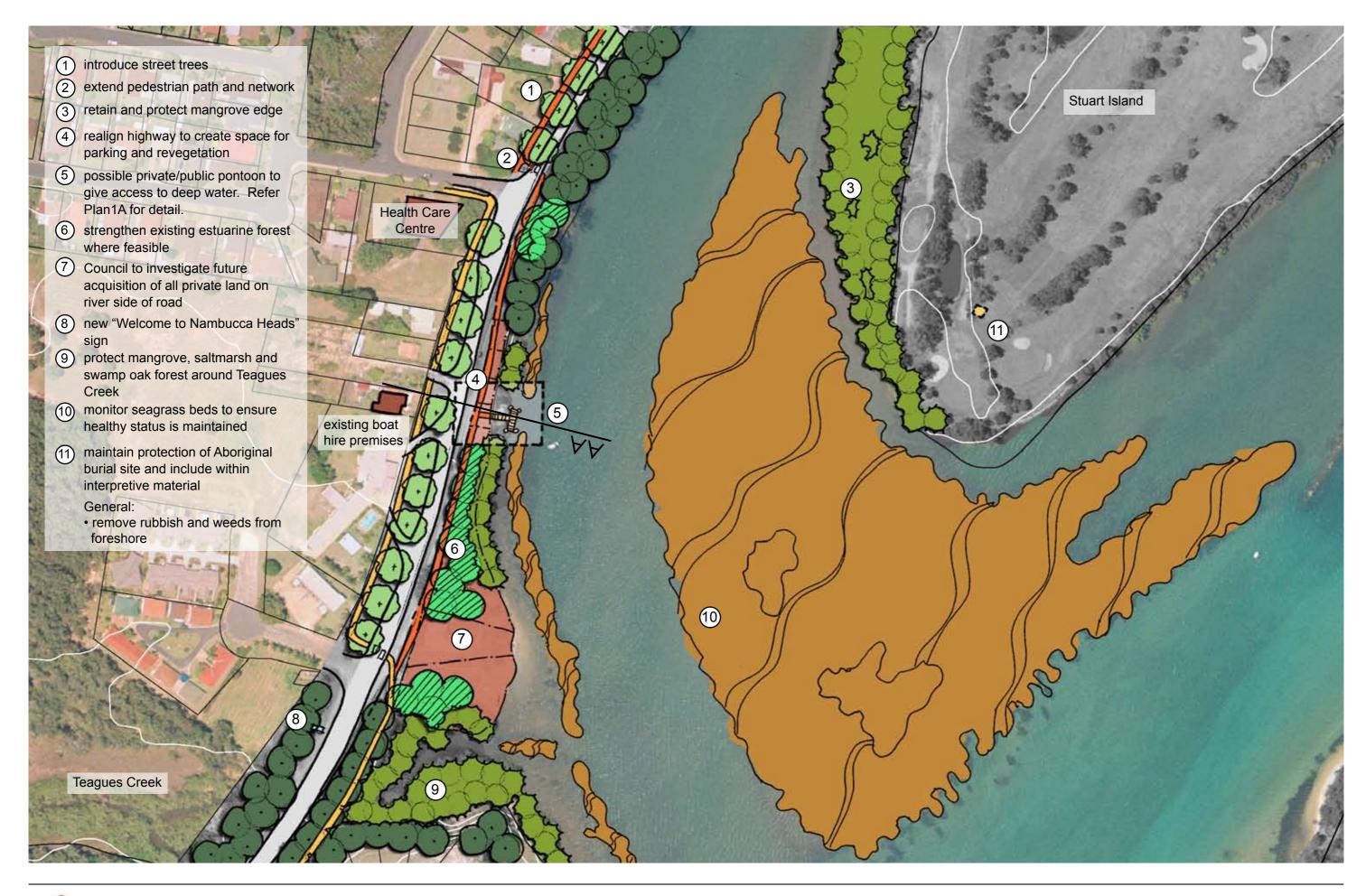
Nambucca River MASTER PLAN

LEGEND













Plan 1 Highway Precinct

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Teagues Creek (Highway Precinct)

This area presents opportunities to utilise the interface between the residential area of Bellwood and the presence of deep water within the Nambucca River more effectively. The existing infrastructure of roadway and boat hire premises is a logical basis from which to improve the utilisation of the river as long as the issue of access over the river bank is addressed.

Road Alignment

It is recommended that once the highway is relocated, that the road is narrowed (realign roadway to a 7.2m width with 1.2m shoulders) and the existing paved area used for 90 degree parking. Where parking is not required the residual ground should be reclaimed for "greening "purposes, which will in strategic locations allow for thickening of estuarine forest planting along the top of the river bank.

Pontoon Facility - Shelter

A shelter may be built as a defined stop off point for passengers to gather prior to boarding marine craft. This structure may accommodate advertising signage. It is recommended that a public as well as a private floating pontoon could be installed to service a wide range of users. Arrangements should be negotiated with the present landowner to ensure their requirements for running a business are worked into a facility which can also cater for general public use.

Public Access to River Bank

It is also recommended that negotiations be entered into for all private land owned on the River side of the existing highway to ultimately be placed into the management of a public authority. In this way the continuity of management of the foreshore can be guaranteed. Appropriate compensation and access rights should be afforded to the existing landowners.

Landscape Treatment

It is recommended that the existing wide verge be used to incorporate street tree planting. This will help bring a human scale to the precinct, rather than being dominated by traffic movement. When selecting species and locating trees consideration needs to be given to the surrounding services such as electricity and stormwater piping which also occupy the verge.

Pathway

To encourage increased pedestrian use of this precinct it is essential that a pathway be installed which can take pedestrians from one end of the study area to the other. Within this precinct it is logical to place this path within the wide verge which adjoins residential properties rather than along the river side which is extremely narrow. This path should be 2.2m wide and any existing paths should ultimately be upgraded to this width. Pedestrian crossings may be placed at logical locations once the highway has relocated to allow movement across to the river edge.









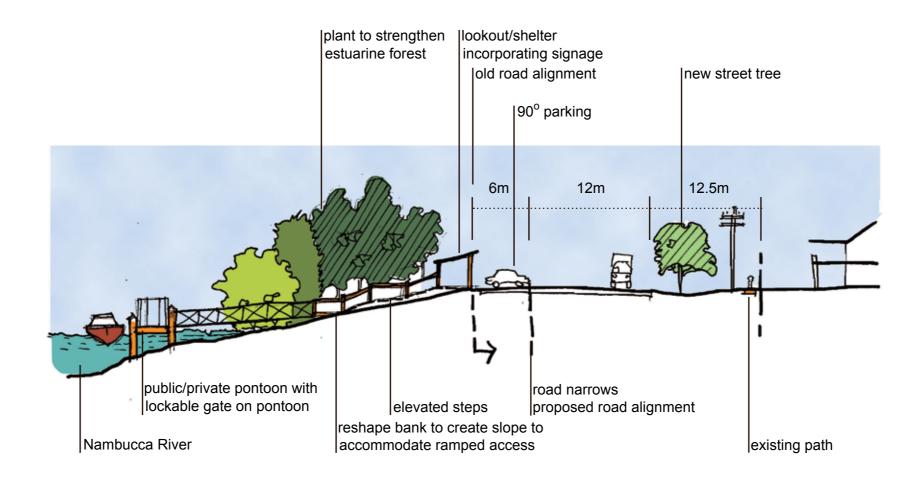


Plan 1A public/private pontoon scale 1:500

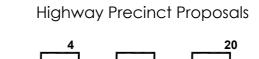
- (1) proposed narrowing highway alignment
- (2) pedestrian crossing
- (3) new street trees
- (4) 9 space carparking (can extend along roadway)
- 5 new pedestrian path
- 6 ramp down with bank reshaped
- 7 pontoon shelter with stepped access
- (8) public/private pontoon with lockable gate and moveable jetty
- 9 strengthen estuarine forest planting, allow mangrove to regeneration along edge and remove rubble
- shrub planting to delineate parking to pontoon shelter

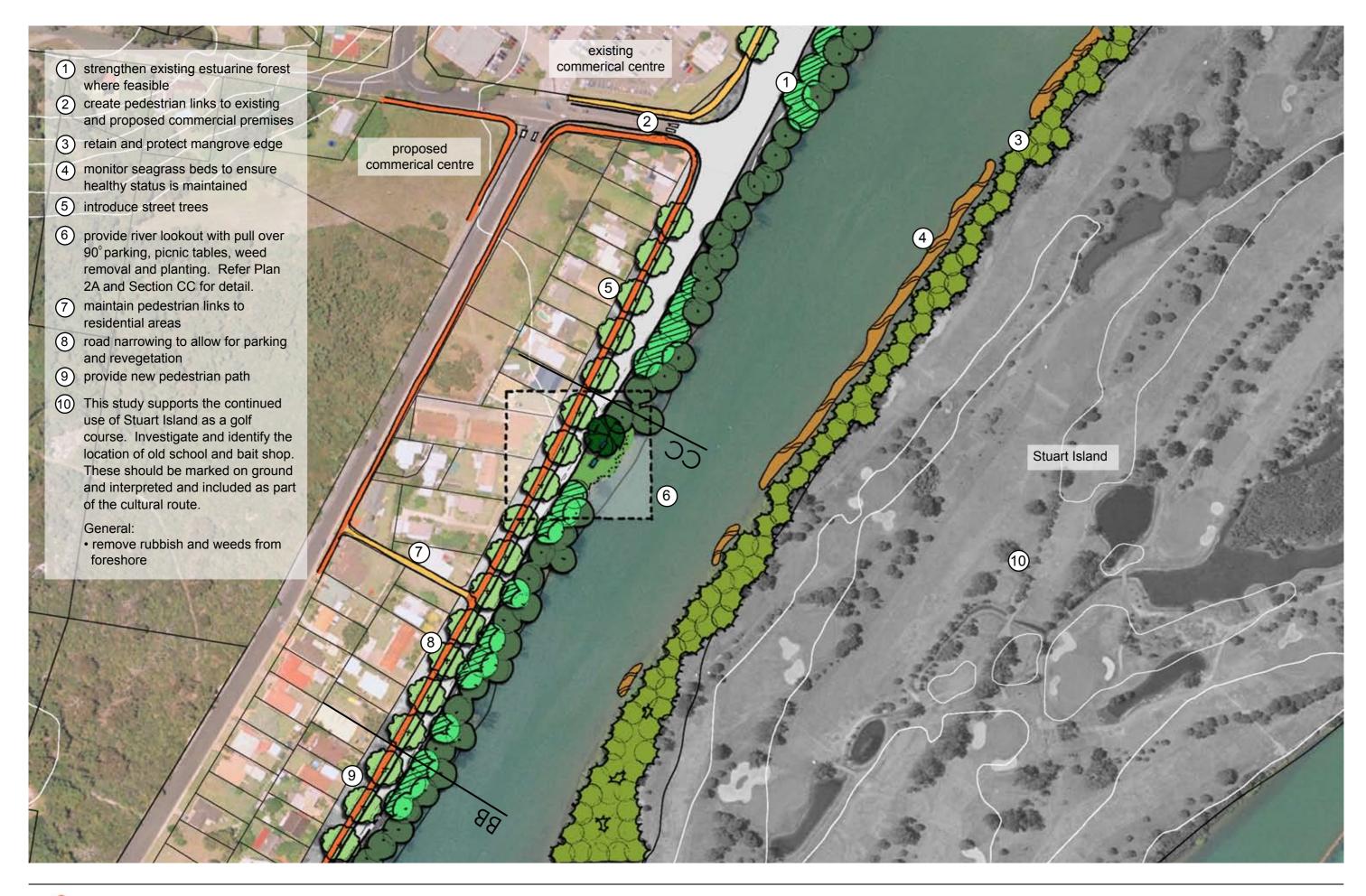






AA PONTOON MOORING









Pull-over Lookout Point (Highway Precinct)

This area presents expansive views along the Nambucca River. The river bank at this point is denuded of vegetation, has weeds growing on the bank edge but has a slope which enables easy access to the edge. It is proposed that this is a logical point to introduce a formal pullover, picnic point for travellers and/or locals. With some bank reshaping, the installation of parking bays, picnic tables and bins combined with an accompanying planting plan this area can become a scenic location that takes full advantage of the views offered.

Revegetation

The river edge adjacent to the highway can be stabilised and revitalised through strategic grouped planting of indigenous species along its length. Refer revegetation guidelines for detailed description of planting technique. Of additional benefit would be a regular program of rubbish removal.

Pathway

It is important to continue pedestrian links right along the foreshore precinct that allows local links within residential areas to be made. A sense of community and safety can be revealed if strong links to public open space are made and connected with high use areas such as the existing commercial hub at Bellwood. In addition Nambucca council should consider the strategic introduction of pedestrian crossings when required.

Urban element

The treatment of light poles may be considered to further enhance a sense of arrival into Nambucca; this treatment would start at Teagues Creek and terminate at the turn off to Riverside Drive.



Plan 2A pull-over lookout point scale 1:500

- (1) new street trees
- (2) proposed 2.2m concrete path
- (3) exisitng residential lots
- (4) 10 carpark spaces with 90° parking
- 5 proposed road alignment, minimum road and shoulder width 9.6m
- (6) existing highway edge
- (7) feature shade tree with picnic tables and bins
- 8 reshape bank where necessary and plant native shrubs to stabilise the bank edge
- Retain sections of bitumen for informal stopping points for vehicles. Where distance between bank edge and roadway is narrow rip bitumen and prepare for planting to strengthen estuarine forest planting.

Brotherhood Park (Highway Precinct)

It is recommended that Brotherhood Park remain essentially as it is. Facilities will require upgrading in future and these are to be in line with the style and materials recommended for shelters, seating and general recreation facilities.

Revegetation and Landscape Treatment

Brotherhood Park would benefit from selective and strategic revegetation projects along the river edge. This revegetation would be structured around existing clumps of trees. It may be appropriate to temporally fence areas so that access is controlled. Sections of the river bank are to remain open to enable fishing and other uses of the water edge to occur away from areas designated for rehabilitation.

When planting within Brotherhood Park Council should gradually replace environmental weed species (e.g Cocos Palms) with those recommended by this study. The vegetated bank is important to retain as it effectively screens the park from the highway.

Street trees are to form an integral part of the upgrade to the Nambucca foreshore. Street trees along Riverside Drive will assist in visually linking areas of the foreshore and provide a more human scale to the precincts.

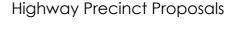
Vegetation on the steep slopes, while not within the study area, is vital to creating the character that defines the Nambucca River foreshore. For this reason protection must be afforded this planting. Covenants that not only control the retention of vegetation but the strengthening of vegetation cover should be incorporated into Nambucca Shire Councils DCP.

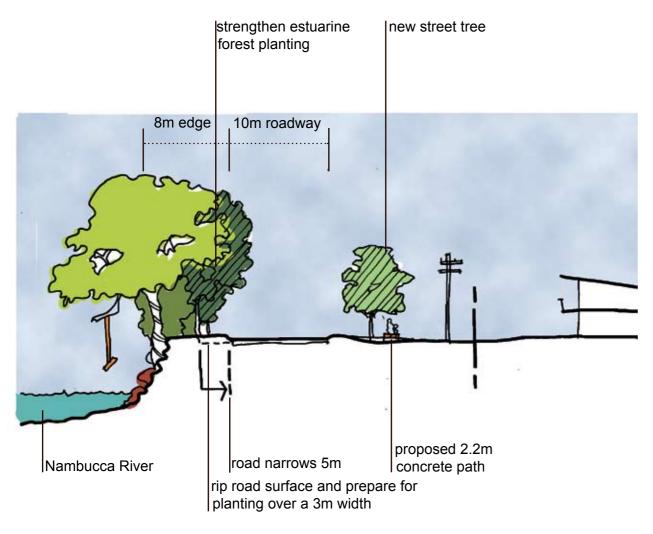
Signage

All interpretative material should become part of the "Cultural Route" and upgraded signs must be consistent with the style and form recommended by this study.

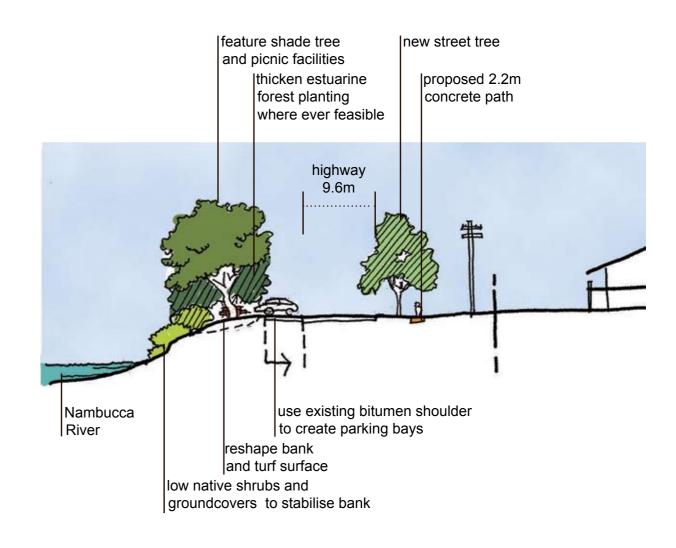




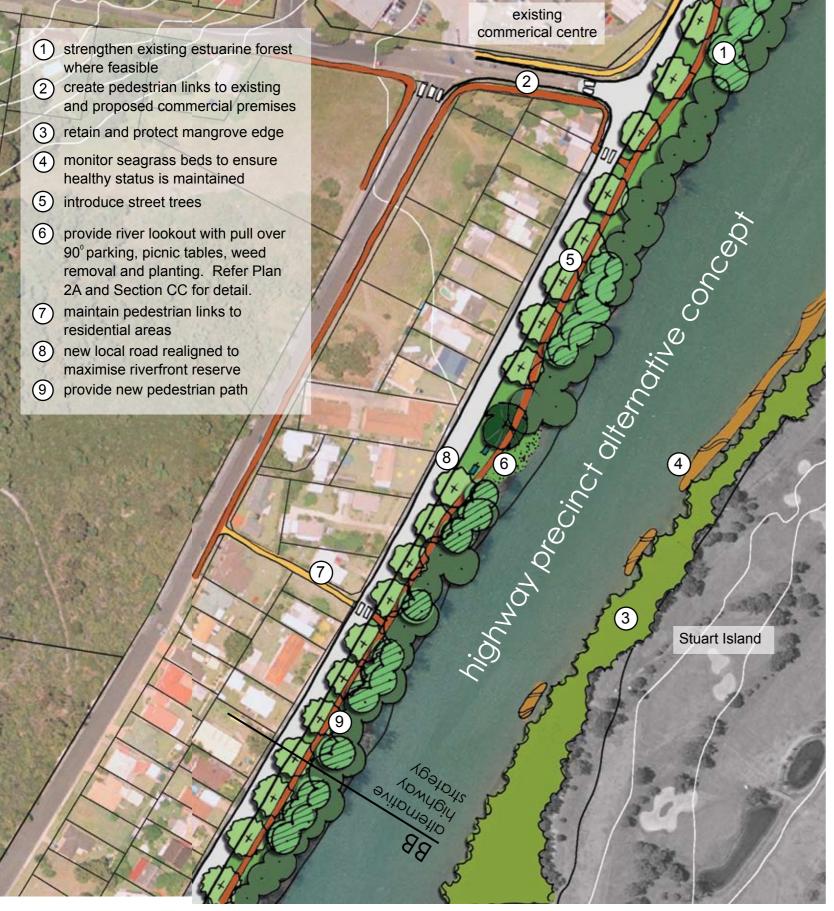




BB REVEGETATION TO STEEP BANK



CC PULL-OVER AND LOOKOUT

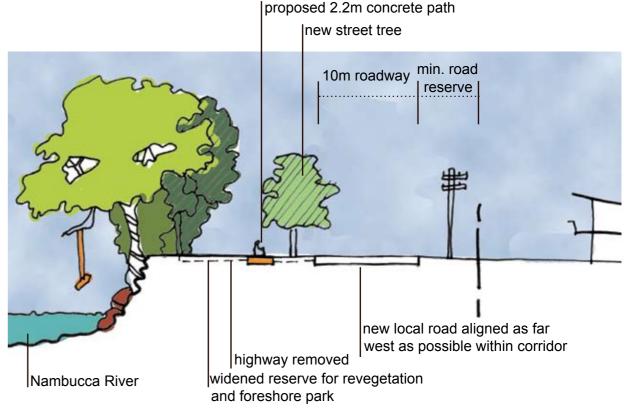


Highway Precinct Alternative Strategy

The concepts included in Plans 1 and 2 are based on the Pacific Highway being relocated and the existing road being maintained, but narrowed as a local road. An alternative sample layout has been provided based on the potential for the existing road to be completely realigned. This scenario would see a new local road installed as far west in the road corridor as possible to maximise public land on the river front. Such a scheme could incorporate the same facilities as described in Plans 1 and 2 including the pontoon facility and pull-over lookout point.

Under this scheme, a 2.2m pedestrian pathway would be located along the eastern side of the new local road. Where space allowed, this path could meander within the riverside reserve and could include seating locations in addition to the pontoon and pull-over locations. New street tree planting could be located between the new road and path. Provision would need to be made for pull off parking with street trees located relative to carparking bays.

This scheme has the potential to maximise public space immediately adjacent to the river and to provide greater pedestrian movement along the riverfront.



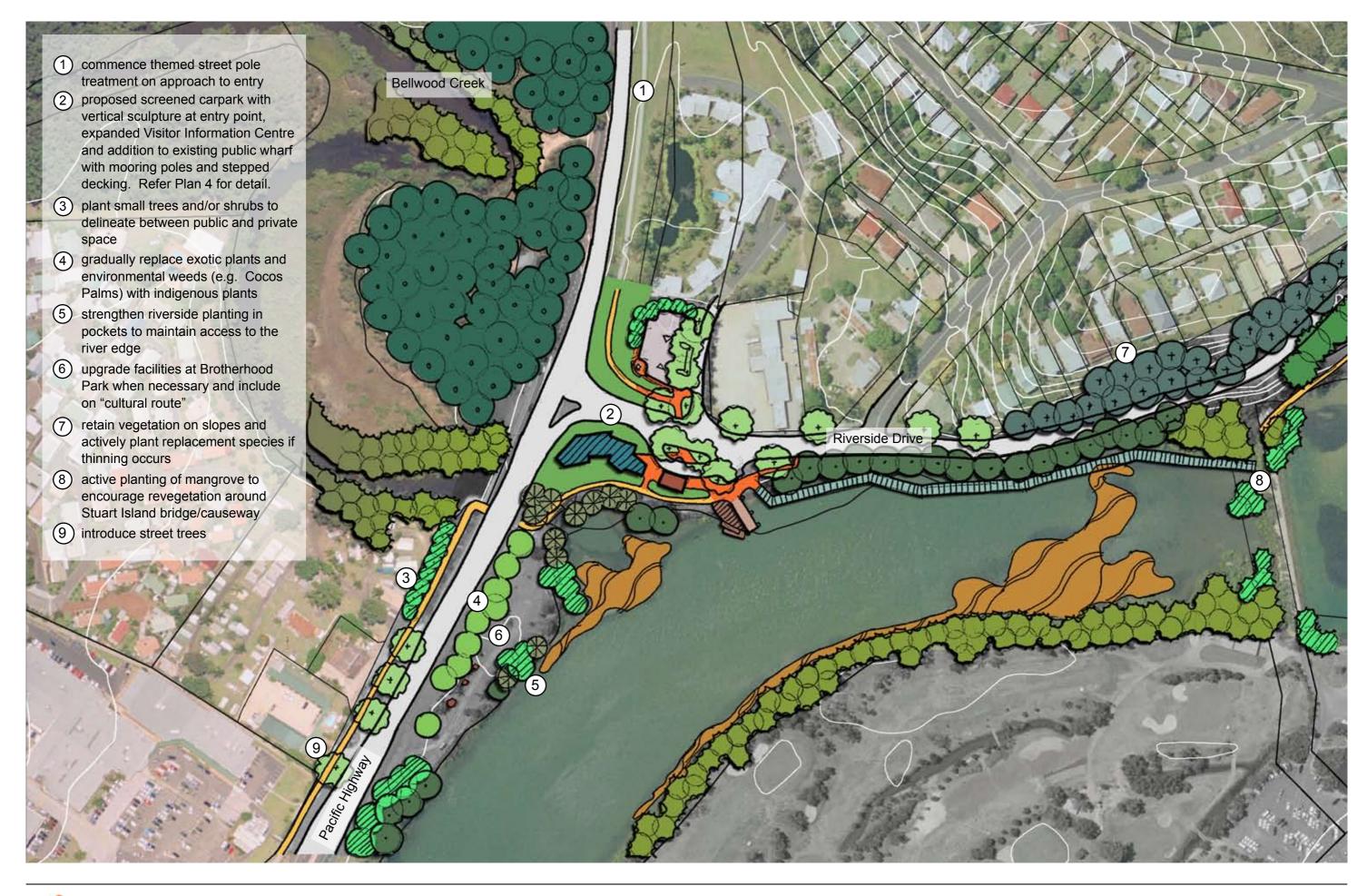
ALTERNATIVE HIGHWAY STRATEGY scale 1:400



Nambucca River MASTER PLAN

Highway Precinct Alternative Concept

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Entry Point - Information Centre (Highway Precinct)

This is an opportunity to vastly improve the entry point to Nambucca Heads and promote a whole range of activities and attractions particular to Nambucca. The proposed building with signed and painted exterior walls will become the entry focal point for visitors. This will be further enhanced by the placement of a vertical sculpture on the other side of Riverside Drive associated with a much expanded car park to cater for cars, coaches and trailers.

Built Form

The proposed building will take on an organic form that reflects the curvature of the river. It is orientated so that wall faces address oncoming traffic and can be readily seen from all directions. A welcome to Nambucca sign is to be incorporated onto the facade with copper/ply or like material. Back lighting attached to this sign will ensure promotion of the entry point is also effective at night.

The facility may have multiple uses in addition to an information centre, such as a museum, art gallery and/or cafe. It may also be feasible to have an interpretive facility to explain the oyster industry, in the same way that towns like Narrabri have a Cotton Industry interpretive facility.







Way Finding

This may be the origin point for the "cultural route – river way experience". At this location visitors to the area may be introduced to a brief display of the local history and the current recreation/tourist facilities contained within the Nambucca Shire. A brochure detailing all the historic and recreation features of the study area should be prepared. Visitors can then explore these features on foot, by bicycle or on water via dinghy or canoe.

Pavement treatment is to reinforce the sense of arrival while visually and physically linking the car park to the river foreshore. The use of different textures and colours is to be considered within the pavement treatment to denote changes in use or emphasis.





Water Activity

The existing wharf finger will be upgraded with a floating pontoon and utilised for boat hire. (This facility is already proposed and in the development stage). It is envisaged that visitors to the area will have the option to hire small craft to further explore Nambucca on water. The existing information centre may be transformed to serve this purpose and also include a bait shop and/ or bike hire. Mooring poles attached to the pontoon would be available to the public for temporary mooring purposes.





Landscape Treatment

All vegetation on the immediate creek and river edge is to be protected for at least a 15 metre distance from the top of the bank. Clearing of existing vegetation is proposed adjacent to the highway to open up the face of the new visitor centre.

New planting aims to nestle the buildings within the landscape. Planting will border pathways to reinforce way finding. Tree planting will add shade and also become an element in improving way finding along Riverside Drive.

Large shrub planting will screen the proposed car park from being viewed from the highway.

Enliven Activity - Urban elements

It is proposed that a large vertical sculptural element sit adjacent to the new expanded car park. Its purpose is to compliment the information centre as an entry statement. It will also be the first in a whole suite of sculptural elements that aim to visually link areas of the foreshore to each other and with other parts of the urban fabric. It may incorporate water, play elements and solar lighting.







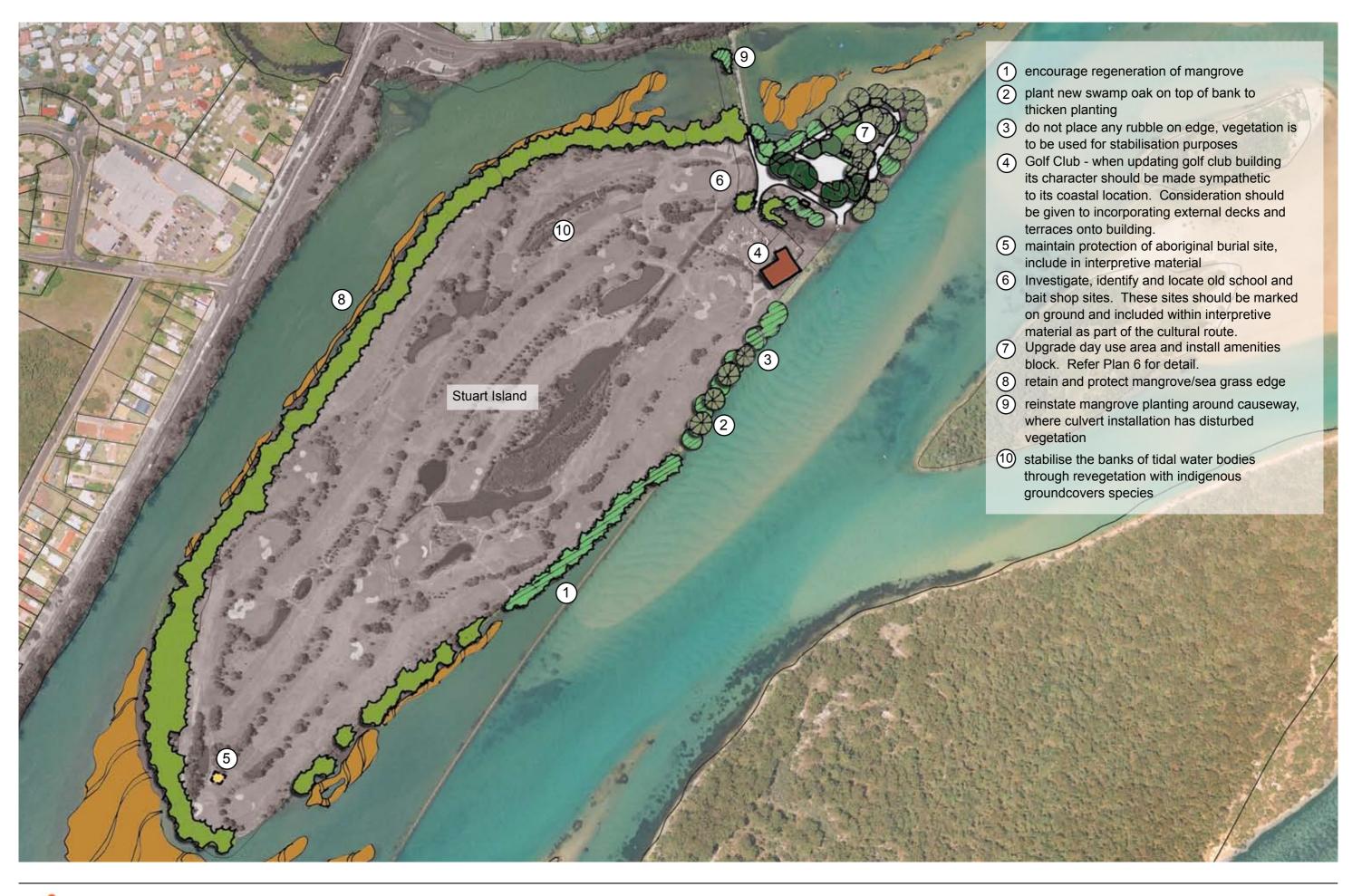
It is also recommended that street poles be given a themed treatment that draws vehicle users along the roadway. Street poles may be painted or have materials applied which enhance and individualise the experience or approaching Nambucca and moving along the foreshore.

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proposed entry to Nambucca Heads and arrival at the Nambucca River foreshore with new Information Centre as entry backdrop and vertical sculptural element







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Stuart Island Precinct

Stuart Island is predominantly used as a golf course with the very northern extent of the island functioning as a low key park and boat launching facility. This study supports the continued use of the island as a golf course with appropriate strategies to be adopted for bank stabilistation and the retention and enhancement of indigenous vegetation. It has been recognised that the island includes a number of historically significant sites that should be identified and interpreted as part of the "Cultural Route" for the Nambucca River foreshore.

Proposals for the northern end of the island focus on retaining and enhancing the existing park as a low key destination for picnicing and passive relaxation. The existing boat ramp is to be retained and enhanced as one of the important and well utilised boat ramps on the foreshore.

Golf Course

The golf course is to continue to function in its existing capacity. If and when the existing club house is redeveloped, a design more appropriate to the coastal and river setting would be encouraged. It is suggested that any extensions or redevelompents of the existing building should not encroach any further on the river bank. New designs for the building should consider incorporating decks and shaded outdoor areas that address and maximise the riverside setting. Any resdesign of the existing golf course buildings need to consider views to the buildings from both on the island and from the water.

Historical Sites

The archaelogical study for the project identifies that there were a school and bait shop located on Stuart Island. It is recommended that further research be conducted into these sites and they be identified on the ground. The protection of the Aboriginal burial site at the southern end of the island is to be continued. It is recommended that information relating to all sites should be included in a brochure relating to the "Cultural Trail" along the Nambucca River foreshore. Interpretive signage could also be included in the Stuart Island Park to raise local awareness of the historical significance of the island.

Vegetation

All mangroves are to be actively protected and the natural regeneration of mangroves, particularly along the eastern side of the island, is to be encouraged. Mangroves are to be reinstated at the causeway where the installation of the new culverts disturbed mangrove growth.

On the northern tip of the island, the existing Swamp Oak vegetation is to be retained. As part of park works, this vegetation is to be protected by the installation of a formalised road and defined carparking bays. An on the ground assessment is to be made as to the status of individual trees groups. This assessment is to identify the need for decompaction and ripping of root zones and the installation of additional topsoil. Some tree groups may benefit from additional topsoil and mulch with the understorey planted with appropriate indigenous groundcovers. The assessment of these trees should consider that some particularly fragile areas including those particularly subject to human traffic may require temporary fencing.

New planting of mangroves and Swamp Oak is to occur on the bank edge adjacent to the causeway. At this location vehicular access in the past has been particularly close to the bank edge causing it to be unstable.

Revegetation planting is to be established along the southern edge of the building near the boat ramp. At this location there are some mangroves, however, the bank edge is unstable and the slab to the building is being undermined.

Proposals for the northern park identify locations for new plantings of park shade trees. It is also suggested that planting could be used to improve the visual amenity of the park entrance and to screen the existing brick storage building.

New planting is proposed to the stormwater infiltration area to be located within the park area. This planting should be indigenous and should be low to maintain views across the park.

Vehicular Access and Boating Facilities

The existing boat ramp is to be retained. Vehicular access to the boat ramp and the upgraded park is to be formalised as a one way system. The redesign is to include waiting bays for cars with boat trailers and new car/trailer parking. A 3m wide, one way road will provide access to the picnic area. At the picnic area, defined carparking bays are to be sited in existing cleared areas. The road and carparking bays are to include some form of vehicle barrier e.g. post and rail or bollards to restrict vehicular access into the park and in amongst the Swamp Oak vegetation.

The roads are to have a one way cross fall to a central vegetated infiltration area. It is recommended that the road surface and trailer parking be bitumen, however, consideration should be given to making the carparking bays within the picnic area a permeable surface.



Low Key Park

The existing park is to be retained largely as is with only minor upgrades to enhance its use as a low key location for passive relaxation. These changes largely relate to protecting the Swamp Oak vegetation with a formalised road and carparking. Other recommendations include providing new picnic facilities at shaded locations. Some of these should be located close to carparking to enable easy unloading and transferring of picnics. Others could be located in more private locations and close to the water.

It is proposed a new amenities block be located at the park area for use by both picnicers and boat users.





Signage

It is proposed a new themed sign be located on arrival at the park. Screen planting to the existing brick building could provide a backdrop to this sign.

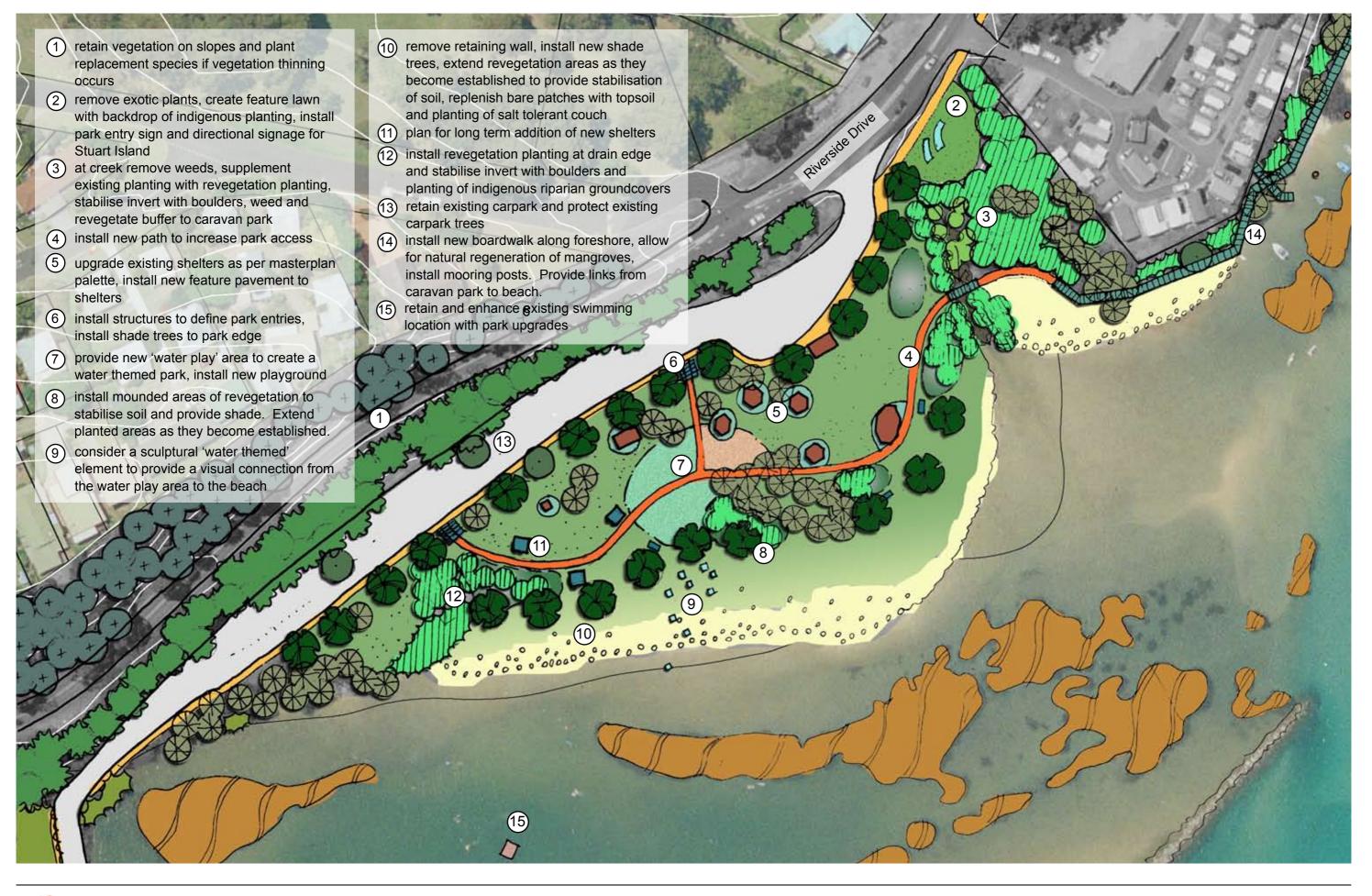


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Bellwood Park

Bellwood Park already functions well as a popular park for families and groups. Its positive attributes include its proximity to the river and a floating swimming pontoon, its picnic and BBQ facilities, good carparking, public amenities, open play spaces and children's playground.

Bellwood Park is a popular swimming location and on site observations and word of mouth reports have identified this as a safer swimming option than the V Wall swimming locations. It is intended that proposals for this location will promote Bellwood Park as a swimming location rather than the less safe option at the V Wall.

Proposals for Bellwood Park and its access seek to enhance the way the park is already used and to create a strong theme to the park that reflects the riverside location. Strategies for revegetation and new planting seek to stabilise the existing park subgrade and to provide for the longevity of the park landscape and river edge.

Linkages

Access to Bellwood Park, from the east, is currently along Riverside Drive. It is proposed that a new link be provided to Bellwood Park along the river and that this be a new boardwalk located along the river edge, east of the caravan park. The boardwalk should be sited to retain existing indigenous vegetation and to provide opportunities for revegetation areas. Lookout and seating locations could be included to take in the beautiful river views. The boardwalk should include links across to the caravan park at a number of locations that relate to pedestrian accesses within that park. These links would be boardwalks with stepped or ramped accesses down to the beach. A break in the boardwalk should be included to maintain the small boat access from the caravan park to the existing ramp located on the beach.

Aqua Theme

One of the most significant current uses of Bellwood Park is as a swimming location. The floating pontoon located offshore and the gentle sloping beach into the water encourages this activity. There are existing showers in place within the park that, as well as having a practical use, are also the focus of existing 'water play'. It is proposed that these current uses be expanded upon to create a 'water play' theme to Bellwood Park.

Water play elements could include fountains, sprayers, channels of water with water gates, puddles, rivulets etc. It is proposed the water play area be sited through a variety of play spaces to give many opportunities to interact with the water. The water theme

could be extended into the associated infrastrucutre with pavements, furniture and artworks shaped and coloured to reflect the river and its characteristics.

Given the proximity to the river, it is proposed that the water play area operate on a recycled water system using the river as its source.



















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Enliven with Play

In conjunction with establishing water play elements within the park, it is proposed the existing playground be updated and extended. The new playground should interact with the water play area and could also incorporate elements that reflect the river setting.

The new play area and water play area should incorporate shaded seating areas.

















Renovate

It is proposed that the existing shade structures, picnic facilities and BBQ areas be retained, however, when they require updating that this be done in keeping with the form and style recommended. Renovations to these facilities should be in keeping with the proposed palette of materials and colours for the Nambucca River foreshore. Additional shade facilities may be introduced within the park, particularly located relevant to the new pathway.

Earth Forms

Currently, pedestrian access at Bellwood Park is sited along the edge of the park. It is proposed a second pathway be installed within the park. It is intended this would provide access to new facilities and encourage use of the park as a whole.

It is also proposed strategically located mounds be installed to add form and interest to the existing flat and broad park. These should be sited to allow free drainage, to contribute to the installation of revegetation areas and to maintain good views to the river. Mounding could potentially follow the existing topography of the park with breaks to allow for drainage. These new earth forms could be patterned to reflect the riverscape. Besides adding interest to the park they will provide new opportunities for play and will create variety in the available park spaces. On a practical level, mounds will allow for the installation of new topsoil to provide for new planting and revegetation planting.









Revegetate

Bellwood Park currently suffers from poor grass cover and a lack of shade. The grassed areas are prone to being dry due to the nature of the sandy soil, lack of water and effects of the tide. The park includes two drainage lines, one more substantial than the other, that are currently weed infested and eroded. Proposals seek to estabilish a weed removal and control program and to install revegetation strategies. Refer page 75 for revegetation strategies.

New planted areas have been identified on the masterplan. For areas associated with the drainage lines, revegetation would occur in conjunction with weed removal so that bank stability is maintained. The masterplan includes other revegetation areas identified within the actual park. It is intended that these be established in conjunction with the installation of the mounding. Initially revegetation areas would be limited in number and extent to enable easier maintenance. Once these areas are established it is suggested they should be gradually extended to further stabilise the park subgrade and revegetate the park edge.

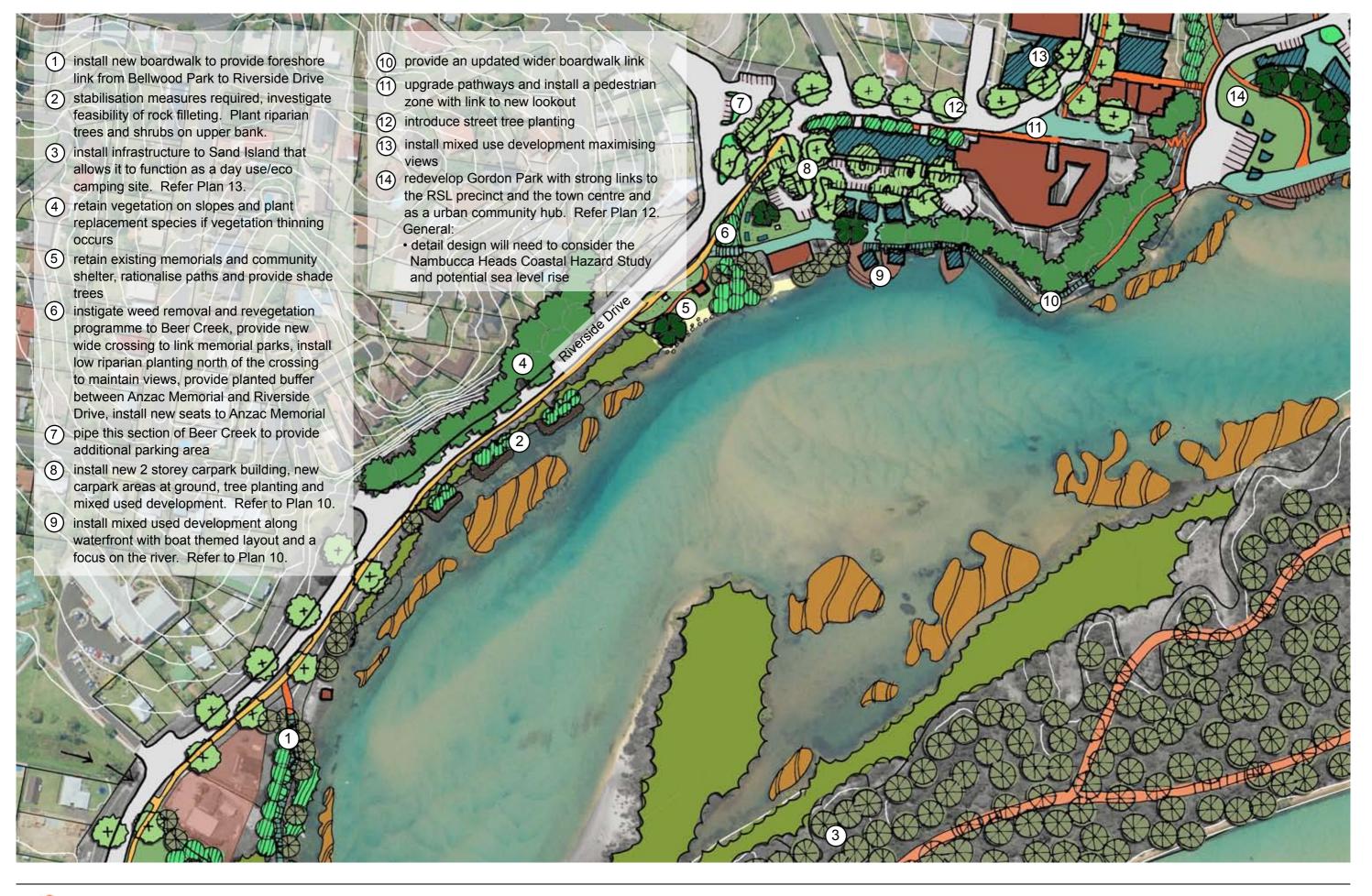
The masterplan indicates additional planting of shade trees. These plantings will be higher maintenance, however, it is anticipated that the long term advantage of a shaded park will be worth the effort.

Refer to page 76 for suitable plant species selection.



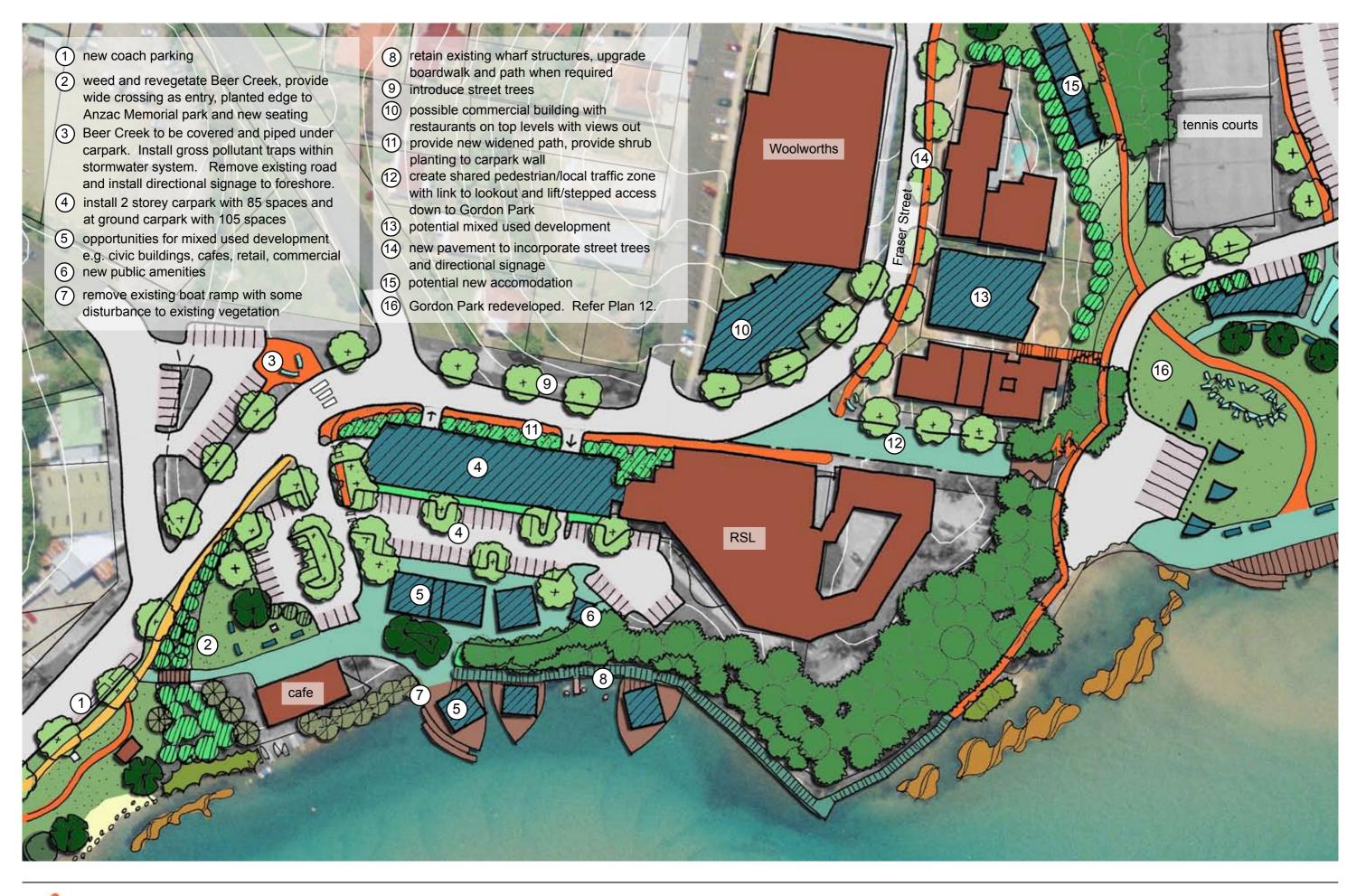
Tidal Influences

It is proposed that progressive revegetation of the park edge will provide stabilisation against potential tidal influences rather than the establishment of a constructed rock wall. Revegetaton would be a gradual process with areas extended as plants established. Revegetation species are to be indigenous species appropriate to the coastal and river environment. Plant selection should include pioneer species to provide rapid revegetation and slower growing species for long term revegetation. Planting should include trees to stabilise the ground through large root systems as well as shrubs and groundcovers to provide coverage of exposed ground. The ultimate goal would be the establishment of a 'natural' river bank edge stablised by vegetation.













RSL Precinct

The RSL precinct is to become a revitalised and focal meeting place for dining and commercial activity along the foreshore. This precinct will undergo a substantial physical change, incorporating a range of built structures and hard urban treatments to bring a more sophisticated level of development to the foreshore. Civic buildings, restaurants, cafes, retail, accommodation and commercial activities are all considered appropriate within this precinct.

Built Form

New built forms will borrow heavily from the coastal setting. Buildings will utilise forms and finishes that reflect the traditional boat shed structures of the past, but have a modern twist applied. Themes of the river will be reflected into the elements of the urban fabric. Buildings are sited and orientated to best maximise views.

Built wharf structures suspended over the water are nestled into the vegetation backdrop and will not compromise the existing stunning panoramic views obtained from the RSL Club. These structures are to be demountable, lightweight and small in scale.

The buildings in front of Woolworths are proposed to fan around Fraser Street breaking up their facade and maximising views. These buildings wil relieve the blandness and large scale form of the Woolworths facade.









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Car Parking

Car parking is to be consolidated into both ground level and two storey parking. The creation of a two storey car park along with the removal of the existing boat ramp, frees the water frontage land for multipurpose development. The car park structure should incorporate green walls or sculptural walls to let it sit into the landscape. Shrub planting along the street frontage should soften the built form when viewed from ground level.

Coach parking is provided for along Riverside drive. Additional parking is created on the other side of Riverside Drive with the covering of Beer Creek and the road closure at the end of Nelson Street.

Renovate and Revitalise

The existing cafe / boat hire may choose to extend its deck to facilitate greater use, in keeping with the proposed "jetty" structures.

The RSL building could have facade articulation to modernise, reduce its bulk and soften its appearance. Decks or awnings may be used to rejuvenate the facade, reduce heat gains in summer and further celebrate views from many angles. On the face which fronts Riverside drive it may be appropriate to revitalise its facade with a textured wall finish or mural/mosaic.

Anzac Memorial Park remains in place but car parking is re-organised to enable increased open space around the memorial itself.

The log commemorating the old mill site is to be worked into the new pavement treatment and given a greater prominence. Interpretive material should be in keeping with the themes and palette suggested by this study and become a part of the cultural route.

Also introduced will be an amenities block to service the entire precinct.





















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RSL Proposals

Water activity

Interaction with the water is encouraged through the placement of boat shaped jetties suspended over the Nambucca River. As well as housing cafes and restaurants the attached jetty structures will enable informal use of the area for fishing, swimming and small craft mooring.

The existing historical wharf structures should be retained for play, aesthetic appeal and interpreted as part of the "cultural route".

Any upgrades to boardwalks and built structures by the water should be mindful of expected sea level rises.

Landscape treatment

The landscape treatment will help soften the built elements. They will serve to frame views and soften hard edges and finishes. Trees are utilised for shade and colour, with the existing natural landscape features retained where ever possible. Street trees will introduce a "greener" and more intimate feel to this precinct.









Pathways

Path ways will logically guide users around the precinct; most pathways should be widened to a minimum width of 2.2m. Incorporated in this area will be feature pavement that may utilise horizontal timbers into pavement surfaces. Themed directional signage will be located to direct users to points of interest, including connections to the town centre. Sculptural elements will also play a role in orientating foreshore users with views to the large vertical element at the top northern tip of Gordon Park.

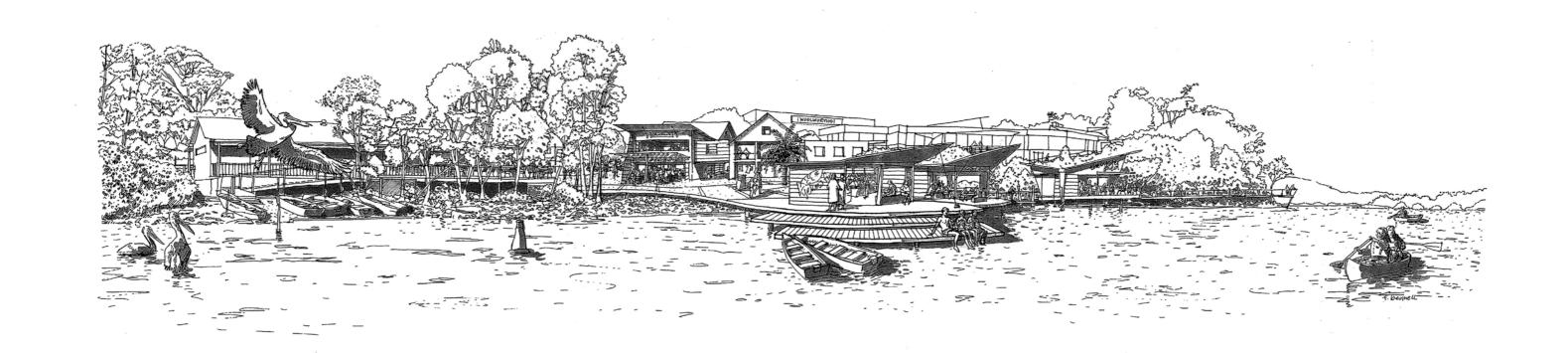
The end of Riverside drive should be treated to give prominence to pedestrian access and lead the user down to the lookout and new access point to Gordon Park. As linkages were an identified issue limiting effective foreshore use, an additional connection to Gordon Park from Bowra Street may be made within the now vacant block. A condition of development approval for this property may be to include a public access way to link down to Gordon Park.





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Nambucca River MASTER PLAN



a view from the river to the proposed mixed use develoment and rejuvenated foreshore in the RSL precinct



Nambucca River MASTER PLAN

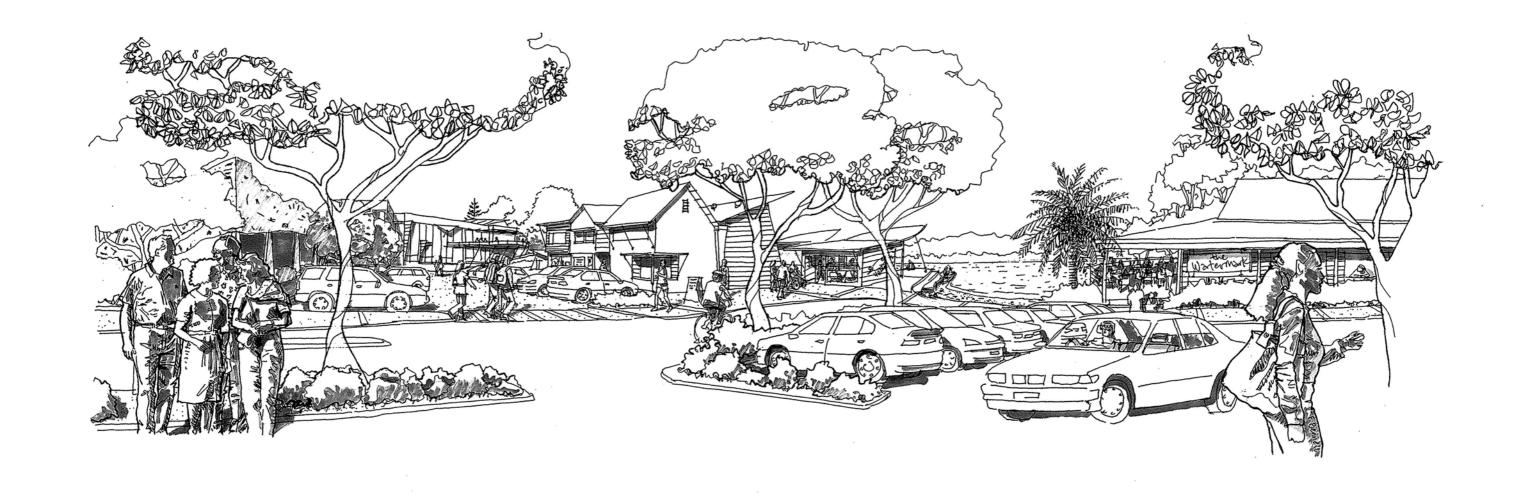
RSL Proposals

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a view from the entry to the redesigned RSL precinct with new carparking, mixed use develoment and the existing riverside cafe

RSL Proposals

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Gordon Park Precinct

The Gordon Park Precinct includes Gordon Park and the foreshore along Wellington Drive.

Gordon Park is set to become the new hub of foreshore activities. New connecting links will enable ease of access for pedestrians from various entry points. The introduction of further commercial premises and the upgrade of a public wharf should further attract use. Community facilities such as a defined market space will provide a sense of purpose to the location. Overlayed on the facilities is the introduction of sculptural elements which will link the foreshore and reveal areas of interest and intrigue. Further details of the proposals for Gordon Park are included on page 63.

The main issue to observe along Wellington Drive is the coming together of extreme physical and environmental constraints. On one hand there is the excessively steep vegetated slope, the narrow fragile river bank (mostly denuded of vegetation) and the fact that the Nambucca River at this point is on an outward, eroding bend. These factors combined make the future management of this precinct critical to manage in a proactive sense. The following proposals relate to the Wellington Drive part of this precinct.

Wellington Drive (Gordon Park Precinct)

River Bank Stabilisation

It is recommended that strategies for this area hinge on the rehabilitation of the river bank edge as current trends show that in its present condition infrastructure such as paths and road pavement may be at risk of undermining. Primarily it is recommended that the introduction of rock fillets be investigated. This is to be combined with some grouped hand planting of vegetation on the strip of bank available.

Car Parking

Other strategies include the removal of the boat ramp and the area adjoining being converted to car parking. The boat ramp is of little functional use and small craft can enter the water at any number of locations within the study area. Due to the narrowness of Wellington Drive car parking cannot currently be provided for, so this strategy would enable a wider range of users to access this part of the foreshore. The car park would accommodate approximately 8 spaces.

Water Activity

The current beach may remain with a scheme to replenish sands when required. The perception that this is a private beach associated with the adjoining properties should be discouraged. The introduction of public mooring poles at this location may also be suitable.

Urban elements - footpath

The current footpath should in the future be upgraded to a constant 2.2m width. The beach/path interface must not be left to deteriorate and erode. It is important to reinstate a vegetated barrier between the concrete path edge and the start of the sandy beach. Salt tolerant couch can be utilised as a ground cover, so that access to the water is retained. Monitoring of the erosion process must be built into a works budget that regularly assesses areas of erosion along the entire foreshore.

Seating is to be upgraded to be in keeping with the character and materials of those recommended within the guidelines section.

The themed treatment of street poles is to continue along Wellington Drive.

Landscape Treatment

Street trees are introduced along this section to provide colour, shade and aid in way finding. They are to continue through to the V Wall car park.

Vegetation Management

The escarpment is of critical importance to retain in a thick vegetated state. Any proposals which look at breaking or depleting this vegetation would have to be very closely assessed. The implications for negative visual impact are severe. The physical impacts of vegetation removal on making the slopes more susceptible to landslip would be equally devastating. It is recommended that covenants be drawn up for all properties on steep land to protect vegetation and ensure ongoing replenishment of species if thinning of plants occurs. It would be advantageous for a council officer to be a point of contact when developments are proposed on steep land to advice on best practise principles, species selection and appropriate levels of bank coverage.







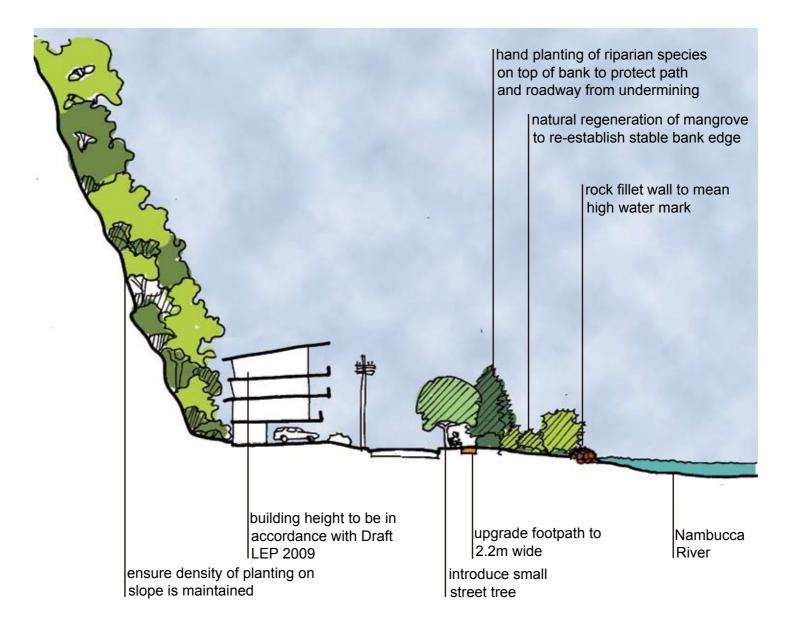




Built Form

It is important to retain the green escarpment and ensure that the built form does not overwhelm this natural feature. Building heights along Wellington Drive are to be in accordance with the Draft LEP 2009. Ground floors are to be utilised for parking and utilities only to cater for expected sea level rise.

There are no significant historic values assigned to the existing buildings, but the character of the older style timber dwellings are reminder of seaside holidays of days past and it is important to observe that their form and finish appear to blend more successfully with the landscape than later built brick and concrete structures.



HH WELLINGTON DRIVE

Wellington Drive Proposals

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Nambucca River MASTER PLAN

Gordon Park

Gordon Park is to be redesigned to become a major foreshore destination. Vehicular access to the park is to be enhanced with new carparking areas. The existing boat ramp has been identified as being well utilised and has been retained. Access to the boat ramp has been redesigned to create a unified park space that takes advantage of the broad expanse of river frontage.

Pedestrian access to the park will be enhanced both along the foreshore and from the town centre. Proposals for the park seek to create a large flexible space with opportunities for commercial premises. Spaces and connections have been kept simple in layout, particularly close to the waterfront, to maximise the outlook to the river.

Pedestrian Links

Existing links to Gordon Park from the RSL are to be strengthened through the upgrade of an existing link and a proposed new connection. The existing boardwalk from the RSL is to eventually be upgraded to a width of 2.2m and to a height to accommodate future sea level rise. This new boardwalk would be designed as an extension of the foreshore works at the RSL.

As per proposals described for the RSL, the eastern end of Riverside Drive would become a shared zone for pedestrians and local traffic. To reinforce this shared zone hard landscape elements such as a feature road pavement, bollards and signage may be adopted. A lookout is proposed for the end of this road overlooking Gordon Park. From this lookout, it is proposed that a lift or steps provide a direct link down to Gordon Park.

It is recommended the existing link from the town centre to Gordon Park be dramatically redesigned to strengthen this connection. This is the main connection between the Nambucca town centre and the foreshore and in terms of improving legibility and visitation to the foreshore is felt to be of utmost importance. Proposals to strengthen this connection include the installation of a large scale sculptural element and elevated platform at the northern most extent of Gordon Park. This would provide a visual landmark to introduce the link to the foreshore from the town centre. The platform would take in views of the river.

As part of the Gordon Park pedestrian upgrade, it is recommended that the Rats of Tobruk Walk be revitalised and incorporated into the new link from Bowra Street to Gordon Park.

The path from this platform down into Gordon Park would be upgraded to a new 2.2m wide concrete path. The path redesign should include

resting locations along the route. These locations should include seats and should be located relative to existing and new shade trees. The existing path along Wellington Drive into Gordon Park would also be upgraded to a 2.2m wide concrete path.

Emergency Vehicle Access

The new link between Bowra Street and Gordon Park is to be designed to allow for emergency vehicles. Infrastructure along the route is to be located so as to not prevent the use of the route by emergency vehicles. No road is to be constructed and the route is not to be sign posted for vehicles.

Carparking

The carparking areas have been moved away from the prime location on the foreshore to be located at the edge of the park. Any existing trees within the northern carpark should be retained and incorporated into planted bays within the carpark. It is recommended shade trees be provided to any new carpark areas. Pathways will provide links from the carpark into Gordon Park.

Boat Ramp Access and Parking

The existing boat ramp was identified as being well used, particularly by commercial operators. It has been retained, however, access to the ramp has been redefined so that is no longer divides the park area but instead bounds it. Access beyond the public carpark would be limited to those using the boat ramp and conducting business related to the proposed new building. The access road to the boat ramp could be treated to create a shared pedestrian/vehicle zone and there must be a speed limit and traffic calming in place. A limited number of car/trailer parks have been provided at the boat ramp. Feature bollards could be incorporated at the edge of the road to restrict vehicles entering the park area.

The existing boat ramp is to be regularly maintained. A schedule for annual works should be prepared. Part of the maintenance plan would include some dredging of sand and the placment of this sand elsewhere along the river bank where tidal movement is unlikely.

Proposed Buildings

A number of new buildings have been proposed for Gordon Park. A

collection of accommodation buildings are proposed along the route from the town centre. This accommodation could be small in size and aimed at the budget traveller. Incorporating accommodation within the park could increase usage and surveillance of the park.

It is proposed a new tennis club be located on the western side of the tennis courts.

Two areas of mixed use development are proposed to the north of the open grassed area. These buildings could incorporate a museum, aquarium or retail outlets related to water activities such as a dive centre or chandlery. These buildings could be raised/demountable buildings to allow for long term sea level rise.

These buildings are indicated within an area of feature pavement. It is anticipated this could include pavement, seating, cafe seating, planted areas and shade trees. A large open space has been identified between the two areas of mixed used development. This space creates a broad entry from the carpark and could incorporate feature pavement, tree planting and an artwork in the ground plane.







Open Space

The area between the proposed buildings and foreshore is a large open space. The retention of this open space is important because Gordon Park represents one of the few locations where a large open space exists near the river. The park could become the focus for markets or outdoor community gatherings to further engender a sense of vibrancy. It is proposed a circle of broad shade trees define the space and add shade and visual amenity. The space would incorporate seating both within the open space and along the waterfront area. There is the potential to include a sculptural play element, however, this should be large scale and simple in form to maintain the simplicity of the space. Picnic shelters are proposed and would be located near the boat trailer parking to maintain views out to the river. The area immediately adjacent to the waterfront would be pavement as this area is likely to be highly pedestrianised.

The layout to the park continues to the water in a proposed new circular shaped wharf. This would incorporate public mooring poles.







Stormwater Management

The existing Gordon Park experiences the effects of stormwater both through flood waters rising up the boat ramp and being retained in a depression behind the river front and by overland flow collecting in the park. The redesign of Gordon Park will need to consider stormwater collecting in the park and integrate appropriate stormwater management into the new park design.

Stormwater design for Gordon Park should adopt Water Sensitive Urban Design Principles and should seek to:

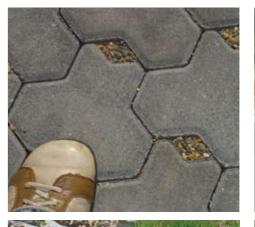
- integrate stormwater management strategies into the public landscape in a visually attractive manner;
- provide for the filtration of stormwater and the removal of nutrients and sediment prior to entering the natural waterway:
- slow down overland flow and maximise opportunities for the infiltration of stormwater into the ground; and
- incorporate indigenous vegetation as a means of 'naturalising' stormwater management systems.

Given that it is proposed Gordon Park be redesigned, there is great potential for stormwater management at this park to be integrated into the new park layout. Stormwater strategies such as swales and detention areas should be a part of the landscape design and could even be treated as landscape features to the new park. Water Sensitive Urban Design strategies should also be considered for the carparking and pavement areas with consideration given to permeable paving surfaces.











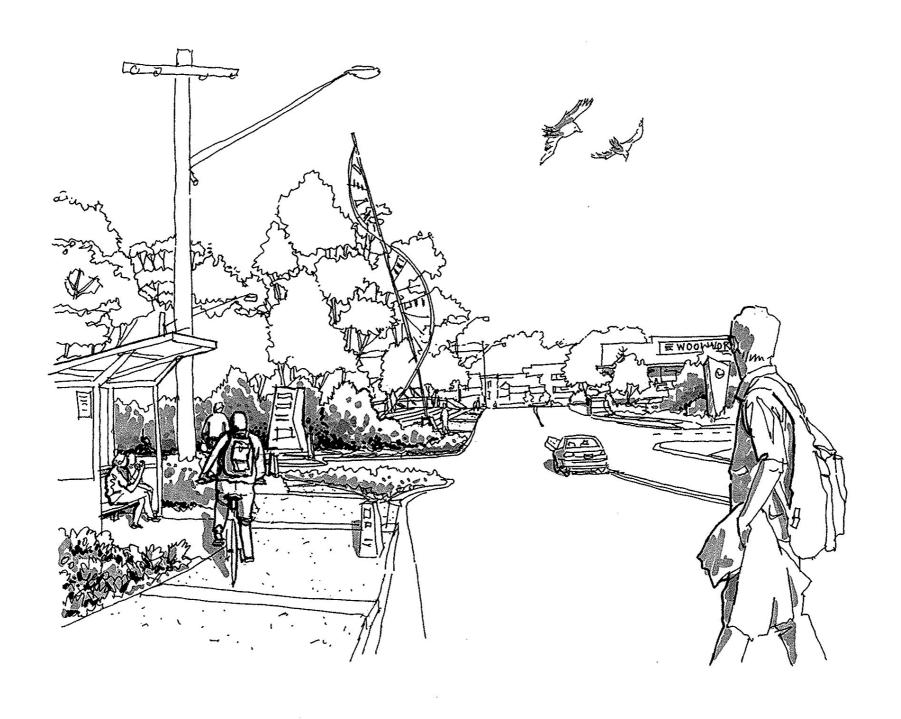






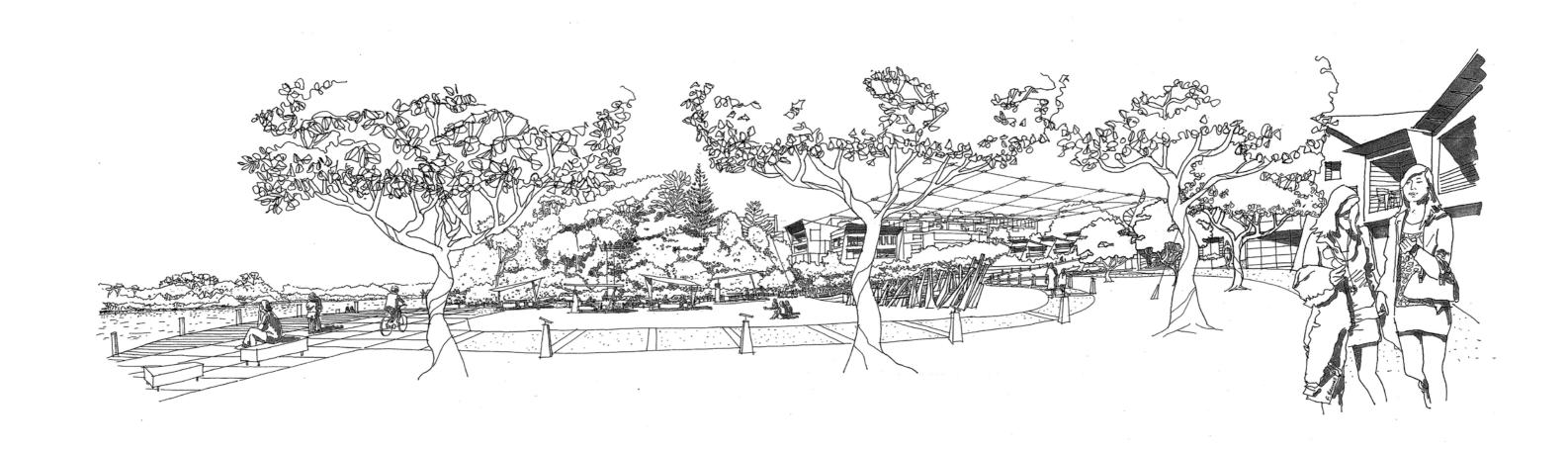
Gordon Park Proposals

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a view from the southern end of Bowra Street, Nambucca town centre looking towards a sculptural element and elevated platform in Gordon Park, a landmark defining the route to the foreshore

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a view across Gordon Park with new connection through park, broad shade trees and paved area along waterfront





Plan 13 Sand Island

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Sand Island Precinct

Sand Island is not recommended for any substantial form of structured development. The island is dominated by fragile endangered ecological communities that host fauna of equal ecological significance. To suggest the possibility of large scale development would be irresponsible and likely conclude in refusal by a variety of approval authorities. To guide use of the island the following is a list of appropriate uses and developments to place within the least sensitive areas of the Island.

- Installation of mooring poles on the eastern side of the Island
- The placement of a day use area, which may have tables, seatings and gas BBQs provided, located within an already degraded area. Toilet facilities could be included with pump out capacity and to be managed on a daily basis. All waste would need to be contained and regularly removed from the Island.
- Installing a low impact walking track around the island would be an ideal way of protecting vegetation. The trail could have accompanying interpretative material and be an added tourist draw to the beautiful natural landscape that is Nambucca.

By allowing some form of low impact development environmental projects such as maintaining and monitoring nesting sites could be instigated.

Any structures that are required as part of the day use area, likely to be related to toilet facilities and picnic structures, must be located to be as visually unobtrusive as possible. Revegetation planting should be used to provide additional screening to structures. The style, materials and colours of any structures must be appropriate to the natural setting.













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V Wall Foreshore Park and Tavern (V Wall Precinct)

There is simply not enough base information available to make a sensible comment on opening or closing the V Wall and the implications this would have. Generally speaking, the Nambucca River mouth is in a continual process of shifting sediment and shoaling formation. Any man made change is unlikely to drastically alter this pattern or create in the long term safe and continual deep ocean access.

Water Activity

In the same way it would be foolhardy for the study to support the further installation of infrastructure to increase swimming in and around the River mouth. It has been observed that the mouth is subject to dangerous currents and places swimmers in conflict with boat users. For this purpose the design team has recommended that a new focus on swimming be provided within and opposite Bellwood Park, where a family water theme already exists. One addition to the V Wall precinct would be the possible placement of life saving devices and warning signs.

Revegetation

Recommendations for this area include the bulking up of vegetation along the V Wall. It is recommended that soil be brought in and mounded around existing clumps of trees. A thick heavy mulch cover should also be placed over these areas. Into the mounds it is suggested a more diverse range of plants be placed including, Crinum pedunculatum and Acacia longifolia subsp. Sophorae. Council should follow the recommended planting and maintenance procedures outlined in the revegetation guidelines to ensure successful planting is carried out.

River Bank Stabilisation

There are two locations where bank erosion is occurring. One location is along Wellington Drive where a stormwater outlet empties into the river and a steep outward bend in the river bank occurs. It is recommended that a specific investigation be made to ascertain the most suitable long term solution to stabilising this bank. Possible options include a rock fillet, rock revetment or gabions. Planting on top of the bank with indigenous estuarine species is essential at this location

The other location which affects the beach at the V Wall also involves the movement of surface water that has channelled resulting in the entire removal of earth and soil. In this instance it is recommended

that stormwater be redirected and piped or allowed to be diverted across a reinstated turfed surface in an even flow that is first dissipated through a vegetated filtration area.



Existing channel on V Wall that requires earthworks and reinstatement of grassed surface

Urban Elements – Pathways/Rock Art

The inclusion of the rock artwork on a promotional cultural route brochure could also feature as a highlight to draw tourism to the Nambucca River. The protection and encouragement of the rock walls as an evolving piece of public art is supported.

The amenities block should be upgraded in keeping with the suggested built form palette contained within the guidelines.



Vehicular Circulation - Car parking

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There is an identified issue with emergency vehicles having difficulty turning around at the end of Wellington Drive. There also exists a problem with the legibility of vehicular movement and the inefficient layout of the car park which at present totally dominates the foreshore. For these reasons a new layout for this area is suggested. The design is only notional but solves many of the problems and improves the aesthetic quality of the location.

A new one way system of moving traffic logically around the site is proposed. There is a turnaround capable of allowing large vehicles to turn and space is also allocated to coach parking (5 spaces) and 65 car parking spaces. The entrance to the caravan park becomes clear and defined, some green space is reclaimed through this rationalisation, without loss in use.

Helipad

An area is identified for a helipad, although it is not ideally separated from other users it may, in times of emergency be suitable for use. Council may consider other locations more acceptable but when redesigning this part of the foreshore it should be included in a brief for further design and development.

V Wall Park

A new green park is created which fronts the rock foreshore. A sweeping pathway to connect to the existing network is created. An area for picnics and gatherings is provided that faces the ocean to reveal its panoramic views. Feature trees provide colour and shade and a salt tolerant turf should be selected as a suitable ground cover. The new layout allows people near the edge rather than cars and will soften the whole experience of this part of the foreshore. It is suggested that a nautical theme be incorporated into design details of future structures, such as bollards, bins, seating and balustrade work along the rock wall edge.







V Wall Proposals

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Dune Area / connection to Shelly Beach - V Wall Precinct

This area sustains pressure from natural forces such as wind and wave action on a daily basis and is changeable by nature. To sustain human use it is recommended that steps be taken to shore up and rationalise the existing path network. In addition revegetation and dune rehabilitation should be carried out to ensure greater stability to the area.

A comprehensive Dune Care project can be formulated within this precinct. This project would address rubbish removal, weed eradication, fencing, path construction, signage and the installation of interpretive material. Path ways would be a combination of

- 1. flexible on ground timbers bound with hemp rope or other suitable product
- 2. Formed paths using edged compacted gravel, limestone or similar product
- 3. Timber retaining steps
- 4. Elevated stairway (To get access from existing concrete V Wall path to the dune area).

There is also the desirability of having a connection to Shelly Beach to complete a pedestrian walking loop track which provides the potential for pedestrians to walk back to the city centre. To enable this, an engineered elevated stairway is recommended to give safe access down to Shelly Beach. This would be a dramatic addition to the Shelly beach escarpment and the stairway should be designed to sit sympathetically within the landscape.

It is recommended that the local Land Care group become involved in the formation of the project to assist in securing funding from appropriate State authorities.



existing denuded dune area behind Shellys Beach



























Vegetation Management

A Vegetation Management Plan that addresses the entire foreshore area adjoining the Nambucca River is recommended. A Vegetation Management Plan (VMP) would be a reference platform from which Nambucca Shire Council can guide the future direction of planting. The VMP would address things such as protection of remnant species, identify areas for revegetation and detail specific ways planting can be undertaken and who is to do the work. This study does identify in a broad manner these issues but a follow up document that specifically addresses vegetation management would be the most effective tool for council to manage this natural resource.

Strategies to Improve Vegetation Management

There are three broad strategies Council can adopt to ensure the healthy sustainability of their foreshore area. These are

- 1) Vegetation Protection: Protect existing vegetation
- Vegetation Enhancement: Encourage the strengthening of existing vegetation communities at strategic locations. This is typically grouped planting that is focused within areas where vegetation is thinning and no natural regeneration is apparent.
- Vegetation Re-establishment: Planting of communities where they have been removed and bank erosion and or weed invasion is occurring or likely.

As a general strategy Council should employ controls and covenants to protect stands of vegetation and place these measures within their relevant Development Control Plan and Local Environmental Plan. Vegetation of highest importance to protect and enhance is that found on steep slopes as well as all low lying and river/creek bank areas. Vegetation that has high conservation significance and is found within the study area includes; Sea Grass beds, areas of Mangroves, Flood Plain Swamp Oak Forest and Lowland Littoral Rainforest. Protection must be afforded this existing vegetation to ensure that not only is there is no denuding of species, but that plant communities can regenerate to remain sustainable entities.

It should also be Council policy that any new developments be accompanied by plans that increase the biodiversity of the Nambucca foreshore. Development applications, new buildings, facilities and projects to re-invigorate parklands are all an opportunity to instigate revegetation and new planting.

In discussing vegetation management it is relevant to draw reference to an excellent planting document already in existence for use within

the Nambucca area. The "Nambucca Vegetation & Planting Guide", compiled by the Nambucca Valley Conservation Association and Nambucca Valley Landcare, 2007 should be the first point of reference for planting for all local and state government organisations as well as any community group who wishes to embark on projects which involve planting. The guide is well laid out, gives a range of suitable plants for the area and highlights the dangers of planting species that are or may become environmental weeds.

Revegetation Technique

It is recommended that those areas identified for planting in the masterplan follow the prescribed techniques listed below. Revegetation is a crucial long term management strategy for the sustainable use of the Nambucca Foreshore. It is also recommended that the following strategies be a basis for the preparation of any detailed planting projects which seek to gain funding from State authorities within the Nambucca Foreshore area.

*Mangrove regeneration and bank edge treatments are dealt with in a separate section.

Preparation for Planting

- Remove all woody weeds from the area identified for planting
- Remove all noxious and large herbaceous weeds from within planting zone
- Identify locations for seedlings and spray for all competing weeds within a 1.5m diameter of location of each plant.
- Temporary fencing can accompany any substantial revegetation works. Fencing may take the form of 3-4 strand wire and star pickets. Small signs that indicate revegetation is taking place would be advantageous to the success of planting.

Planting

Plant stock for all regeneration areas shall be sourced from local provenance seed or cutting. Local provenance means that plants must be grown from sources within a 50km radius of Nambucca Heads.

As a general guide to planting place trees at 3 metre centres, shrubs at 2 metre centres and foliage or ground cover plants at 1 to 1.5 metre centres depending on species. Site conditions, expected survival

rates and species chosen may slightly alter this ratio.

- Use sun hardened tube stock that are free of pests and weeds and are not root bound.
- Well water tube stock just prior to planting.
- Dig holes for each plant that are slightly bigger than tube stock to be planted.
- Place rain saver crystal at base of holes and mix into moistened soil.
- Place tube stock in prepared hole and tamp down soil around to remove air pockets
- Soak each plant immediately after planting.

*It may be necessary in some areas to introduce an enriched soil (suggested super soil mix sourced from MI -Organics). This soil should be mixed with the existing soil and then planted into. This will be necessary in areas such as Bellwood Park and the Vee wall where soils are sandy and denuded of mineral and organic content.

Place hwd chip or ti-tree mulch around each plant to a depth of 70-80cm and with a diameter of 500mm around plant. Ensure mulch does not come into contact with the stem of the plant. In large open grouped planting large beds can be made to accommodate planting rather than individual planting.

Note: In areas where frequent surface water movement is expected or on steep slopes do not use organic mulch around plants, instead use a jute weed matt around each plant and stake firmly, according to manufacturer's specifications.

If introduced soil is not used, dig a shallow hole 200mm from plant and place slow release fertiliser tablet within hole, cover and firm down soil.

*Do not stake tube stock or use plastic guards around plants, this is unnecessary and may cause pollution of the environment if bags/guards blow away.

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Species Selection

Revegetation should utilise those species which are endemically found at specific location within the study area. Species used will include but not be restricted to a selection of species listed in the following table. Please note that the reestablishment of mangrove communities is dealt with in the "Bank Edge Treatment" section.

Existing understorey species are in most cases highly modified with introduced grasses dominating a large proportion of the foreshore area. Remnant species associated with mangrove swamps, saline wetland areas and forested areas include grass, sedge and rush species which can adapt to periodic inundation. It is best when revegetating to allow natural regeneration of mid to low storey species to occur. If there is no likelihood of this occurring, then planting of species can be suitable particularly if stabilisation of soils is an issue.

For specific planting schemes within the Nambucca Shire it is recommended that the potential to propagate local rare and threatened native plants be considered. It is more important within this project however to recommended species that are known to be hardy and more readily available.

The following list is derived from various sources that include;

Nambucca Valley Conservation Association and Nambucca Valley Landcare, Nambucca Valley Vegetation & Planting Guide, June 2007.

Nambucca Shire Council, Street Tree Guideline Kendall & Kendall, Nambucca Catchment Vegetation Survey, May 2003

Barry Kemp, Wildflowers of the North Coast of New South Wales, 2004

NSW Department of Land and Water Conservation, Coastal Dune Management, October 2001

Site visits

Table 1 Plant List for Parkland, Street Tree & Revegetation Works

Botanical Name	Common Name	Suitable Location					
Over storey		Street Tree	Parkland	River Edge	Creek line	Dune	
Acacia longifolia subsp. sophorae	Coast Golden Wattle			0		0	
Acacia melanoxylon	Blackwood			0	0		
Allocasuarina littoralis	Black Sheoak					0	
Alphotina excelsa	Red ash		0				
Angophora bakeri	(Narrow leaved Apple)	0	0				
Banksia integrifolia	Coast Banksia	0	0	0		0	
Banksia serrata	Saw Banksia		0	0			
Brachychiton acerifolius	Flame Tree	0					
Brachychiton discolor	Lacebark Tree	0					
Buckinghamia celcissima	Ivory Curl Tree	0					
Callistemon salignus	White Bottlebrush		0				
*Caesalpina ferrea	Leopard Tree	0					
*Caesalpina pulcherrima	Barbadoes Tree	0	0				
Casuarina glauca	Swamp Sheoak		0	0		0	
Cinnamomum oliveri	Oliver's Sassafras		0				
Ceratopetalum apetalum	Coachwood		0		0		
Corymbia gummifera	Red Bloodwood		0	0			
Cryptocarya glaucescens	Jackwood		0				
Cupaniopsis anacardioides	Tuckeroo	0	0				
*Delonix regia	Poinciana	0	0				
Endiandra pubens	Hairy Walnut	0	0				
Endiandra sieberi	Hard Corkwood		0				
Eucalyptus fusiformis	Nambucca Ironbark	0	0				
Eucalyptus tereticornis	Forest Redgum		0	0			
Eucalyptus microcorys	Tallowwood		0	0			
Eucalyptus robusta	Swamp Mahogany	0	0	0			
Eucalyptus signata	Northern Scribbly Gum	0	0				
Ficus coronata	Creek Sandpaper Fig				0		
Ficus macrophylla	Moreton Bay Fig		0	0	0		
Flindersia australis	Australian Teak		0				
Glochidion ferdinandi	Cheese Tree				0		
Guioa semiglauca	Guioa						



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Botanical Name	Common Name	Suitable Location				
Over storey		Street Tree	Parkland	River Edge	Creek line	Dune
Harpullia pendula	Tulipwood		0			
Hibiscus tiliaceus	Cottonwood Hibiscus	0	0	0		
Hymenosporum flavum	Native frangipani	0	0			
Jagera psuedorhus	Foam Bark	0				
Lophostemon confertus	Brushbox		0	0		
Lophostemon suaveolens	Swamp Mahogany	0	0			
Melaleuca quinquenervia	Broad-leaved paperbark	0	0	0		
Mischocarpus pyriformis	Yellow Pear-Fruit	0	0			
Neolitisea dealbata	White Bolly Gum	0	0			
Pittosporum undulatum	Sweet Pittosporum	0	0	0		
Scolopia braunii	Flintwood		0			
Sloanea australis	Maidens Blush		0			
Syncarpia glomulifera	Turpentine					
Syzygium oleosum	Blue Lilly Pilly	0	0		0	
Syzygium smithii	Lilly Pilly	0	0		0	
Tristaniopsis laurina	Water Gum	0	0		0	
Under storey		Street Tree	Parkland	River Edge	Creek line	Dune
Austromyrtus dulcis	Midyim		0			
Baumea juncea	Bare Twig-Rush					
Carex appressa	To a control of the control	1		1		
	Tussock Sedge				•	
Carpobrotus glaucescens	Coastal Pigface					0
Carpobrotus glaucescens Commelina cyanea					•	0
	Coastal Pigface		•	•	•	•
Commelina cyanea	Coastal Pigface Scurvy Weed		•		•	•
Commelina cyanea Crinum pedunculatum	Coastal Pigface Scurvy Weed Beach Lilly		•		•	•
Commelina cyanea Crinum pedunculatum Cynodon dactylon	Coastal Pigface Scurvy Weed Beach Lilly Couch				•	•
Commelina cyanea Crinum pedunculatum Cynodon dactylon Dianella caerulea	Coastal Pigface Scurvy Weed Beach Lilly Couch Blue Flax Lilly				•	•
Commelina cyanea Crinum pedunculatum Cynodon dactylon Dianella caerulea Hibbertia scandens	Coastal Pigface Scurvy Weed Beach Lilly Couch Blue Flax Lilly Climbing Guinea-flower				•	
Commelina cyanea Crinum pedunculatum Cynodon dactylon Dianella caerulea Hibbertia scandens Ipomoea pes-carpae subsp. brasiliensis	Coastal Pigface Scurvy Weed Beach Lilly Couch Blue Flax Lilly Climbing Guinea-flower Beach Morning Glory					
Commelina cyanea Crinum pedunculatum Cynodon dactylon Dianella caerulea Hibbertia scandens Ipomoea pes-carpae subsp. brasiliensis Juncus kraussii subsp. australiensis	Coastal Pigface Scurvy Weed Beach Lilly Couch Blue Flax Lilly Climbing Guinea-flower Beach Morning Glory Sea Rush					
Commelina cyanea Crinum pedunculatum Cynodon dactylon Dianella caerulea Hibbertia scandens Ipomoea pes-carpae subsp. brasiliensis Juncus kraussii subsp. australiensis Juncus usitatus	Coastal Pigface Scurvy Weed Beach Lilly Couch Blue Flax Lilly Climbing Guinea-flower Beach Morning Glory Sea Rush Common Rush					
Commelina cyanea Crinum pedunculatum Cynodon dactylon Dianella caerulea Hibbertia scandens Ipomoea pes-carpae subsp. brasiliensis Juncus kraussii subsp. australiensis Juncus usitatus Leptospermum laevigatum	Coastal Pigface Scurvy Weed Beach Lilly Couch Blue Flax Lilly Climbing Guinea-flower Beach Morning Glory Sea Rush Common Rush Coast Tea Tree					
Commelina cyanea Crinum pedunculatum Cynodon dactylon Dianella caerulea Hibbertia scandens Ipomoea pes-carpae subsp. brasiliensis Juncus kraussii subsp. australiensis Juncus usitatus Leptospermum laevigatum Leucopogon parviflorus	Coastal Pigface Scurvy Weed Beach Lilly Couch Blue Flax Lilly Climbing Guinea-flower Beach Morning Glory Sea Rush Common Rush Coast Tea Tree Coast Beard-heath					•
Commelina cyanea Crinum pedunculatum Cynodon dactylon Dianella caerulea Hibbertia scandens Ipomoea pes-carpae subsp. brasiliensis Juncus kraussii subsp. australiensis Juncus usitatus Leptospermum laevigatum Leucopogon parviflorus Lomandra longifolia	Coastal Pigface Scurvy Weed Beach Lilly Couch Blue Flax Lilly Climbing Guinea-flower Beach Morning Glory Sea Rush Common Rush Coast Tea Tree Coast Beard-heath Spiny Headed Mat Rush					•

River edge refers to the upper portion of the bank only. It will be appropriate to let natural regeneration of species occur within the toe of the river bank.

species chosen are consistent with those recomended within Nambucca Shire Council's -"Street Tree Guidelines' and the "Nambucca Valley Vegetation & Planting Guide"



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Masterplan Themes and Guidelines

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^{*} Introduced or Exotic Species

Dune Restoration

One area which differs substantially from other plant communities identified for revegetation is the dune precinct identified on Plan 15 V Wall Precinct. This area is in need of proactive management to subdue weed invasion and facilitate improved pedestrian access to connect with Shelly Beach. It is noted that a previous dune care project has been undertaken but that it is now time to introduce a revised plan of works. Within this zone it is recommended that;

- Rubbish be removed, including old fencing. (Reuse all materials, posts where possible).
- A weed control program be instigated
- New fencing is installed to restrict access away from revegetation zones.
- New path network be put in place which utilises a combination of wooden steps, timber and hemp rope walking tracks, constructed compacted gravel formed tracks and engineered access way from the top of the hill down to Shelly Beach amenities block. The existing pathways identified on Plan 15 V Wall Precinct are to be removed by strategic fencing and planting.
- Planting of appropriate species. Refer to species list within this document and it is recommended that the Coastal Dune Management – A manual of coastal dune Management and Rehabilitation techniques by the Department of Land and Water Conservation, 2001 and Headlands Regeneration Manual, by Freeman, Erskine & Reid (Envite NSW) Sept 2003 be used as a helpful tool to designing a specific project within this zone.
- Ongoing maintenance plan to ensure success of initial works program

Establishment and Maintenance Plan

Every vegetation program undertaken must have a long term maintenance schedule applied. Initial works will only be successful if there is money and people identified to look after the vegetation. Council may look at projects where private monetary contributions to managing public space are made, where private enterprise directly benefits from improvements being made. In general allowances need to be made for

- An establishment period of 8 weeks for each planted area that will start from the time that the last tree has been installed.
- Plants must receive water, a soaking, at least once a week for the first eight weeks. Plants must henceforth be watered in times of drought to ensure survival.

- Plants should be periodically surveyed to identify if any plant dies or becomes sickly. In this situation plants must be immediately replaced.
- Re-mulch beds at least once every two years. This is vital to sustaining healthy growth rates.
- Spot spray garden beds for weed and grass growth when required; initially this may be necessary every month.
- Dead limbs shall be periodically removed and all plants tendered to ensure maximum growth and health, this is particularly important for street trees, where mechanisms to guard against vandalism may also be needed.

Organisations to assist with revegetation include:

Nambucca Valley Landcare, Ph: (02) 6564 7838

Nambucca Valley Conservation Association

Funding for Vegetation and Landscape/Rehabilitation Projects

Opportunities for funding for vegetation management and environmental rehabilitation include;

Environment Trust – funding for stream bank rehabilitation

Wetland Care Australia

Natural Heritage Trust

*Contact the local Landcare office for assistance in submitting plans for funding

Plant Supply

All plants are to be sourced and purchased from local suppliers.



Street Trees

There are numerous sections along the study area which would benefit from the planting of street trees. Street tree planting improves visual amenity and is a way of setting a visual theme and sense of continuity along the foreshore. Plans 1 to 15 identify where street tree planting should occur.

The Pacific Highway stretch is an area where the road and its noise and scale dominate the quiet river and suburban nature of the landscape through which it travels. Street tree planting will bring the human scale of the place into play and provide an enhanced experience which will help link the suburban area of Bellwood to the river environment. It is recommended that when the Pacific Highway relocates that street tree planting be undertaken for the entire length of road from Teagues Creek through to the Riverside Drive entrance.

There are also sections along Riverside Drive where the pedestrian pathway is exposed to the road in these areas, street tree planting will provide some shade and improve the experience and safety for pedestrian and road users alike.

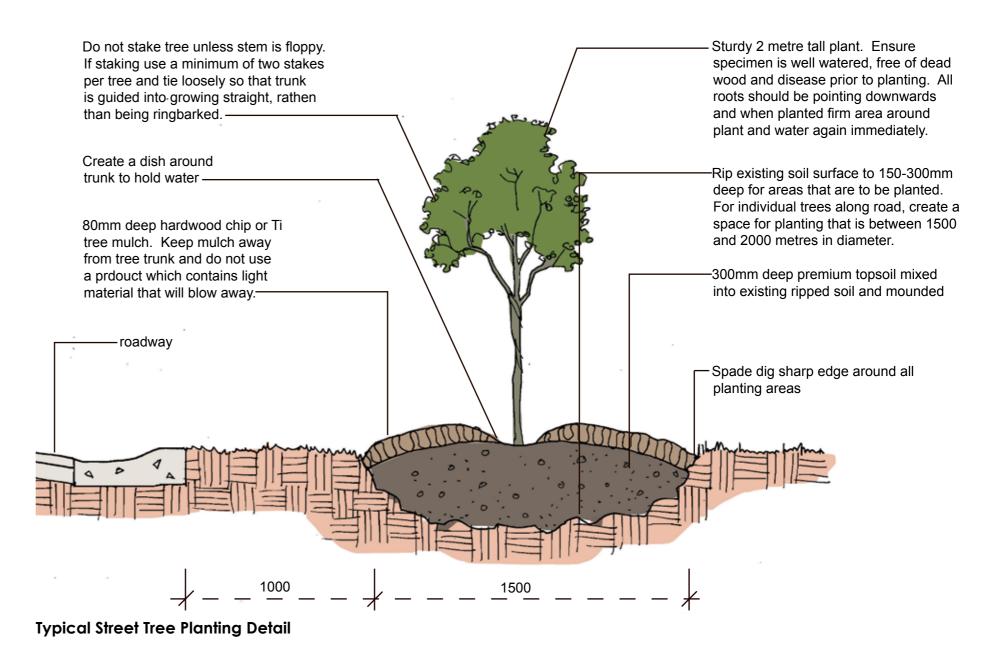
In the same respect the introduction of street tree planting along Wellington Drive will also improve the visual connections along the foreshore and help provide a theme which links the River drive / walk experience from the highway turnoff through to the V Wall.

It is recommended that two tree species be selected for the highway precinct. Riverside Drive and Wellington Drive should also have no more than three species selected. Feature trees within the various parks however can be diverse as well as the possible shade trees to accompany car parking areas. Refer Table 1, page 76 for options for species selection.

Street Trees should be planted as follows:

- Install plants that are around 2m tall. Stems should be robust and plants free of disease and deformity. Plants must not be root bound as this will weaken the mature tree.
- For each tree an area with a minimum diameter of 1.5m should be prepared.
- The soil should be ripped to a depth of 300mm and approx a third of a cubic metre of imported premium topsoil mixed into the existing soil.
- A covering of hwd chip or ti tree mulch should be put in place to a depth of 80mm over the prepared mound.
- Dig a hole for the plant which is slightly bigger than its root ball. Tamp down soil around the plant to create a depressed dish around the stem and water immediately.

- Do not stake tree unless its stem is weak. If vandalism is going to be an issue, place a guard around each tree. Contact Coffs Harbour City Council who have devised a method which allows each tree plenty of room while providing maximum protection, using a locally designed and fabricated tree guard.
- Plants must be watered at least every third day for an initial three week period, then once a week for a further 8 weeks. From then on plants should only require watering in times of drought.





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Masterplan Themes and Guidelines

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Weed Control Plan

A simple procedure to ensure the environmental sustainability of the foreshore is to instigate a Weed Control Management Plan. The control plan will have two parts. An initial weed eradication program, which will be widespread and thorough, aimed at hitting the presence of all weeds immediately and hard. The second part is a follow-up, long term program which will monitor and remove emergent weeds over a minimum of a five year period. At the end of the five years a review of weed control would be appropriate. A Weed Control Plan can be prepared as part of an overall Vegetation Management Plan for the foreshore or stand as a separate document in its own right. In heavily weed infested areas it is critical that revegetation works be undertaken or at least programmed as part of the weed control process.

Initial Weed Control

An initial weed control program would identify all noxious and environmental weeds and record their respective locations and densities within the study area. Different management zones may be identified that have specific weed control strategies applied, such as river zones, rainforest/forested zones, drainage channels and parklands.

Current control methods can then be applied to all weeds and priorities for removal assigned. It is not the intention, however, of a weed eradication program to leave large areas exposed and vulnerable to erosion. If there are areas that will be left denuded of vegetation because of weed removal it is imperative that a revegetation scheme accompany weed removal. While most weeds will be sprayed and left insitu it is recommended that any large woody weed be first effectively killed and then removed from site.

All control mechanisms should be costed with hourly rates and equipment/budget allocations made.

Follow-up Weed Control Plan

A follow-up scheme that allocates time and money for a period of five years should also be formulated. Tasks are to be outlined with who is to do the work and when work is to be done to best achieve the control of weeds. The control plan can be costed and included in the relevant council budget allocation for its vegetation management program. Weed control is an ongoing process due to the ability of seeds to lie dormant over extended periods of time. For effective use of money, weed control must be ongoing and the success of the program should be closely monitored.

Effective native vegetation enhancement of the foreshore will not be possible unless a weed control program is undertaken.

Relevant useful reference guides to the identification and control of weeds:

- Nambucca Valley Conservation Association and Nambucca Valley Landcare, Nambucca Valley Vegetation & Planting Guide, June 2007
- NSW Agriculture, Noxious and Environmental Weed Control Handbook 2004 – 2005, 2004
- The Big Scrub Rainforest Landcare Group, Common Weeds of Northern NSW Rainforest, 2000

Nambucca Shire Council should consider vigorously enforcing weed control within private land adjoining or having some influence over the Nambucca River environment. Council should also make clear that any land development must address the eradication of weeds from within properties.

Rubbish Removal

Littering of the foreshore area is a daily reality. Littering may be best monitored and controlled via community groups rather than simply providing more bins to be emptied. Local Landcare groups are a way to tackle this problem inexpensively, where the members can see immediate positive results in their work. For an effective long term approach to litter control, Nambucca Shire Council should draw up a clean-up program and provide bags and collection points for community groups on a regular basis and have a contact person specifically responsible for this task.

Bank Edge Treatment

Within the study area the bank edges as a whole are relatively stable. However some edges are experiencing thinning of vegetation and some undermining, particularly where hard edges are installed. There are two areas of specific concern with regard to bank erosion; these are along Riverside Drive near the oyster lease and along Wellington Drive (refer Plan 9 RSL Precinct and Plan 11 Gordon Park Precinct). In both these situations road infrastructure will be in danger of damage if proactive steps to provide a long-term stable solution are not installed.

General

In future it is recommended that bank edges are never created hard and impervious. In most situations bank edge treatments should be accompanied with indigenous planting on top of the bank. Where new jetties/pontoons are proposed it is recommended that the river edge itself be left with a toe profile that will enable either natural regeneration of species to occur or the planting of stock that would naturally be found in that location. When man-made elements are introduced along the river edge it is imperative that the natural processes of the river are taken into account and worked into the design.

It is recommended that no new timber retaining structures be built as a bank edge, these present an impervious face to the river that are easily undermined.

It is recommended that rock ballast not be used as a stabilising method on its own, unless it is used in a "rock fillet" situation which aims to provide an environment to encourage the healthy regeneration and stabilisation of the estuarine river bank.

No tyres, concrete or rubble of any sort is to be used within the study area as a "bank stabilisation" method. Its ultimate removal from the foreshore interface would be desirable as long as it did not compromise the stability of the bank edge.

No solid concrete wall construction is to be used as an edge treatment method. The use of rock gabions/revetment/rock filleting may be investigated in an area identified at the end of Wellington Drive where a steep bank combined with strong currents is causing erosion that may ultimately compromise the pedestrian and road pavement. (Refer Plan 14 V Wall for location)

Boardwalks

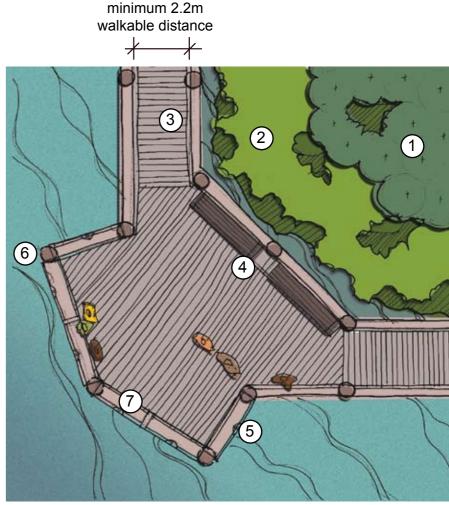
Where river profiles allow and where adjoining land use is not compromised it is suggested that the use of boardwalks be extended along as much of the foreshore area as is feasible. This will allow the river edge beneath to regenerate naturally with what is locally growing. All new designs should consider allowance for mangrove colonisation. By extending boardwalk construction along the foreshore a great recreational resource is not only created but a way of removing human impact from the more fragile and unstable river edge becomes possible.

Boardwalk Construction

Future boardwalk construction must ensure that timbers that come into contact with the water are marine durable. This means that all poles must use desapped turpentine or be of a man-made construction that will be durable within the marine environment. Treated pine is not a suitable material for use in water/ground within the tidal estuarine system. New boardwalks within the study area should aim to provide a walkable width area of at least 2.2 metres so that bikes and gophers can use the boardwalk along with pedestrians. Opportunities to create platforms to allow for fishing and viewing should be incorporated within the boardwalk design.



deck elevated above predicted sea level rises



place wider lookout platforms to utilise vantage points and places to fish

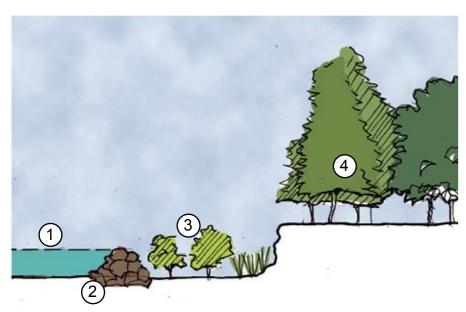
- 1 riparian vegetation
- (2) mangroves
- 3) boardwalk protects fragile river edge
- (4) seating
- 5) solar lighting built into structure
- (6) marine durable posts
- 7 information boards built into hand rail



Rock Filleting

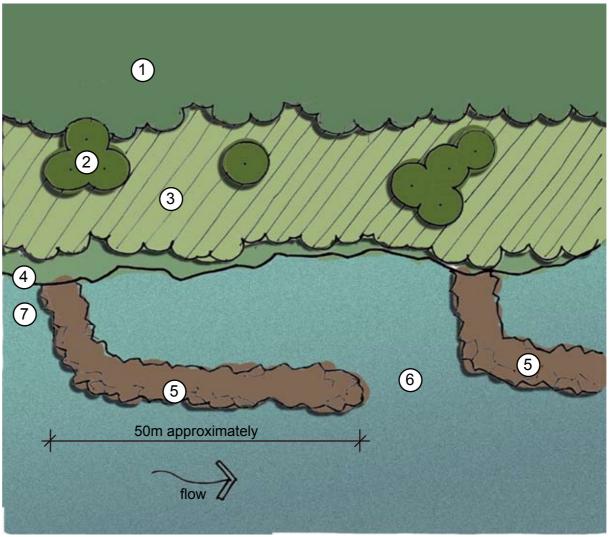
The locations identified on Plans 9 and 11 may be suitable for rock fillet work being undertaken to regain bank width and protect man-made assets such as paths and roadways. Rock fillet work forms a barrier for wave wash and has increased environmental benefits compared to traditional rock revetment. The quarry rock walls are built to the mean high water mark and placed about 3-5m in front of the eroding bank, depending on the river shelf available. The walls absorb wind generated wave action and create an area of still water that enables mangroves to self-seed. Mangroves are able to re-establish behind the rock area and will significantly reduce the impact of bank erosion. To achieve long term stabilisation of banks, rock filleting should be undertaken in conjunction with upper bank planting to create a stable healthy river edge.

It is recommended that Council make contact with experts in this area to specifically ascertain the scope and appropriateness of this type of edge treatment. Contact Rick James of Riparian Management Services. (0429 440 482) and Josh Keating, Senior Coordinator Wetland Care Australia (02 6656 4467) for further assistance in this area.



Typical Rock Fillet Section

- (1) mean high water mark
- (2) rock wave energy dissipation wall
- 3 naturally regenerating mangroves and salt tolerant sedges behind the wall
- (4) hand plant upper bank with riparian species



distance depends on slope and extent of bench in front of bank and reach of machinery to place rock

Typical Rock Fillet Arrangement

- 1 rainforest or estuarine forest species depending on location
- (2) existing remnant species
- (3) Casurina glauca (dominanat species)
- (4) bank edge
- 5 rock fillet
- (6) gap to allow tidal flushing, for fish passage and an easy route for mangrove seeds to be washed in behind walls
- The upstream end of each wall is keyed into the bank with rock built to top of bank to create a deflection structure during flood events



Stormwater - Creek lines

Water urban sensitive design solutions should be incorporated into Council's stormwater treatment program. As WBM Oceanics Australia recommended within their Estuary Management Plan, a specific Development Control Plan that addresses Water Sensitive Urban Design should be adopted. Within the study area, water urban sensitive design would include such things as creating more natural outlets into the river and utilising vegetation at any opportunity for the tertiary and secondary treatment of urban runoff. Sediment catchment basins and water retention areas will also help improve water quality and dissipate flow strengths. Consideration should be given to incorporating permeable pavements to hard surfaces and ways of filtering surface runoff prior to entering the drainage system. Wherever feasible, Council should incorporate these elements into existing and proposed urban areas.

Council should encourage the use of water saving and recycling devices in all facilities and elements that incorporate or use water within their functioning.

There also exist a range of gross pollutant traps which can be fitted to existing stormwater systems. All stormwater outlets which feed directly into the Nambucca River should be fitted with some form of pollution trap and/or water filtering device.

Effective and policed use of sediment fences and other erosion control measures must also accompany all construction activities. As previously stated by WBM Oceanics Australia, development applications should detail all approaches to be taken during the construction and operational phases, with regard to stormwater runoff.

A Storm Water Management/Development Control Plan which identifies the location and best method to deal with runoff should be instigated for the Nambucca River Catchment within all urban areas. Included in this plan would be the possibility for use and format of the following

- Vegetated swales
- Vegetated filter strips
- Sand filters
- Bioretention systems
- Permeable pavements
- Infiltration trenches

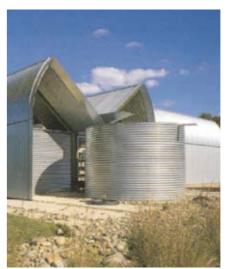
- Infiltration basins
- Use of rainwater tanks

These can then be specified by Nambucca Shire Council when new developments or redevelopments are proposed. Maintenance of these systems should not be overlooked as build up of material and vegetation/weed growth needs to be monitored.





Vegetated swales



Use of rainwater tanks



Permeable pavement



Vegetated filter strips



Bioretention system



Urban Character

Positive building character is vital to creating spaces and an atmosphere that people can relate to. Buildings that display a sense of place, recognising the existing character of Nambucca Heads are to be encouraged. These buildings would;

- Display innovative, environmentally sensitive designs sympathetic to their coastal setting.
- Have a small footprint; the scale of the built form would blend with the surroundings as opposed to overwhelming the landscape. Large oversized structures with bland large blank walls are to be discouraged.
- Include design elements relating to the historical themes of shipbuilding, timber milling and fishing. Gable/skillion roofing, weatherboards, timber elements, recycled materials and facades that give a human scale are all appropriate building design elements.
- Utilise colours that complement the natural environment, with intense colours reserved for feature elements.
- Conform to BASIX principles, be fully insulated, include passive solar design, clad with lightweight construction, be well ventilated and utilise materials of low toxicity.
- Become collectors and producers of energy (solar, wind).
- Store and use water efficiently incorporating environmental plumbing systems, suitable roofing design and water storage systems. Reuse of grey water and all round self sufficiency would be a goal.
- Encourage the use of materials of low embodied energy, using minimal energy to source and manufacture parts, for example, recycled materials and locally sourced timber.
- In low lying areas cater for future sea level rises; habitable spaces are to be raised to the required levels with consideration to utility and parking on the ground floor.

- Buildings near or on the water front should be small in scale, incorporate decking and verandahs and may be designed to be demountable.
- In commercial buildings active habitable spaces on building frontages are to be encouraged; Minimum 50-60% of street frontage to be habitable rooms.
- Existing amenity buildings may undergo simple upgrading via the cladding of masonry walls with timber/composite timber battens. Roof structures may be raised to allow increased natural light and aeration.













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The Cultural Route – River Way

The study area will be linked physically and visually in numerous ways. The linking of the foreshore will lead to increased use and appreciation of the natural and man-made features of the study area. The creation of an overall "cultural route" will place the myriad of information to be interpreted within the one unified framework. The cultural route or "River Way" will celebrate the vibrancy of the Nambucca River front and the community which has created it.

It is envisaged there will be:

a **large loop walkway/cycleway** which goes from Teague's Creek at Bellwood all the way to the V Wall, connecting to Shelly Beach and looping back to the town centre.

A **short loop walkway** which creates movement around the town centre with interconnected links to Gordon Park and the RSL Precinct.

A water loop, **River way**, with mooring sites proposed near Teague's Creek, the Information Centre, Bellwood Caravan Park, RSL precinct, Gordon Park, Wellington Drive and the Sand Island. There is enormous opportunity for boat users to explore the river environment.

The idea is to implement a cohesive suite of signage and urban elements that tell the story of Nambucca as users move along the foreshore walkway. It is a story that will be experienced on water and land. To accompany interpretive signage would be the creation of a tourist brochure which could have multiple roles, including the documentation of sites of interest on a map. There is already the beginning of this route in place but over time it is recommended that all features are interpreted and presented in a similar way. Natural, Aboriginal and white history are all important to interpret and combine on the one brochure/route.

Links, increased usability and legibility are all strategies promoted by this study. Links are made through the provision of a path network that weaves in and out of urban and natural environs. These are reinforced throughout by the introduction of more cohesive signage, the redesign of urban spaces and the introduction of street trees and urban art. Legibility is improved through the creation of landmark features to terminate vistas, provide way finders and link spaces.

Usability of the foreshore is enhanced via the introduction of communal spaces that contain more diverse opportunities for recreational and commercial uses. Features such as bicycle hire, safe places to dine or picnic, look outs, interactive art elements and improved lighting are all facilities which will create a new vibrancy.

Usability of the water is enhanced via the provision of, house boat hire, small boat hire, mooring sites, public jetties / pontoons and bait shops.

Pathways

Pathways and the improved ease of movement through the Nambucca foreshore are the keys to ensuring a vibrant future for the foreshore. Pathways will take numerous forms, but it is essential to construct ones which can cater for the expected range of users and the harsh environmental conditions in which they will sit.

All pathways are to have a width of 2.2m. This is to accommodate all expected users including pedestrians, bicycles, disabled people and gophers. Pathways can be constructed from various materials including;

General urban paths:

concrete with a broom finish









Feature pavements:

- coloured concrete, concrete with exposed aggregate, concrete with inlaid elements
- colours should complement the natural environment, predominately browns, greens and reds











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Boardwalk poles/pylons:

 Estuarine marine class 1 durable timber (desapped turpentine) or other suitable product. Treated pine in salt water is not suitable.

Boardwalk deck:

- Class 1 or 2 hardwood, treated pine, recycled products, fibreglass, marine grade stainless steel.
- Have a walkable deck width of a minimum of 2.2 metres
- Boardwalks can be expanded at strategic sections to take advantage of views or good fishing locations.
- Signage and lighting can be integrated into handrails
- New boardwalks are to cater for expected sea level rise.
- Floating pontoons attached to jetties wherever cost allows enabling ease of use by boats.









Balustrades

Balustrades are to be constructed from class one or two durable timber and or stainless steel. aluminium or anodised aluminium.

Balustrades may incorporate interpretive signs and feature lighting onto their frame. Balustrades should be designed with disabled person usage in mind and must conform to relevant Australian Standards.

External steps/platforms:

- Class 1 or 2 durable hardwoods with suitable external finishes, treated pine, stainless steel, anodised aluminium, externally durable recycled products.
- · Conform to relevant Australian Standards.

Lookout Structures/Platforms:

Lookout structures are a chance to capitalise on the dramatic panoramic views that encapsulate the Nambucca foreshore. There are suggested lookout locations at the far eastern end of Riverside Drive, the top of Gordon Park and as part of the stairway access from the bluff down to Shelly Beach. Each element will have to be individually designed to sit sympathetically in the landscape and yet become exciting features of it in their own right. Lookouts should be constructed using:

- Class 1 or 2 durable hardwood timbers
- Marine grade stainless steel
- Aluminium, anodised aluminium, treated pine, suitable recycled products
- Incorporate interpretive signage
- Conform to relevant Australian Standards.





Beach access:

- On sand: board and chain, board and hemp rope
- On firm ground: retained/edged crushed sandstone or like product or retained paving stone





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Signage

Signage is to tell a story rather than be one off descriptions. Signs are to interpret, reveal and make understandable natural features, manmade elements and views. They are to be woven into the urban fabric. Signs can be part of the built form, sculptural elements, handrails and ground surfaces.

Signs will take various forms but should be united under the one suite of materials, theme and colour palette. Signage themes are to be based on historic elements that evoke the character of Nambucca, such as utilising timbers that engender the jetty/ river environment. They may be curved reflecting the shapes of the river. Signage would be low maintenance, vandal proof, UV and Salt Resistant.

Suggested signage would utilise:

- Aluminium/ anodised aluminium/copper/marine grade stainless steel, external grade plywood, class 1 or 2 durable hardwood timber
- Back lighting (possibly solar)
- Local materials wherever feasible
- Materials of low embodied energy
- Recyclable and demountable elements
- Materials that change and grow over time (eg copper, hard wood)

Directional signs are to be curved panels emulating the shape of boat hulls. This form brings to life the maritime and ship building past of Nambucca. The text may be stencilled into curved plywood.

Way finding "timber blocks" could take the form of chunky angled broken shapes reminiscent of Nambucca's timber milling past. They may be made from recycled timber or composite wood (recycled products and timber combined) or plywood.

It is recommended that Nambucca Shire Council formulate a suite of signage similar to that shown. Following this example, urban street signage can be directly linked to the "Cultural Route" signage and interpretive material.











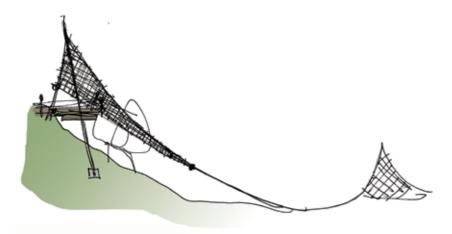
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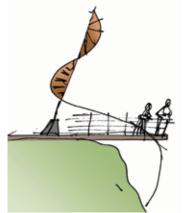
Urban Art

Urban art is to be dual purpose. It will act as place making devices and connect or link spaces to one another. Urban art is to integrate historical themes and be inspired by Nambucca's geomorphology and local flora and fauna. Urban art should involve the local community in its creation. For example Nambucca Shire Council could engage an artist to design the artwork and incorporate communities in its detailing. School children may create components for a larger work, which then has ownership by the wider community.

Whilst it is intended that urban art should be incorporated throughout the foreshore, a number of specific locations have been identified to be the focus for urban art. These include:

- a tall, vertical sculptural element at the entry to the Information Centre
- a tall, vertical sculptural element incorporated into a viewing platform at the top of Gordon Park
- a sculptural play piece within Gordon Park





concepts for Gordon Park platform and sculptural element

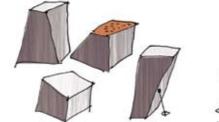
There are also two specific foreshore areas that should incorporate urban artwork. These spaces include the revitalised RSL surrounds and Gordon Park. These foreshore locations have been redesigned to create a hub of activity with strong links between the areas themselves and with the town centre. Concepts for both these locations include proposed new mixed used development.

It is anticipated both locations would include a range of built infrastructure, urban elements and detailed landscaped surrounds. Urban artwork could play a vital role in imbuing these locations with a sense of place and providing interest and excitement.

Urban artwork, at these locations, would contribute to creating foreshore locations that distinctly relate and describe the Nambucca River. There will be a range of opportunities to incorporate artwork at both the RSL site and Gordon Park including:

- groundplane artworks
- murals and mosaics
- signage associated with new facilities and retail outlets
- one off designs for themed furniture
- elements incorporated into boat moorings, boardwalks and the new wharf structures
- lighting

wire supports

























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Urban art could incorporate alternative power within its workings. Installing solar panels to create its own electricity for lighting or sound creation would be an effective idea; particularly where power was not readily available.

At suitable locations water should be integrated in the design to create visual links with the river. It may be possible to cascade water at locations where a natural change in grade is created. Bellwood Park will utilise water and urban art to create play and a sense of fun.

The sculptural elements located at the highway entrance and at the top of Gordon Park must be of an impressive scale to fulfil their role as way finding devices.



net and fish concept with potential for community involvement with fish shaped from wire or metal by local children

Exisitng public artworks should be respected and integrated into the Nambucca foreshore. In particular, the painted concrete blocks at the V Wall should be retained as a visual and cultural feature of this location.

Lighting

Lighting is a way of engendering use and safety of public spaces. It will play an important part in the redesign of the foreshore particularly at key nodes such as the RSL precinct and Gordon Park. Lighting will take various forms; street poles, floodlighting, feature lighting, bollards, wall mounted, in ground, as part of the deck structures and part of sculptural elements.

Lighting is to utilise alternative energy sources, particularly solar power wherever feasible or be LED. A lighting plan should be a component of all detailed project plans. Situations where lighting might be expected to be used includes

- LED lights over Gordon park emulating a fishing
- Backlit stencilled copper panels / facades that also act as information or place names
- Lighting on walls as patterns radiating from sculptures/stencils
- Wind powered lights in main public spaces that glow with intensity relative to wind strength and require no external power
- Bollard lighting along public thoroughfares beside the foreshore
- Feature solar lighting incorporated along the boardwalk.





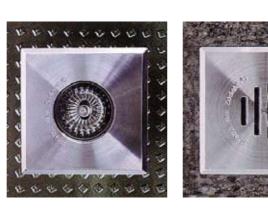
















Amenities

Amenities buildings are to borrow elements from historic coastal structures. These elements include:

- A gabled or skillion roof. Roofs are to contain generous eaves.
- Weatherboard cladding or like material, corrugated iron, colorbond or timber
- Use of natural lighting
- Be light weight construction rather than concrete and brick
- Incorporate recycled materials where appropriate
- Be designed to withstand or be sympathetic to sea level rise.
- Conform to all relevant Australian Standards
- Incorporate design features to accommodate disabled persons
- Potential colour range would seek to both harmonise and celebrate the natural setting, base colours would be light hues of blues and browns (materials may be kept to reveal their natural toning such as timber, stainless steel and copper or aluminium elements) with feature colours being brighter reds, greens and oranges.

New amenities buildings should also where possible utilise rainwater and solar power wherever feasible.











Shade and picnic shelters

Shade and picnic shelters are also to be of light weight material and again be reminiscent of structures traditionally found by the waterfront. Shade and picnic shelters are;

- To have gabled or skillion roof lines
- Be built from the following materials:
 - class 1 or 2 durable timber
 - marine grade stainless steel
 - recycled material that can withstand harsh external conditions
 - colorbond or like material
- Sited to take advantage of views and be logically placed beside pedestrian pathways
- Conform to all relevant Australian Standards
- Be designed to be used by disabled persons
- Utilise the same colour palette as for the amenities buildings, base colours would be light hues of blues and browns (materials may be kept to reveal their natural toning such as timber, stainless steel and copper or aluminium elements) with feature colours being brighter reds, greens and oranges.











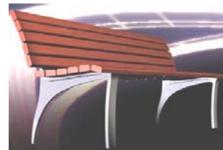
Park Furniture

Park furniture includes seating, tables, BBQs, bins, bollards and water fountains. It is crucial that all these elements are linked through similar materials and colours. At present the randomness and diversity in quality and look of park furniture detracts from the foreshore experience as a whole.

New park furniture should again be similar in style, form and colour as the larger built recreation structures. Park furniture is to be:

- Built from class one or two durable timber, stainless steel, external grade plywood, aluminium or copper
- Have marine grade stainless steel fixtures
- Be vandal proof
- Incorporate access and use by disabled persons
- Conform to all relevant Australian Standards
- Built to withstand harsh long term exposure to external elements

Base colours would be light hues of blues and browns (materials may be kept to reveal their natural toning such as timber, stainless steel and copper or aluminium elements) with feature colours being brighter reds, greens and oranges.

































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Photographs used in Part One, Site Anaylsis, Plans and Sections were taken by Jackie Amos, Fiona Bennell and Anne Harrison. Photographs used in Parts Two and Three of this document to support the masterplan proposals include projects completed by a range of other consultants.

4. ARCHAEOLOGY RECOMMENDATIONS

- 1. Construct a new larger purpose designed Visitor Information Centre with light refreshment facilities and clean, maintained public amenities.
- 2. Have permanent thematic displays in the new Visitor Information Centre that directly relate the Nambucca's past such as the timber getters, the bullockies, the timber mills, the boat-builders, the ship wrecks, the Aboriginal connections and associations.
- 3. Engage a specialist company to produce a brochure that lists the events of Nambucca's past, the sites of interest, a brief history of each site, and a photograph for each site, together with a map showing the numbered location for each feature.
- 4. Cull and/or replace the existing signs erected by Council which are both eyesores and dated.
- 5. Erect numbered bollards in front of each feature listed in the brochure with a corresponding number, and coloured in such a way as to provide a visual link between the information, the brochures and the bollards.



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5. CONCLUSION

The preparation of the draft Nambucca River Master Plan is the culmination of Council, DECCW, Nambucca River Estuary and Coastline Management Committee, community and project team's work over a considerable period of time.

The project team has relied heavily on inputs from all interested groups. These inputs have greatly assisted us to understand and appreciate the vital role the Nambucca River plays in many people's lives. The area is of great significance to Aboriginal people, and more recently, to the early pioneers of the area as a safe haven for shipping and an entry to the further reaches of the river.

The river environment is an important aquacultural resource, it is a nursery for fish breeding and it is a diverse ecological community - the source of many known and, as yet, unknown species. The river is a changing and evolving environment. The river is also a recreational environment and a scenic treasure.

The project team has visited the area on many occasions between December 2008 and May 2009. We have watched and observed and we have listened. We hope we have heard the message correctly, that the river and estuarine environment is loved for what it is; a natural resource.

It is understood that the people of Nambucca Heads wish to retain the coastal character that exists today. This character is low key, restrained, informal, familiar, manageable and accessible. This character is not sophisticated or busy or ostentatious. This character is understood, considered and can be built upon to achieve better environmental, social and economic outcomes for the area.

The draft Master Plan presents a range of design concepts and environmental management elements that recognise the past, present and future character of the area. From simply revegetating natural areas to creating a vibrant riverside precinct on the foreshore near the RSL, the draft Master Plan aims to provide a clear and workable project plan that may be implemented in stages but understood as a holistic master plan.

Some of the key considerations of the draft Master Plan are:

- Boat mooring facilities upgrades should be focused on the needs of smaller, shallow drafted craft that are best suited to the estuarine environment. Improved facilities for river foreshore landings of day craft are required.
- Waterfront Tourism Promenade this is best located around the RSL/ Gordon Park precincts rather than Wellington Drive for reasons relating to access, safety, impacts from rising sea levels and better connectivity with the town centre.

- Bowra Street Road Extension this is not supported due to engineering considerations / costs of construction and environmental impacts to the rainforest area. Improving connections between the town centre and the RSL and Gordon Park precincts is preferred using pathways, signage and a high sculptural element.
- The Hole in the V Wall The V Wall is to remain open. Further study is required to better understand the hydrology of the area.
- Dredging the social benefit of deeper channels may not be sufficient justification for the continued economic burden of dredging.
- Sand Island low key eco-tourism preferred. Day use and 'walkin' camping recommended.

The draft Master Plan concept designs have resulted from site visits, consultation, review of past work and the adoption of the above key considerations. The draft Master Plan will now be considered by the working group - Council, DECCW

and the Estuary Management Committee - and placed on public exhibition for one month.

This is an important opportunity for community feedback. The project team will conduct a public information meeting during the public exhibition period. The public are invited to make submissions to the draft Master Plan and are strongly encouraged to do so.

It is considered that this stage of the project may generate more community interest than previous consultation workshops. Interested people may now review clearly illustrated master plans that present our findings in a legible format.



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