

An aerial mosaic of the project area, showing a grid of 20 small images. The images depict a landscape with a winding road, a river, and a beach. The text 'Volume 1' is overlaid on the bottom left of the mosaic.

Volume 1

The Glades Estate Lots 1 & 2 DP 725785 Pacific Highway, Moonee

Environmental Assessment

for Rothwell Boys Pty Ltd

November 2007

0037659

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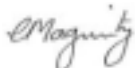
**The Glades Estate
Lots 1 & 2 DP 725785
Pacific Highway, Moonee**

Environmental Assessment

for
Rothwell Boys Pty Ltd

November 2007

Project No. 0037659

Project Manager:	<i>Carolyn Maginnity</i>
Signed:	
Date:	<i>16 November 2007</i>
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Date:	<i>16 November 2007</i>

Environmental Resources Management Australia Pty Ltd Quality System

This report has been prepared in accordance with the scope of services described in the contract or agreement between Environmental Resources Management Australia Pty Ltd ABN 12 002 773 248 (ERM) and the Client. The report relies upon data, surveys, measurements and results taken at or under the particular times and conditions specified herein. Any findings, conclusions or recommendations only apply to the aforementioned circumstances and no greater reliance should be assumed or drawn by the Client. Furthermore, the report has been prepared solely for use by the Client and ERM accepts no responsibility for its use by other parties.

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VOLUME 2

BUSHFIRE RISK ASSESSMENT

ABORIGINAL CULTURAL HERITAGE ASSESSMENT

FLORA AND FAUNA ASSESSMENT

VOLUME 3

GEOTECHNICAL ASSESSMENT

ACID SULFATE SOILS ASSESSMENT

STORMWATER ASSESSMENT

HYDRAULIC ASSESSMENT

TRAFFIC ENGINEERING REVIEW

NOISE IMPACT STATEMENT

LANDSCAPE CONCEPT PLAN AND OPEN SPACE MANAGEMENT PLAN

EXECUTIVE SUMMARY

This environmental assessment (EA) has been prepared by Environmental Resources Management Pty Ltd (ERM) on behalf of the Rothwell Boys Pty Ltd pursuant to Part 3A of the Environmental Planning and Assessment Act 1979 (EP&A Act). This report responds to the Director General's environmental assessment requirements to support a Concept Plan and Project Application.

Although the site is currently used for grazing and is largely cleared, a ten lot community title subdivision was approved by Council in 1994. This subdivision approval remains valid as it has been substantially commenced. The approval covers a similar area to the proposed development footprint and incorporates direct access to the Pacific Highway. Should the current proposal be approved, it is envisaged that the 1994 consent will be surrendered under Section 104A of the EP&A Act.

The site is approximately 96 hectares in area and the Concept Plan proposes the creation of a residential estate to be known as the "Glades Estate" at Moonee Beach, north of Coffs Harbour. The Glades Estate will be constructed in 11 stages and will ultimately comprise 523 residential lots and approximately 45 hectares of open space and habitat conservation areas. The Project Application relates to stages 1-3 of the development and involves the construction of 148 residential lots and associated landscaping, earthworks, infrastructure and access roads.

The proposed subdivision design and layout have been prepared based on an overlaying process of mapping various opportunities and constraints to determine the overall building envelope and the character of the open space network. The design maximises benefits to future residents and visitors to the Glades Estate while protecting areas of environmental sensitivity. A key to the successful development of the Glades Estate rests with the careful development and management of the Open Space Network. A comprehensive Landscape Concept Plan and Open Space Management Plan have been prepared to assist in achieving this objective.

Key issues to be addressed in the development of the site relate to vegetation and habitat management, stormwater management, cultural heritage, traffic noise impacts and vehicle access to the site. Detailed investigations have been undertaken in relation to these matters and these issues are addressed in this EA.

This EA details the State, regional and local planning controls that govern the development of the site and demonstrates the Glades Estate's importance in achieving Council's planning objectives for the Moonee Beach area.

The Concept Plan comprises:

- a site analysis identifying the site's opportunities and constraints;*
- extensive areas of the site to be dedicated to Council as open space, including provision to establish the northern link of Council's desired coastal walk;*
- two recreation areas for residents and the public including picnic shelters, amenities, boat ramps and fishing platforms;*

- *a landscape and open space management plan to create a landscape that compliments and strengthens the existing natural features of the Moonee locality; and*
- *a street network with high permeability for residents, visitors, domestic and emergency services including provision to link into Council's proposed collector road to Moonee Village.*

The Project Application comprises:

- *stages 1 - 3 of the subdivision involving the construction of 148 residential lots;*
- *associated earthworks (cut and fill);*
- *use of a new, temporary intersection providing interim access to the Pacific Highway;*
- *installation of noise attenuation barriers adjacent to the Pacific Highway;*
- *provision of entry road statement and landscaping;*
- *provision of part of the proposed boulevard avenue and street planting;*
- *installation of children's playground at Recreation Node 1 and construction of car park, amenities block, picnic shelters, etc;*
- *placement of the main pedestrian/cycleway linking the site to the north and south along the collector road;*
- *provision of fencing to indicate areas where access is desired;*
- *rehabilitation and strengthening of existing native vegetation areas to be retained.*

The EA contains the following to address the Director General's requirements:

- *a table outlining how the specified key issues have been addressed;*
- *the main report addressing key issues for both the Concept Plan and Project Application;*
- *a Statement of Commitments; and*
- *separate volumes containing the technical reports and investigations into the capability and suitability of the site for residential purposes.*

On the basis of the extensive investigations which have been undertaken, the proposed development has been carefully designed so that it avoids sensitive environmental areas and optimises the attractive features of the site. It is consistent with Council's Moonee DCP and various state, regional and local planning policies and strategies.

The proposed development is expected to generate in the order of 1560 jobs during housing construction over the entire estate. In addition, the civil construction works will generate employment opportunities and result in a significant short-term increase in employment. During housing construction, the proposal is also expected to generate demand for over \$40 million worth of primary materials, transport and property services. Annual household expenditure generated from future households in the estate is likely to be in the order of \$25.5 million, providing significant positive economic benefits to the local economy.

With appropriate mitigation and management measures, including water quality controls, restrictions on built form to achieve a high level of residential amenity and implementation of bushfire risk management measures, the proposed development will not result in any significant environmental impacts.



Volume 1				
	PART	A		

VOLUME 1

PART A

1 INTRODUCTION

This chapter provides relevant background information, describes the site and the proposed Glades Estate and outlines the report structure.

1.1 BACKGROUND

This environmental assessment (EA) has been prepared by Environmental Resources Management Pty Ltd (ERM) on behalf of Rothwell Boys Pty Ltd pursuant to Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act). It has been prepared in accordance with the Director-General's Environmental Assessment Requirements (DGRs) issued on 19 October 2006 for the environmental assessment of the project for a Concept Plan and Project Application.

The application relates to a proposed residential estate to be known as "The Glades Estate" at Moonee Beach, north of Coffs Harbour within the Coffs Harbour Local Government Area (LGA). The Glades Estate is located within the coastal zone and has the potential for the creation of approximately 523 residential lots.

In 1994, Council granted consent to a ten lot community title subdivision which proposed the creation of an internal collector road servicing a number of super lots. As this development has been substantially commenced, it remains a valid consent. The approval includes provision for a new intersection to be constructed providing direct access to the Pacific Highway. This intersection has been incorporated into the design of the proposed development. Should the current proposal be approved, it is envisaged that the 1994 consent will be surrendered in accordance with Section 104A of the EP&A Act.

This site was previously constrained by a lack of infrastructure however these services (sewer and water) are now available. The Glades Estate will achieve the aims of relevant planning instruments and strategies including *Coffs Harbour City Local Environmental Plan 2000* and *Coffs Harbour Urban Development Strategy 1996* and result in land which has been zoned residential for over 20 years, finally being utilised for its highest and best use.

1.2 SITE DESCRIPTION

The site is located approximately 13 kilometres north of Coffs Harbour and approximately eight kilometres south of Woolgoolga on the Mid North Coast.

The site is on the eastern side of the Pacific Highway (the highway runs north south generally parallel to the coastline) and is approximately one kilometre north of the existing Moonee Village urban area. A Locality Plan is provided as *Figure 1.1*.

The site comprises Lots 1 and 2 in DP 725785 and has an area of approximately 95.9 hectares. A copy of the deposited plan is provided as *Figure 1.2*. The site has a western frontage of approximately 920 metres to the Pacific Highway. On the northern and eastern boundaries are Skinners Creek and Moonee Creek respectively. To the east of the site across Moonee Creek is the Moonee Beach Nature Reserve which contains the estuarine and dunal environments adjacent to the beach. To the south of the site is vacant land that is zoned for urban use.

The site lies within a coastal setting and the landscape is characterised by open undulating grassland and slashed heath with scattered trees throughout. It has been predominantly cleared for grazing purposes. Denser areas of vegetation occur in association with Skinners and Moonee Creeks along the northern and eastern boundaries and as a narrow finger of vegetation running north-south along the ridgeline in the central part of the site. A site plan and detail survey plan are provided as *Figures 1.3* and *1.4* respectively. An aerial photograph of the site and surrounds is shown in *Figure 1.5*.

1.3 PROJECT DESCRIPTION

The objective is to create an attractive residential community set within a high quality built environment surrounded by open space reflective of its setting on the north coast of New South Wales.

The project involves the creation of a Torrens Title subdivision of approximately 523 residential lots as illustrated by the Concept Plan at *Figure 1.6*. The identification of the area proposed to be developed for residential purposes has resulted from a detailed analysis of the constraints and opportunities of the site to determine the most appropriate development footprint.

Nearly 47% or approximately 45 hectares of the site is intended to be dedicated to Council as either habitat conservation or active/passive open space. The design of the open space system and the proposed location of recreation facilities is based on the open space and recreation strategy outlined in Council's Moonee Development Control Plan (DCP) 2004. An Open Space Management Plan has been prepared for the site and is provided in *Volume 3*. The principles of the open space network and recreation areas are summarised in *Chapter 2* of this volume. A plan indicating the areas of the site to be used for open space, residential development and roads is provided as *Figure 1.7*.

The estate will comprise four residential precincts to be constructed in 11 stages as shown on the Construction Stages Plan at *Figure 1.8*. The Project



Legend

 Site Boundary

Source: 1:25,000 Topographic Series

Figure 1.1

Locality Plan

The Glades Estate, Coffs Harbour



0 500m
Approximate Only

**PLAN OF THE RESIDUE OF PORTIONS
265 AND 292 AFTER ROAD
ACTION**

D.P. 725785

Registered:  2/4/1987

C.A.:

Title System: TORRENSPurpose: DEPARTMENTALRef. Map: Y0957-8th

Last Plan:

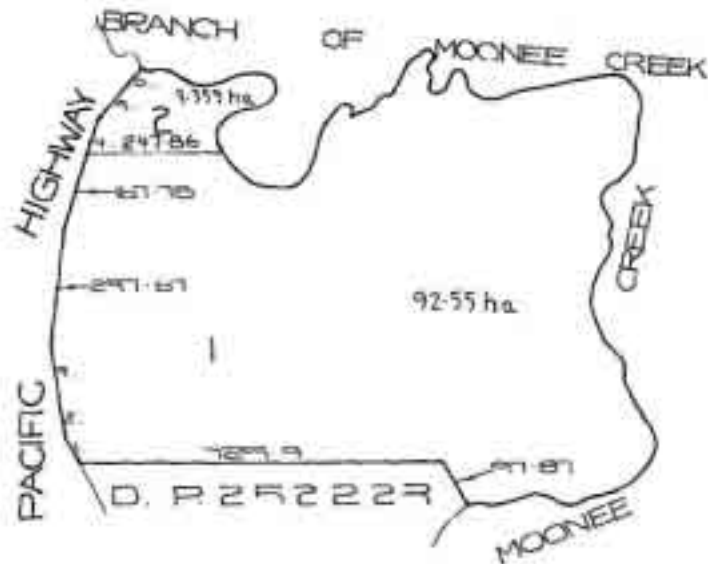
Municipality: COFFS HARBOUR

Town or Locality:

Parish: MOONEECounty: FITZROYReduction Ratio: 1:100

Lengths are in metres

NO 2 D 1 E



REFERENCE

1.	63.87	4.	71.29
2.	70.99	5.	94.09
3.	119.89	6.	4.025

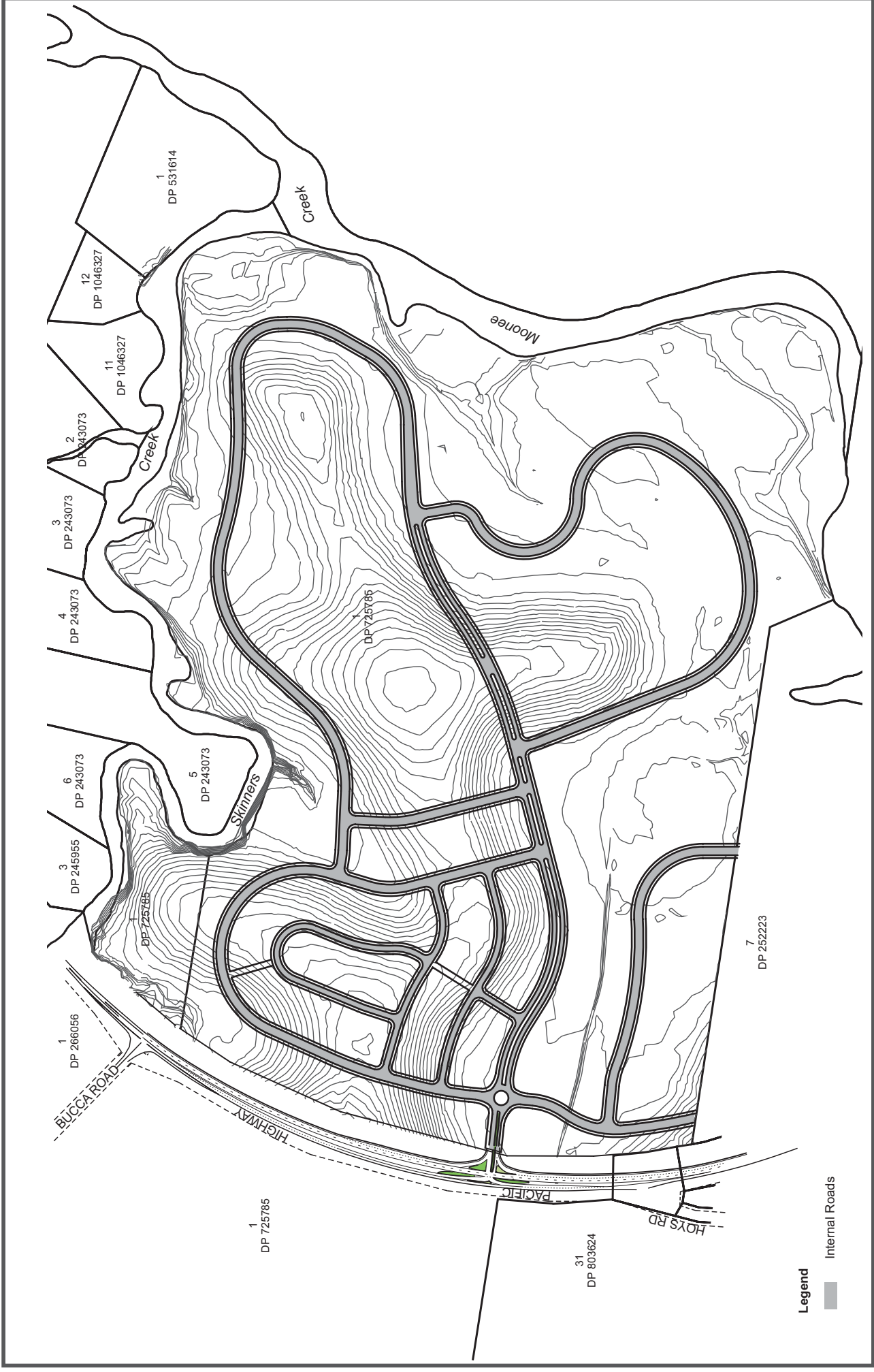
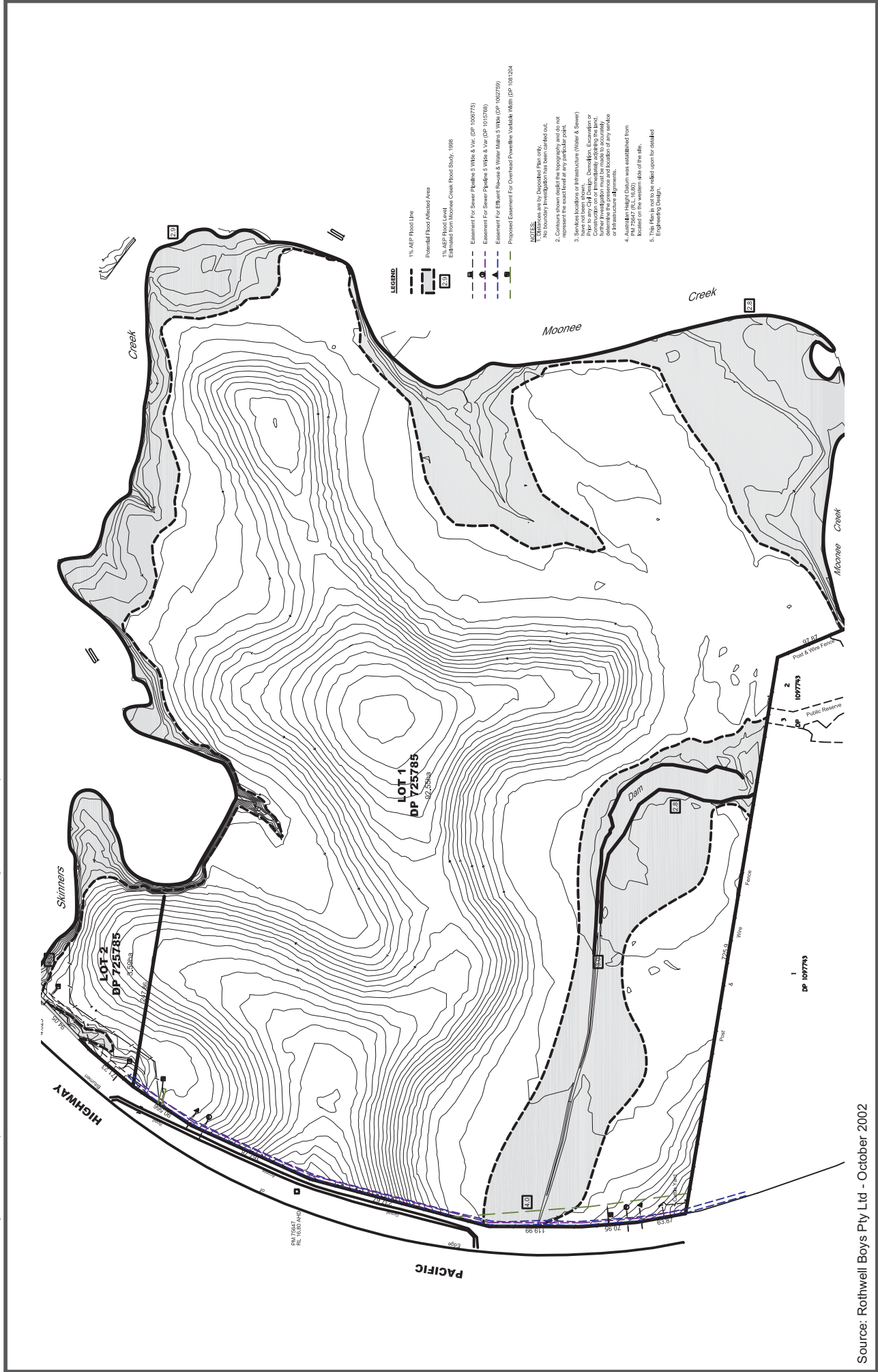


Figure 1.3

Site Plan



Source: Rothwell Boys Pty Ltd - October 2002



Figure 1.4

Detail Survey



Source: AUSPACIFIC Engineers Pty Ltd 06-1811 July 2006



Figure 1.5 Aerial Photograph

The Glades Estate, Coffs Harbour



Figure 1.6 Concept Plan

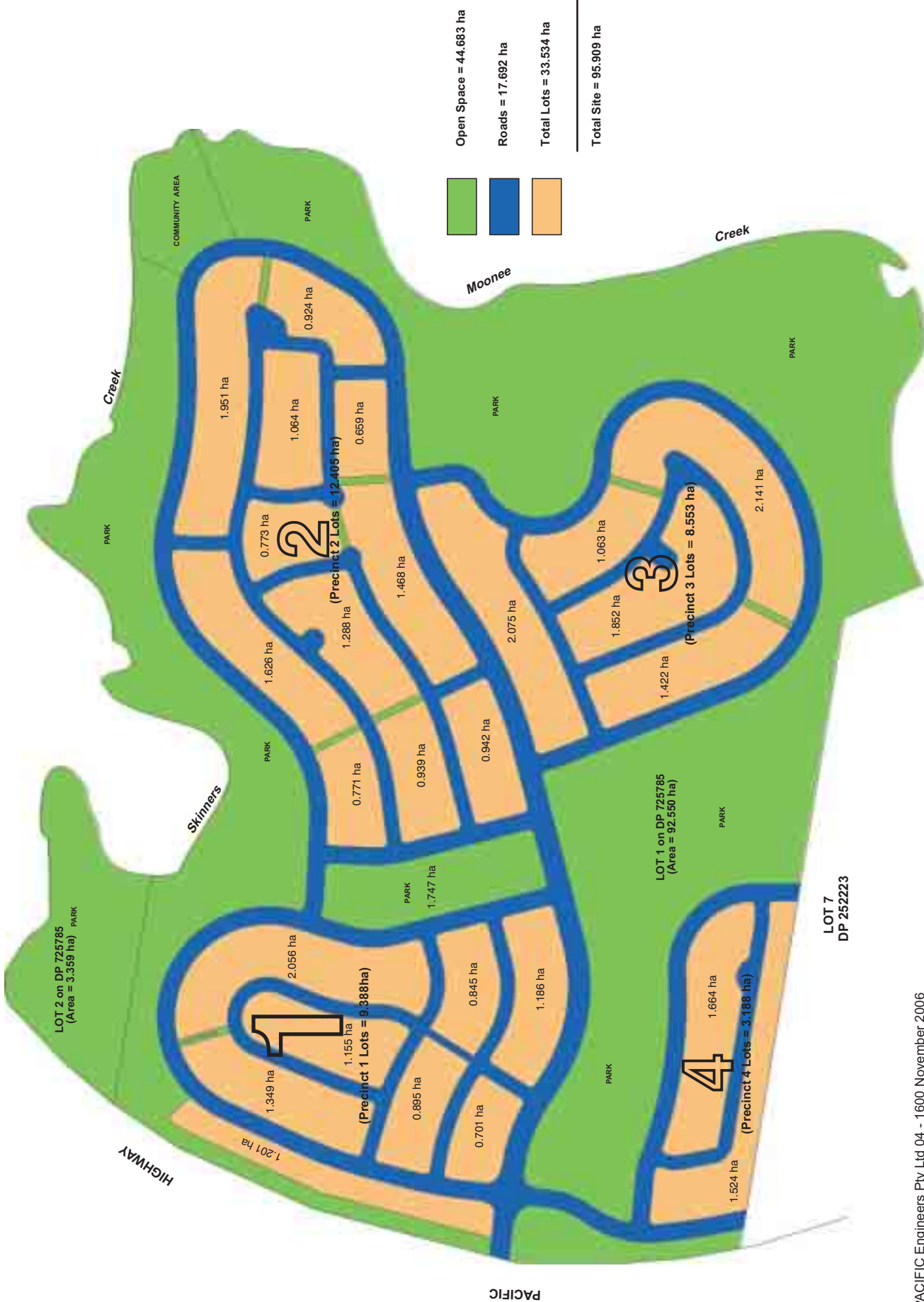


Figure 1.7

Site Areas

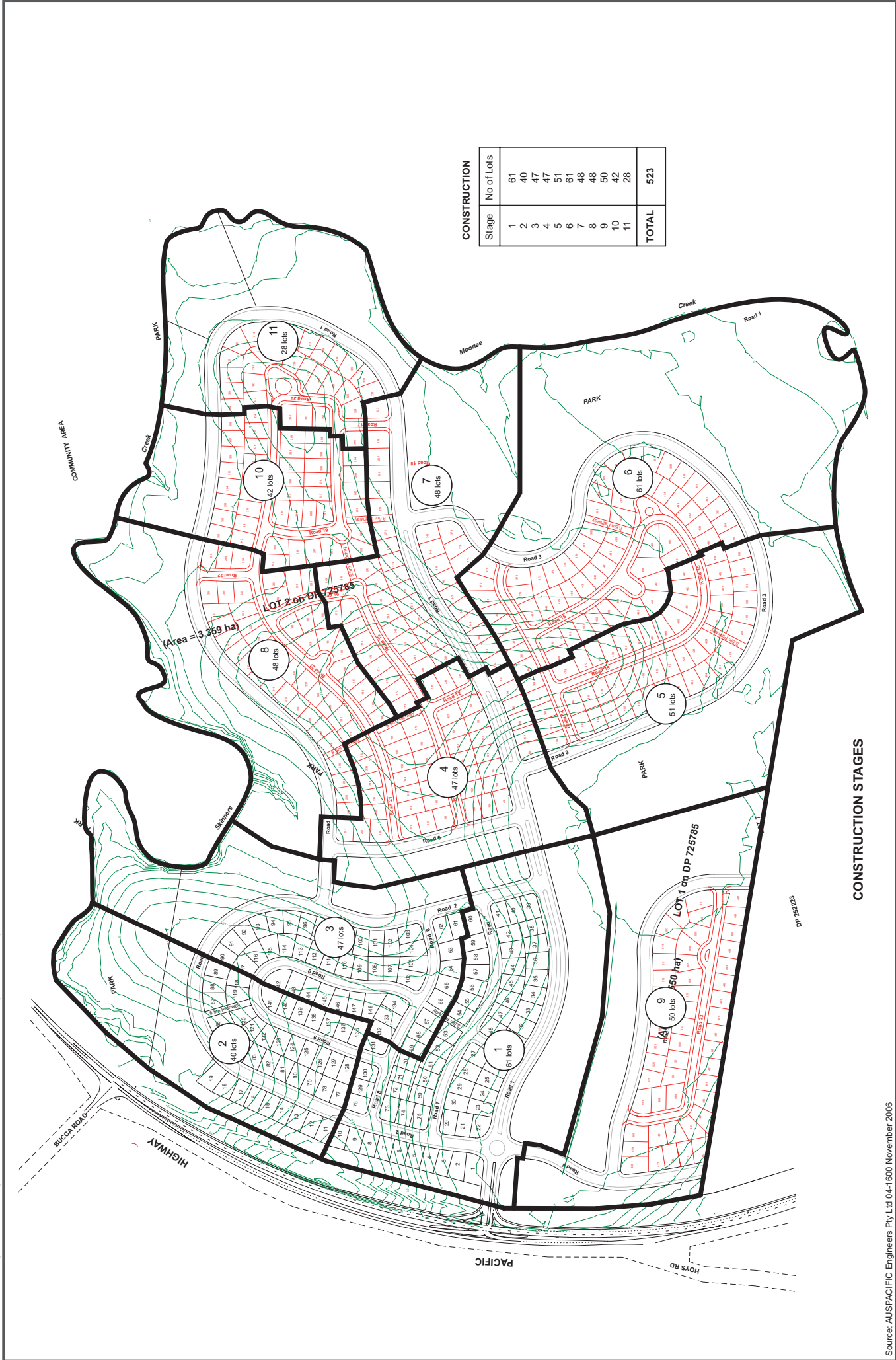


Figure 1.8 Construction Stages Plan

Application relates specifically to Stages 1-3 of the subdivision and involves the construction of 148 residential lots and associated landscaping, earthworks, infrastructure and access roads as shown on the Project Plan at *Figure 1.9*.

Project approval is sought for the following works:

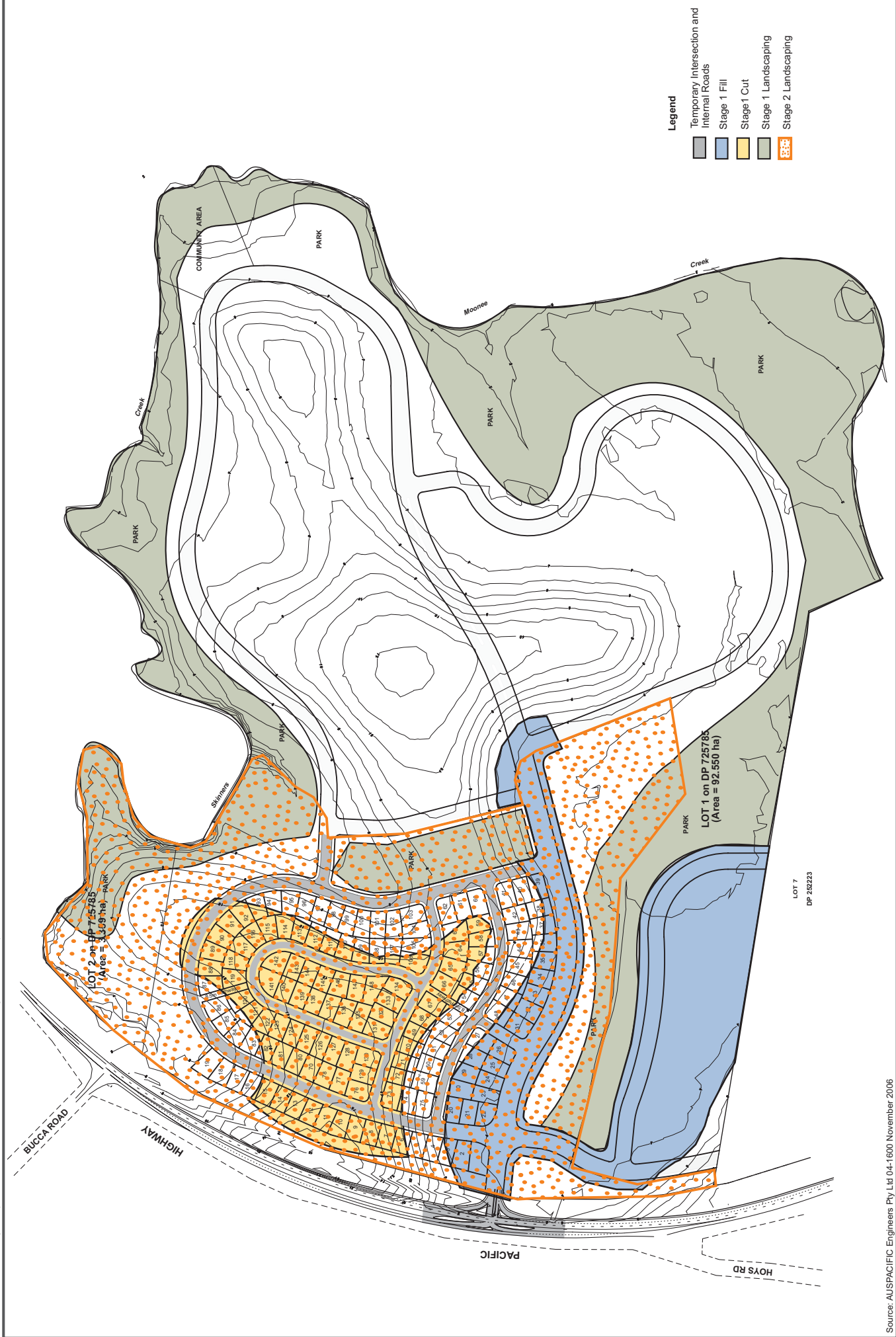
- construction of 148 residential lots ranging in size from 591m² to 871m² and associated access roads;
- associated bulk earthworks (cut and fill);
- associated water and sewer reticulation;
- associated stormwater drainage works;
- associated APZs;
- use of a new, temporary intersection providing interim access to the Pacific Highway;
- installation of noise attenuation barriers adjacent to the Pacific Highway;
- provision of entry road statement and landscaping;
- provision of part of the proposed boulevard avenue and street planting;
- installation of children's playground at Recreation Node 1 and construct on of car park, amenities block, picnic shelters, etc;
- placement of the main pedestrian/cycleway linking the site to the north and south along the collector road;
- provision of fencing to indicate areas where access is desired;
- rehabilitation and strengthening of existing native vegetation areas to be retained.

The extent of works included in the Project Application is shown in *Figure 1.9*.

1.4

REPORT STRUCTURE

This EA consists of three volumes. *Volume 1* contains an outline of the scope of the project, consideration of the relevant statutory and non-statutory provisions, a summary of the findings of the technical investigations undertaken as part of the environmental assessment, justification for the project and a draft Statement of Commitments.



Volume 1 is divided into two parts: *Part A* contains the general requirements that relate to both the Concept Plan and Project Application. *Part B* contains the requirements that relate specifically to the Project Application, the draft Statement of Commitments and a concluding chapter. *Part A* includes the following chapters:

Chapter 1 provides an introduction and relevant background information and an overview of the site and project;

Chapter 2 outlines the scope of the project including a site analysis, discussion of the subdivision design and layout including details of alternative designs considered;

Chapter 3 considers relevant statutory and non-statutory provisions arising from relevant environmental planning instruments, development control plans and planning strategies;

Chapter 4 contains summaries of the key issues identified in the environmental assessment including measures and strategies proposed to mitigate any adverse impacts on the environment. The environmental assessment includes investigations in relation to flora and fauna, water management, traffic management, hazard management, noise impacts, infrastructure provision and heritage significance;

Chapter 5 examines the social and economic impacts of the proposed residential subdivision;

Chapter 6 outlines the consultation that has taken place with government authorities and the community with respect to the proposed development;

Part B comprises the following chapters:

Chapter 7 provides a detailed description, including subdivision plan and environmental management plan details, of the Project Application component.

Chapter 8 documents the draft Statement of Commitments which sets out the management, mitigation and monitoring measures to be implemented to minimise any potential negative impacts associated with the project.

Chapter 9 draws conclusions based on the finding in the previous chapters and provides a justification in terms of the suitability of the site for the proposed development and the public interest.

Volume 2 contains the following technical reports:

- Bushfire Risk Assessment prepared by Resource Design and Management;
- Aboriginal Cultural Heritage Assessment prepared by ERM; and
- Flora and Fauna Assessment prepared by James Warren and Associates.

Volume 3 contains the following technical reports:

- Geotechnical Assessment prepared by Coffey Geosciences Pty Ltd;
- Acid Sulfate Soils Assessment prepared by Coffey Geotechnics Pty Ltd;
- Stormwater Assessment prepared by Gilbert & Sutherland;
- Hydraulic Assessment prepared by Cardno Lawson Treloar;
- Noise Impact Statement prepared by HK Clarke & Associates and ERM;
- Traffic Engineering Review prepared by Cardno Eppell Olsen Pty Ltd; and
- Landscape Concept Plan and Open Space Management Plan prepared by Anne Harrison & EDGE Environmental Design Group NSW Pty Ltd.

1.5

KEY ISSUES

The Director General's Requirements (DGRs) for the preparation of this EA are provided in *Annex A* of this volume. A summary of the key issues raised in the DGRs, as well as the relevant section of the EA where they are addressed, is provided in *Table 1.1*.

Table 1.1 **Director General's Requirements**

Key Issue	Relevant Section in EA
General Requirements	
PART A: the Concept Plan Application:	
• An executive summary;	Executive Summary
• An outline of the project including:	
• any development options;	Section 2.6
• justification for the project taking into consideration any environmental impacts of the project, the suitability of the site and whether the project is in the public interest;	Chapter 9
• outline of the staged implementation of the project if applicable;	Sections 1.3 and 2.5
• A thorough site analysis and description of the existing environment;	Section 2.1
• Consideration of any relevant statutory and non-statutory provisions and identification of any non-compliances with such provisions, in particular relevant provisions arising from environmental planning instruments, regional Strategies (including draft Regional Strategies) and Development Control Plans as well as impacts, if any, on matters of national environmental significance under the Commonwealth Environmental Protection and Biodiversity Conservation Act 1999;	Chapter 3
• An assessment of the potential impacts of the project and a draft Statement of Commitments, outlining environmental management, mitigation and monitoring measures to be implemented to minimise any potential impacts of the project;	Chapters 4 and 8
• The plans and documents outlined in Attachment 2 ;	
• A signed statement from the author of the Environmental Assessment certifying that the information contained in the report is neither false nor misleading; and	Inside the front cover
• An assessment of the key issues specified below and a table outlining how these key issues have been addressed.	Table 1.1
PART B: the Project Application:	
• The matters listed above in Part A, and	
• A detailed description, including plan details, of the project application component, comprising the first stage of the subdivision.	Section 13

Key Issues

PART A: Key issues to be addressed in the Concept Plan Application for all stages of the subdivision.

1. Subdivision Design and Layout

- | | |
|---|--|
| 1.1 Demonstrate that the subdivision design and layout will be consistent with the Coastal Design Guidelines for NSW(2003); | Section 3.3.2 and Chapter 7 |
| 1.2 Demonstrate that the subdivision design and layout maximises connections to existing urban areas and to the planned Moonee urban release areas; achieves an integrated design; provides a continuous network for vehicles (including bicycles) and pedestrians to, within and from the site, and includes consideration of possible fragmentation from the Moonee urban release area due to any separate access and/or secondary access to the Pacific Highway; | Section 4.7, Chapters 2 & 7 and Landscape Concept & Open Space Management Plan |
| 1.3 Address access to facilities including retail facilities, transport and recreation and community facilities; | Chapter 2 and Section 5.3.2 |
| 1.4 Address visual impacts and relevant mitigation measures, in the context of adjoining and surrounding development, and the setting, from all publicly accessible areas. | Chapter 2 and Landscape Concept & Open Space Management Plan |
| 1.5 Identify appropriate open space areas, buffer zones, bushfire asset protection zones and conservation areas; and | Chapters 2 & 7 and Landscape Concept & Open Space Management Plan |
| 1.6 Provide a staging plan of the subdivision that demonstrates that lots will be released in an orderly and coordinated manner | Figure 1.8 |

2. Flora and Fauna

- | | |
|--|--|
| 2.1 Outline measures for the conservation of animals and plants and their habitats within the meaning of the TSC Act and Fisheries Management Act 1994. | Section 4.9 and Flora & Fauna Assessment |
| 2.2 Outline measures for the conservation of existing wildlife corridor values and/or connective importance of vegetation on the subject land, including Koala habitat and areas identified as being of high and/or very high ecological status. | Section 4.9 and Flora & Fauna Assessment |

3. Proposed Conservation Areas and Moonee Creek/Estuary Buffer Zones

- | | |
|---|--|
| 3.1 Identify conservation and buffer areas, having consideration to the Estuary Management Plan for Moonee Creek (or Draft Estuary Management Plan for Moonee Creek), including appropriate setbacks to Moonee Creek and Solitary Island Marine Park and excluding areas for stormwater management and/or bushfire risk mitigation. | Sections 4.9, 4.10, 7.3 and 7.4 and Landscape Concept & Open Space Management Plan |
|---|--|

4. Water Cycle Management and Impact on Watercourses, including Moonee Creek and Estuary

- | | |
|--|---|
| 4.1 Address potential impacts on the water quality of surface and groundwater, and on the waters and estuarine environment of Moonee Creek and Solitary Islands Marine Park, including consideration of potential impacts of formal access (such as boat ramps and jetties) and of informal access, as well as impacts of additional recreational use; | Sections 4.5, 4.10, 7.3 and 7.4, Stormwater Assessment and Landscape Concept & Open Space Management Plan |
| 4.2 Address relevant strategies and recommendations of the Estuary Management Plan for Moonee Creek or draft Estuary Management Plan for Moonee Creek; | Section 4.10 |
| 4.3 Outline measures for Integrated Water Cycle Management (including stormwater drainage) based upon Water Sensitive Urban Design principles, including consideration of impacts on the surrounding environment, use of treated grey water, and ongoing monitoring and maintenance; | Sections 4.5 and 7.4 and Stormwater Assessment |

Key Issues

4.4 Liaise with Department of Natural Resources (DNR) and Department of Primary Industries (DPI)/Fisheries in relation to any requirements for water use, water management and work within 40m of the top of the bank of rivers and streams, and free passage of fish in waterways.	Chapter 6
5. Hazard Management and Mitigation	
5.1 Address the requirements of <i>Planning for Bushfire Protection</i> (RFS) and ensure required bushfire asset protection zones are located outside proposed conservation areas and buffer zones;	Section 4.1 and Bushfire Risk Assessment
5.2 Address the requirements of relevant flooding data in relation to the subdivision design and layout and minimum site and floor levels, including consideration of the impacts of predicted sea level rise over the next 100 years;	Section 4.5.2 and Hydraulic Assessment
5.3 Identify any areas of contamination on the site and appropriate mitigation measures to ensure these can be managed in accordance with relevant statutory and non-statutory requirements;	Section 4.4.2
5.4 Identify the presence and extent of Acid Sulfate Soils (ASS) on the site and appropriate mitigation measures;	Section 4.4.1 and Acid Sulfate Soils Assessment
5.5 Identify any other specific natural hazards where relevant and mitigation measures;	Not Applicable
6. Traffic Management and Access	
6.1 Prepare a 'Traffic Impact Study' in accordance with the RTA's Guide to Traffic Generating Development, which addresses but is not limited to the following matters: <ul style="list-style-type: none">• The RTA's Coffs Harbour Pacific Highway Planning Strategy.• The capacity of the road network to safely and efficiently cater for the additional vehicular traffic generated.• Potential construction and operational impacts on existing and proposed intersections/s with the Pacific Highway.• Consideration of available public transport and additional demands for such transport, and provisions for pedestrians and cyclists.	Sections 4.7 and 7.6 and Traffic Engineering Review
7. Noise	
7.1 Address potential noise impacts, in particular road traffic noise, for future residents and appropriate mitigation measures. This should include consideration of the impacts of the RTA's planned upgrade of this section of the Pacific Highway.	Section 4.8 and Noise Impact Statement
8. Infrastructure Provision	
8.1 In consultation with relevant agencies, address the existing capacity and requirements of the development for sewerage, water, electricity, telecommunications, waste disposal and gas.	Section 4.6
8.2 Address the provision of public service and infrastructure having regard to the Council's section 94 Contribution Plan.	Section 3.5.4
9. Heritage	
9.1 Identify whether the site has significance in relation to Aboriginal cultural heritage and identify appropriate measures to preserve any significance.	Section 4.2 and Aboriginal Cultural Heritage Assessment
9.2 Identify any other items of European heritage significance and provide measures for conservation of such items.	Section 4.3 and Aboriginal Cultural Heritage Assessment

Key Issues**PART B: Key issues to be addressed in the Project Application
Environmental Assessment for Stage 1 of the subdivision****1. Compliance with the requirements of the concept plan**

- 1.1 The Environmental Assessment must demonstrate consistency with all DGRs as detailed above in Part A, and the following additional matter.

2. Subdivision Design and Layout

- 2.1 Demonstrate that the subdivision design and layout can provide for energy efficiency, safety, accessibility and housing diversity. Section 7.2
- 2.2 Outline possible building envelope, built form and design quality controls, and the means of implementing them. Section 7.2

3. Proposed Conservation Areas and Moonee Creek/Estuary Buffer Zones

- 3.1 Outline the means for the long-term management of these areas, including: their ownership and control; public access; revegetation and rehabilitation works; weed management; and measures to control access by domestic animals. Section 7.3 and Landscape Concept & Open Space Management Plan

4. Water Cycle Management and Impact on Watercourses, including Moonee Creek and estuary.

- 4.1 Provide a concept plan for Integrated Water Cycle Management (including stormwater concept plan/s) based upon Water Sensitive Urban Design Principles, and including consideration of impacts on the surrounding environment, use of treated grey water, and ongoing monitoring and maintenance. Section 7.4 and Figure 4.5 and Stormwater Assessment

5. Hazard Management and Mitigation

- 5.1 Submit a geotechnical assessment report that details appropriate geotechnical investigations to establish certainty in terms of site stability and suitability for the proposal. Section 7.5 and Geotechnical Assessment

6. Traffic Management and Access

- 6.1 Address impacts of additional intersection/s and access to the Pacific Highway, and address their closure upon the establishment of access via the local/collector road system set out in Council's Moonee DCP 2004. Section 7.6

7. Earthworks and Filling

- 7.1 Address impacts of earthworks and filling on the existing hydrology and water quality, the conservation of animals, plants and habitat, and the management of ASS and any contamination of the site; Sections 4.4, 4.5 and 7.7, Stormwater Assessment and Acid Sulfate Soils Assessment
- 7.2 Provide details of the source of fill including types of material and soils, and details of suitable revegetation planting. Sections 4.4.3 and 7.7 and Landscape Concept & Open Space Management Plan
-

Consultation

An appropriate and justified level of consultation with the following agencies during the preparation of the EA:

- | | |
|---|-------------|
| (a) Agencies or other authorities: | Section 6.1 |
| • Coffs Harbour City Council; | |
| • Department of Natural Resources; | |
| • Department of Environment and Conservation; | |
| • Department of Lands; | |
| • Department of Primary Industries/Fisheries; | |
| • Roads and Traffic Authority; | |
| • NSW Rural Fire Service; | |
| • Solitary islands Marine Park Authority; | |
| • Country Energy; | |
| • Telstra | |
| • Local Aboriginal Lands Council. | |
| (b) Public: | Section 6.2 |
| • Document all community consultation undertaken to date or discuss the proposed strategy for undertaking community consultation. This should include any contingencies for addressing any issues arising from the community consultation and an effective communications strategy. | |

Plans and Documents to accompany the Application

Part A – Concept Plan

- | | |
|--------------------------------|---------------------|
| 1. Site Survey Plan | Figure 1.4 |
| 2. Site Analysis Plan | Figures 2.2 and 2.3 |
| 3. Locality Context Plan | Figure 2.1 |
| 4. Environmental Assessment | Figure 2.3 |
| 5. Subdivision Plans | Figures 1.6 to 1.9 |
| 6. Stormwater Concept Plan | Figure 4.5 |
| 7. Infrastructure Concept Plan | Figures 4.6 and 4.7 |

Part B – Project Application

- | | |
|--------------------------------------|---------------------|
| 1. Environmental Assessment | Figure 2.3 |
| 2. Subdivision Layout Plans | Figures 1.8 and 1.9 |
| 3. Stormwater Plan | Figure 4.5 |
| 4. Erosion and Sediment Control Plan | Volume 3 |
| 5. Landscape Plan | Figure 2.7 |
| 6. Waste Management Plan | Not applicable |
| 7. Construction Management Plan | Annex C |
-

This chapter describes the scope of the project including a site analysis, discussion of the subdivision design and layout and a discussion of the alternatives considered.

2.1**SITE ANALYSIS**

The context of the site is illustrated in the aerial photograph provided as *Figure 2.1*. As can be seen in the aerial photograph, the site lies within a rural coastal setting. *Figure 2.2* illustrates the connections between the site and existing and planned urban areas in the locality. Ultimately, the site will be connected to the village of Moonee via a collector road, cycleway and coastal walk.

The design and layout of the Glades Estate was determined through an overlaying process of mapping various opportunities and constraints to determine the overall building envelope and the character of the open space network. The aim of the mapping exercise was to maximise benefits to future residents of and visitors to the Estate while protecting areas of environmental sensitivity. The elements that guided the development of the subdivision plan are detailed in the *Landscape Concept Plan & Open Space Management Plan* included in *Volume 3*. In summary, the following key constraints and features were considered:

- the presence of threatened species and significant habitat;
- Skinners Creek and Moonee Creek;
- flood prone and wetland areas;
- the central stand of mature vegetation;
- the presence of an Osprey nesting site; and
- areas of cultural significance.

These elements are mapped on *Figure 2.3*. The development avoids most ecologically sensitive areas and in some situations the Landscape Concept Plan enhances the protection of natural features.

2.2**VISUAL IMPACT**

A visual assessment was made of the development site to determine impacts on surrounding areas. The visual assessment is provided in the *Landscape Concept Plan & Open Space Management Plan* included in *Volume 3*. Due to a combination of rolling topography, existing vegetation stands, proposed enhancement of vegetation and the site not being readily seen from external



Source: RDM

Legend

 Site Boundary

Figure 2.1

Site Context

The Glades Estate, Coffs Harbour

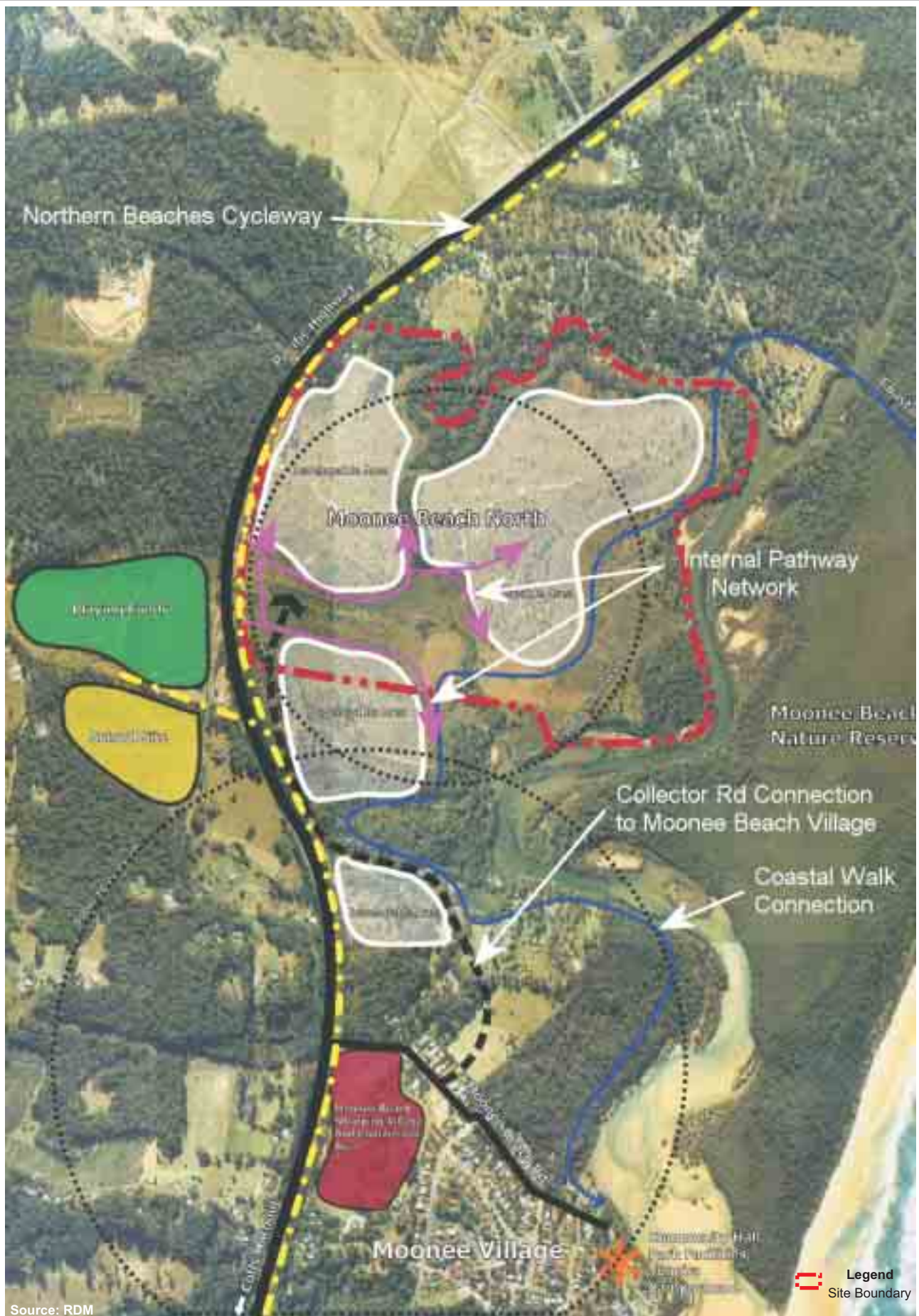


Figure 2.2

Site Connections

The Glades Estate, Coffs Harbour

locations, the Glades Estate is deemed to have a low visual impact on the landscape. The Landscape Visual Assessment is presented in *Figure 2.4*.

2.3 OPEN SPACE NETWORK

A key to the successful development of the Glades Estate rests with the careful development and management of the Open Space Network. The design for the open space system and the location of recreation facilities is a refinement of that put forward in Council's Moonee DCP. Details of proposed vegetation planting and open space management are provided in the *Landscape Concept Plan & Open Space Management Plan* included in *Volume 3*.

In summary, the proposed open space network can be divided into three broad types:

- natural areas;
- residential and recreation areas; and
- environmental scenic highway buffer.

Management plans have been prepared for each of these areas (please refer to *Landscape Concept Plan & Open Space Management Plan, Volume 3*). The location of these open space areas is illustrated in *Figure 2.5*.

2.4 BUILT ENVIRONMENT

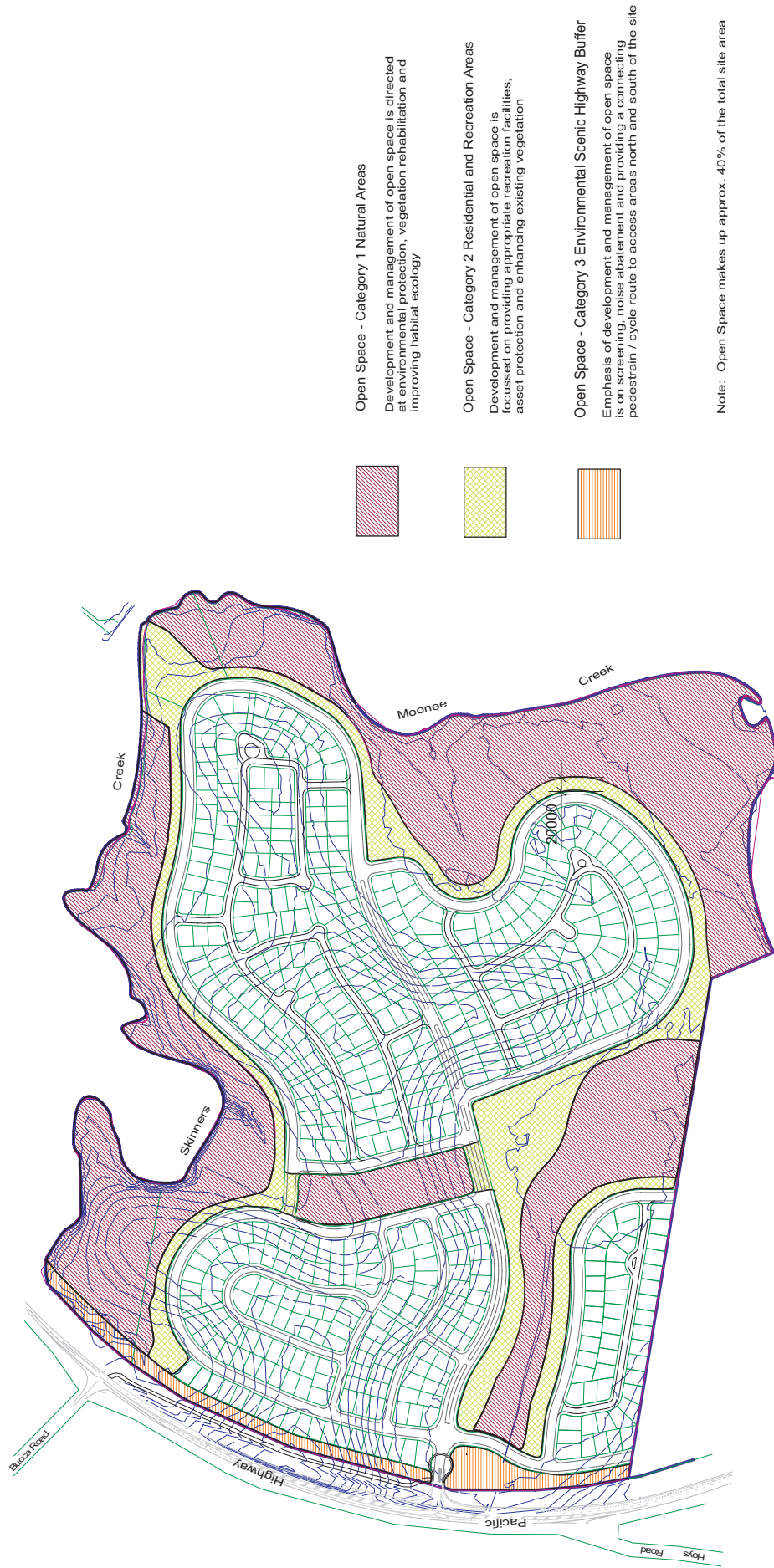
2.4.1 Streetscape

A comprehensive street planting scheme has been developed to add colour and softness to the built form. This scheme is in accordance with Council's Street Tree Master Plan. The details of the street planting scheme are provided in the *Landscape Concept Plan & Open Space Management Plan* included in *Volume 3*. *Figure 2.6* illustrates the proposed planting scheme.

2.4.2 Buildings

In line with Council's Moonee DCP, all proposed buildings will be low density, detached or semi detached and restricted to a maximum of two storeys. These building controls combined with streetscape planting will create a low impact, natural coastal living environment.

Design guidelines will be issued at the point of sale for each individual lot. These guidelines are aimed at ensuring a high standard in development of the



Source: Anne Harrison-Landscape Architect (Plan 3)



0 150m
Approximate Only

Figure 2.5

Open Space Categories

The Glades Estate, Coffs Harbour

built form and associated landscaped areas. The guidelines will cover elements such as:

- building form;
- setbacks;
- conformity to Basix design principles;
- levels;
- vehicle accommodation;
- external finishes;
- driveways;
- fencing and retaining walls;
- landscaping to front gardens;
- letterboxes.

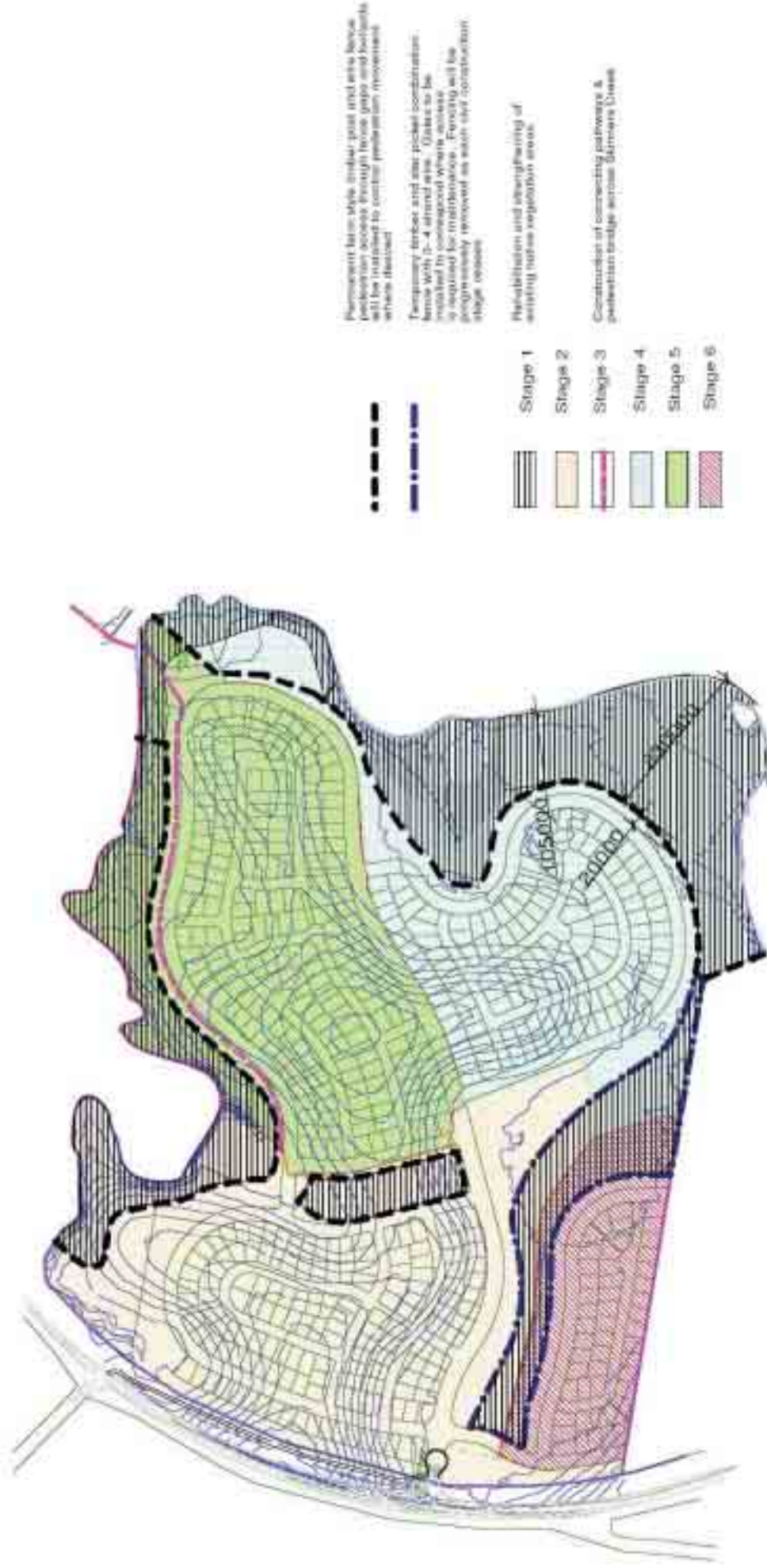
2.4.3 *Recreation Facilities*

Proposed recreation facilities will be sited in accordance with Council's Moonee Development Control Plan (DCP). Facilities will be located to avoid sensitive areas and be logically connected to neighbourhoods. All facilities will be for public use and will be accessible to all.

It is proposed to provide two recreation nodes as detailed in the *Landscape Concept Plan & Open Space Management Plan* included in *Volume 3*. The recreation nodes will include playgrounds, picnic shelters, amenities, BBQs boardwalks, fitness trails, boat and canoe ramps and the like. It should be noted that the location of the recreation nodes is notional only at this stage (concept plan stage) and will be subject to further consultation with Council and the Aboriginal community (particularly with regard to Recreation Node 2 which is located in the vicinity of an identified area of Aboriginal cultural significance).

2.5 *LANDSCAPE STAGING*

The Landscape Staging Plan seeks to logically set out the process of landscape enhancement of the Glades Estate and subsequently apply a management program to ensure the natural assets of the site are successfully established and managed before dedication of all open space areas to Council. The Landscape Concept Plan is provided at *Figure 2.7* and the staging plan is provided at *Figure 2.8*.



Source: Anne Harrison-Landscape Architect (Plan 8)



0 150m
Approximate Only

Figure 2.8

Landscape Staging Plan

The Glades Estate, Coffs Harbour

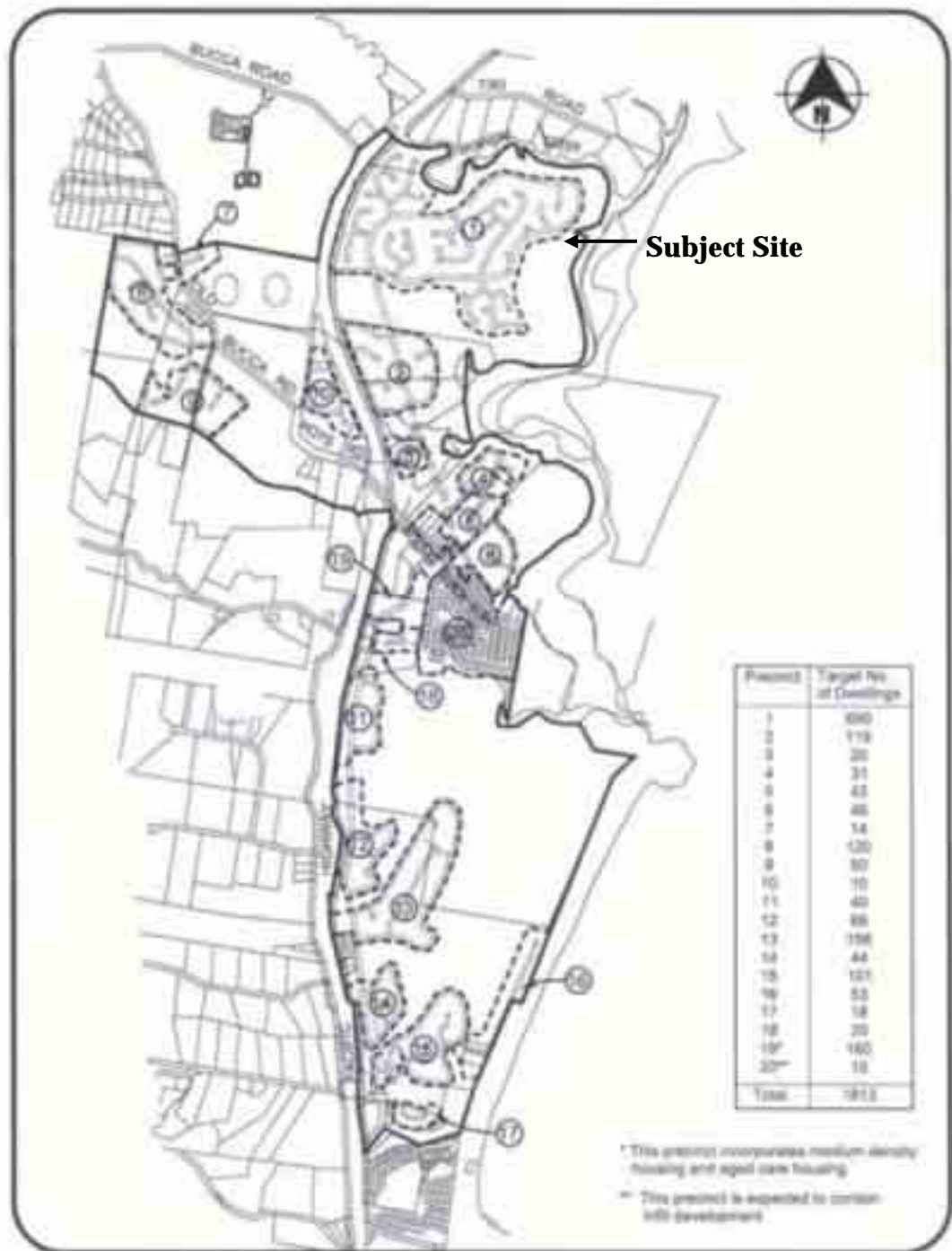
It is a high priority for landscape works to commence early within each stage so that issues can be resolved before population pressures are placed upon the open space and natural areas. Landscape works will be undertaken logically to coincide with the stage release of building lots. This will ensure that sensitive buffer areas are protected and relevant recreation facilities and aesthetic improvements are provided in a timely manner to residents. Please refer to the *Landscape Concept Plan & Open Space Management Plan* included in *Volume 3* for staging details and management actions.

Rothwell Boys Pty Ltd will establish and construct all recreation facilities identified in the Landscape Concept Plan and Open Space Management Plan. Ultimately all recreation amenities will become public facilities once the development stages of the project are complete. All areas of open space and any recreation facilities will be maintained by the Rothwell Boys Pty Ltd for a period of two years after the dedication of the land to Council, after which time all maintenance will be Council's responsibility. The staged dedication of open space areas will take place upon registration of the linen plan for each stage of the subdivision.

2.6

DEVELOPMENT OPTIONS

The land has been zoned for residential use since 1988. In conjunction with a major review of the Coffs Harbour Local Environmental Plan (LEP) a Development Control Plan (DCP) was introduced for the Moonee Area in March 2001. The DCP anticipated a total yield of 690 lots for the site and included a concept road / lot layout as shown on the Density Map.



Extract from 2001 DCP

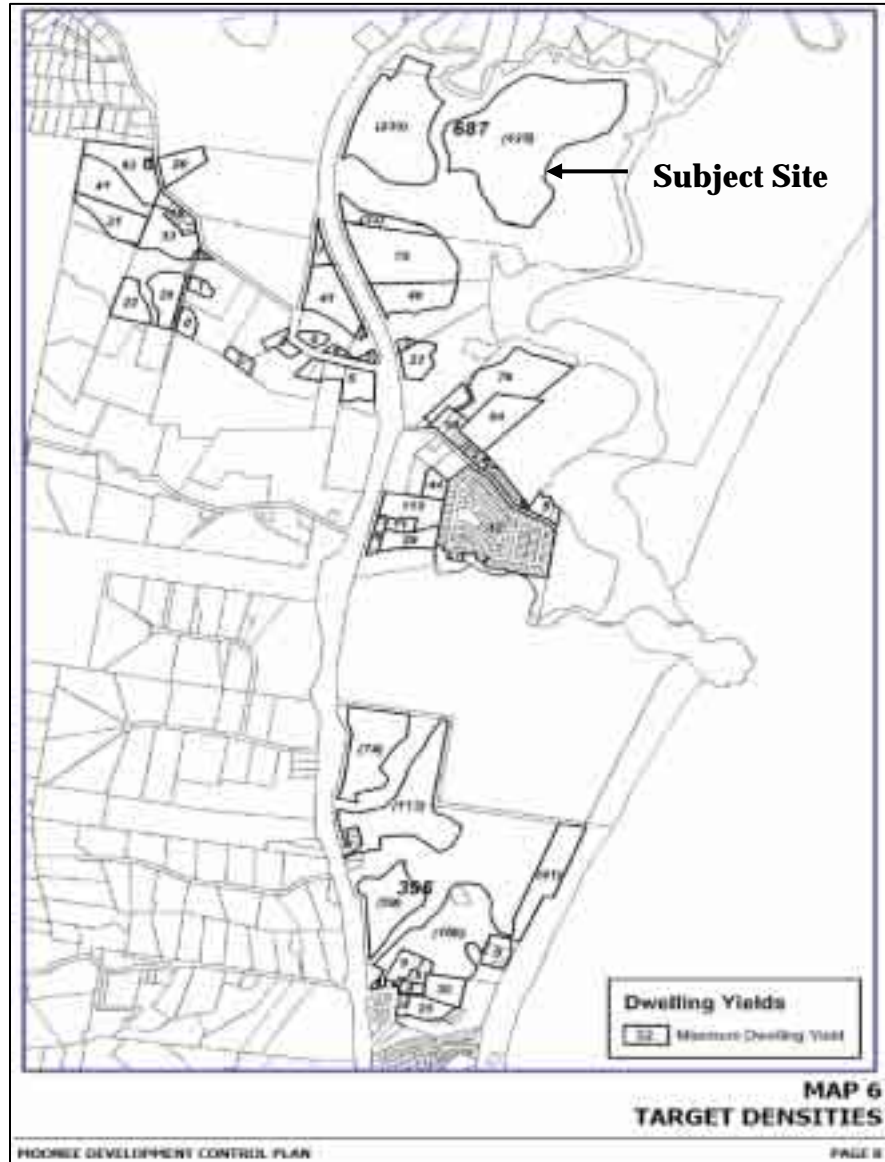
MAP 8 DENSITY

Due to servicing restrictions, development in accordance with the zoning was unable to occur. Major upgrading works and the development of new water and sewerage infrastructure saw the lifting of restrictions in 2004.

Coffs Harbour City Council released a draft DCP for the Moonee Release Area in January 2004 to replace the 2001 DCP. The proposed development concept has undergone a number of reviews, mostly in relation to the density / lot yield achieved over the total development. These reviews have been

undertaken in close consultation with the Council, and in accordance with the DCP review process.

The proposal presented in this EA represents the most sustainable option of providing for the anticipated future growth of the Moonee release area whilst achieving community acceptance to the form and density of development.



Extract from Draft DCP Version 1 (Jan 2004)

The Draft DCP exhibited by Council in early 2004 showed a minimum lot yield for the site of 687 lots (see plan above).

The following is an extract of the submission made to Council by Resource Design & Management on behalf of the Rothwell Boys Pty Ltd in relation to the densities proposed in the DCP.

Development Density

The Draft DCP nominates development densities to generally be within the range of 10-15 dwellings/hectare. Targets have been set for various areas with the targets providing for a minimum number of dwellings. The target set for the Winten site is a minimum of 687 dwellings.

Council has also nominated a development area on the site with a total area of 45.8 Ha. This means that the proposed development will have to achieve a minimum of 15 lots / hectare over the entire site to meet Council's required target. Having regard to the physical characteristics of the site and its location development of this density throughout the total site is considered excessive.

The achievement of the target density is also made difficult through the requirement for a minimum of 35m separation of future housing areas from areas to be protected and for a minimum 20m wide perimeter road to be provided to conservation areas. It is intended that reserve areas will be maintained to include protection areas adjacent to residential areas.

Initial planning and design considerations of the proposed residential development confirm that the target density is not able to be achieved even with the inclusion of substantial numbers of small lots and medium density development.

Under the procedures section of the DCP (page 1) it is stated that residential development in zone 2A will be required to comply with the Low Density Housing DCP. The density of development needed to meet the target density on the Winten site exceeds the densities allowable under the provisions of the Low Density Housing DCP.

It is noted that current government (DIPNR) strategies within the Sydney region identify housing densities to achieve 15 dwellings/ha within a city/urban setting. The UDAS definition of 15 dwellings/ha includes roads, lots, local open space, drainage corridors and community facilities such as schools, local shop. The current DCP area, which applies the 15/ha ratio, excludes local open space and the east/west drainage corridor. Given this and the regional characteristics of the building industry/market we believe a range of densities should be allowed for rather than limiting development on the site to a minimum of 15 dwellings per hectare (net).

It has been and will remain an objective of the proposed development to achieve the stated density, however due to the bushfire setbacks, perimeter road requirement and what is considered to be excessive areas nominated for conservation purposes, such a density is will be extremely difficult to achieve.

A preliminary development layout based on the Draft DCP provisions was prepared and is reproduced on the following page.

February 2004 Layout (Roberts Day)



LAND USE CALCULATION

Residential Lots	29.12 ha
Open Space	19.80 ha
Open Space Within 1% AEP Floodline	21.94 ha
Community Centre	0.41 ha
Road	17.65 ha
Possible Development	5.17 ha
TOTAL SITE AREA	94.09 ha

ALLOTMENT TYPES AND NUMBERS

Residential 300m ²	130
Residential 450m ²	280
Residential 600m ²	103
Residential Medium Density (assumes 3.29 ha x 0.5 = 1.645 of floor area, 11450 m ² / an average 100 m ² unit = 114 units)	114
Residential 1000m ²	18
Residential Duplex	32
TOTAL	677

Following public exhibition of the Draft DCP and a public forum, Council reviewed the development densities for the release area. Substantial negative feedback was received by Council from the community relating to the higher densities proposed and the effect such future development might have on the amenity and environment of the Moonee area and the Moonee Creek system.

The following is an extract from the Council report outlining issues raised by the public in regard to population density, dwelling targets and lot sizes:

Issues Raised through Public Consultation Submissions

- *Population density too high.*
- *Too many people proposed.*
- *Will change village character.*
- *Lot sizes are too small.*
- *Overcrowding.*

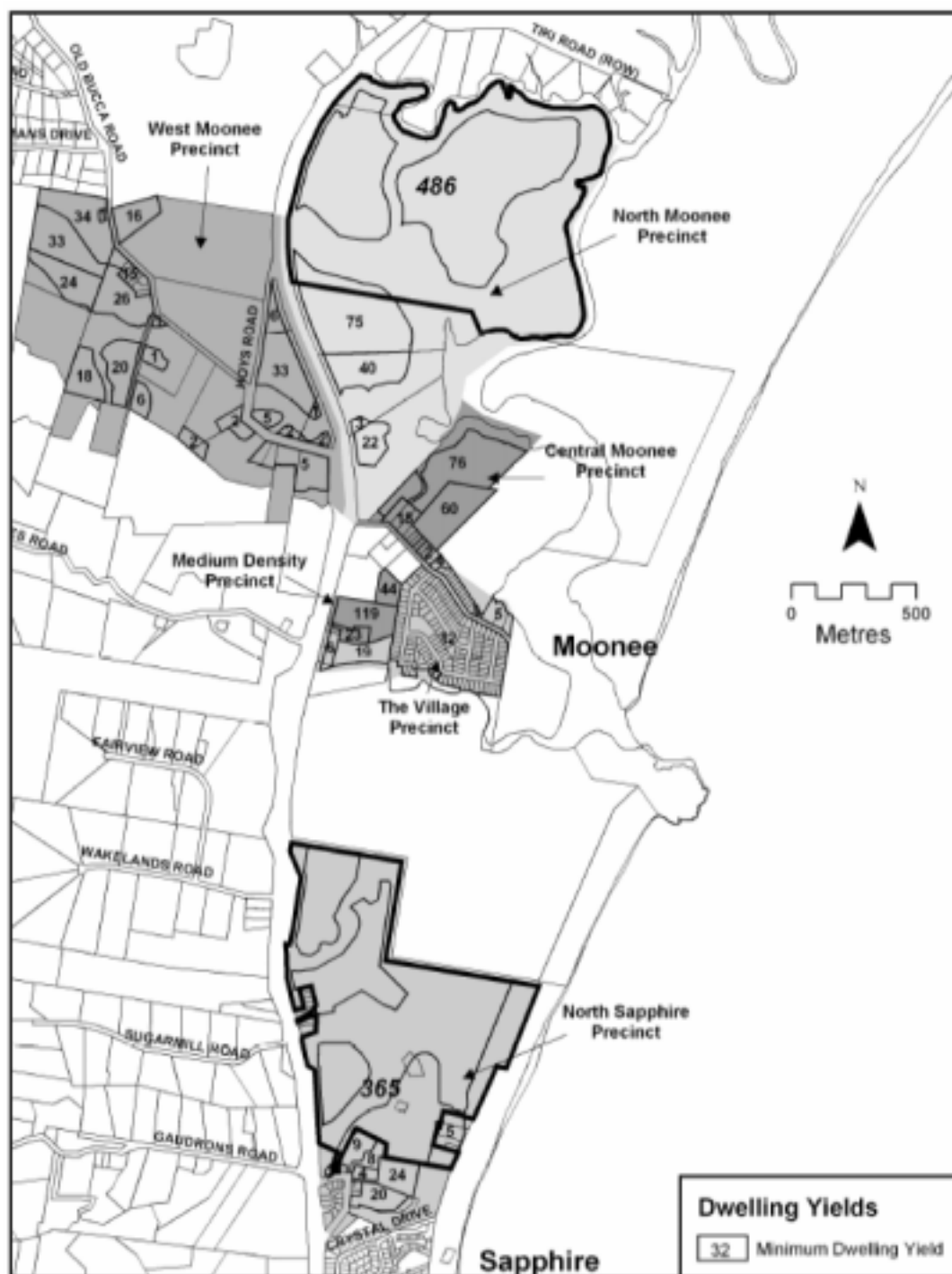
Coffs Harbour City Council Response

- *The exhibited draft DCP set target dwelling densities of between 10-15 dwellings/ha.*

A higher dwelling density is desirable for a number of reasons:

- *Urban land is a finite, valuable resource and should be used efficiently*
- *Urban sprawl results in more of the natural landscape being required for housing, inefficient provision and use of infrastructure and facilities.*
- *The provision of infrastructure is at a lower cost, reducing Developer Contributions and improving viability for development.*
- *A minimum lot size of 400m² applies across the City in all low-density residential zones; however, new development consistently provides a range of lot sizes from 400m² to 800m², and over.*
- *It is anticipated that new development in Moonee will provide a range of lot sizes.*
- *It is important for planning of the area to provide certainty of the population size for the provision of infrastructure and facilities.*
- *However, initial investigations by developers indicate the requirements for perimeter roads and the affect of bushfire protection zones significantly reduces the ability to achieve a density of 15 dwellings/ha. An achievable range for detached housing, with a mix of lot sizes from 400m² – 1,000m² will achieve between 8-13 dwellings/ha, depending on constraints and size of development parcel.*
- *In addition, household size (persons per dwelling) has reduced based on 2001 census data.*
- *The DCP has been amended to reduce population yield to 4,558 persons.*

The Draft DCP was re-exhibited and proposed reduced densities for the area. The following is an extract of the revised DCP including the reduced density targets for the site.

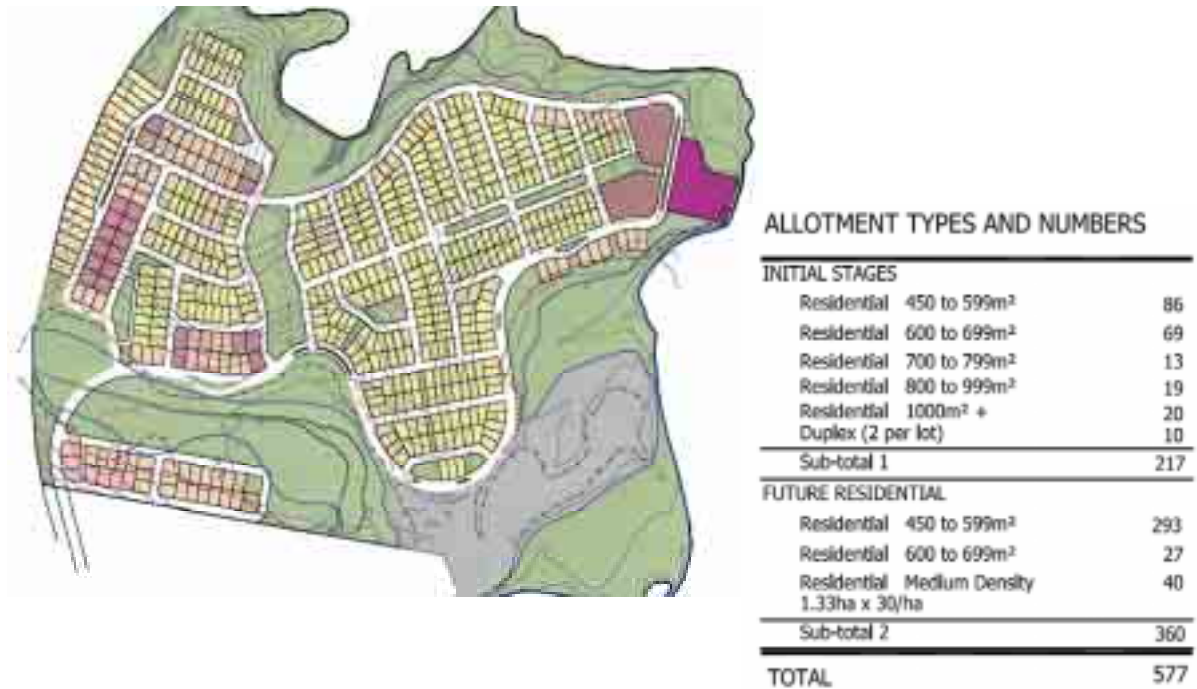


Extract from Draft DCP Version 2 as adopted
 (Sept 2004)

MAP 7
TARGET DENSITIES

A revised layout was produced based on the new density figures contained within the updated DCP.

February 2004 Layout (Roberts Day)



The above layout has undergone a number of reviews and refinements to enable the development of the land to respond to the site features and market demand. The final layout (as shown on the concept plan at *Figure 1.6*) represents the culmination of a number of investigations and research including consultation with Coffs Harbour City Council and government agencies.

This chapter addresses the various environmental planning instruments and other statutory requirements that are relevant to the site having regard to the proposed development.

3.1 COMMONWEALTH LEGISLATION

3.1.1 *Environment Protection and Biodiversity Conservation Act 1999*

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) relates to the protection of the environment and the conservation of biodiversity. The EPBC Act incorporates an assessment and approvals system for:

- actions that have a significant impact on matters of national environmental significance (NES);
- actions that have a significant impact on the environment of Commonwealth land; and
- actions carried out by the Commonwealth Government.

An action that needs Commonwealth approval is known as a 'controlled action'.

Matters of National Environmental Significance (NES)

Matters of NES under the EPBC Act include:

- World Heritage Areas;
- wetlands protected by international treaty (The RAMSAR Convention);
- nationally listed threatened species and communities;
- nationally listed migratory species (ie those species listed by International conventions to which Australia is a signatory);
- all nuclear actions; and
- the environment of Commonwealth marine areas.

The matters of NES relevant to the site are listed in *Table 3.1*.

Table 3.1 ***Relationship of the Site to Matters of National Environmental Significance.***

Matter of National Environmental Significance	Application to the Project	Relevant Section
World Heritage Areas	The Dorrigo National Park is the closest World Heritage Area to the site. It is located approximately 26 kilometres south west of the site. The proposed development will not impact upon the Dorrigo National Park.	Not Applicable
Wetlands protected by international treaty (the RAMSAR Convention)	The study area does not encroach upon any wetlands protected by international treaty. The nearest internationally protected wetland is Little Llangothlin Lagoon located near Glen Innes, approximately 150km to the north west of the site.	Not Applicable
Nationally listed threatened species and ecological communities	No threatened flora species were recorded on the site. Two threatened fauna species, the Swift parrot and Grey-headed Flying-fox are considered possible occurrences on the site. It is considered that the proposed development is unlikely to have a significant impact on these species. No nationally listed ecological communities occur on the site or in the wider locality.	Refer to Flora and Fauna Assessment, <i>Volume 2</i>
Nationally listed migratory species	A number of listed migratory species are known or likely to occur occasionally in the study area, however no area of important habitat occurs in the study area for listed migratory species.	Refer to Flora and Fauna Assessment, <i>Volume 2</i>
All nuclear actions	Not relevant to this project	Not Applicable
The environment of Commonwealth Marine Areas	The Solitary Islands Marine Reserve (State Park) is located to the east. The dunal areas of this State Park are immediately adjacent to the site. However, the closest section of the Commonwealth Reserve is approximately 7 kilometres to the east of the site out to sea surrounding the Solitary Islands.	Refer to Flora and Fauna Assessment, <i>Volume 2</i>

Implications for the project:

The proposed works are not expected to significantly impact on any matter of NES and therefore the proposed development is not a controlled action and does not require Commonwealth approval under the provisions of the EPBC Act (refer to the Flora and Fauna Assessment in *Volume 2*).

State Legislation*Environmental Planning and Assessment Act 1979*

The principal State planning legislation for NSW is the *Environmental Planning and Assessment Act 1979* (EP&A Act). The EP&A Act institutes a system of environmental planning and assessment in NSW and is administered by the Department of Planning (DoP).

The EP&A Act contains three regimes which impose requirements for planning approval:

- Part 3A provides for the assessment of development that is defined as a ‘major project’; or
- Part 4 provides for the control of ‘development’, which requires development consent or is prohibited under an environmental planning instrument; or
- Part 5 is used where a proposal does not require development consent but its environmental impacts must be assessed as an ‘activity’.

The Minister for Planning has confirmed that the project is a major project to which Part 3A of the EP&A Act applies.

Under *Section 75(R)* of the EP&A Act environmental planning instruments (EPIs) (other than State Environmental Planning Policies) do not apply to an approved project. A discussion of applicable State Environmental Planning Policies (SEPPs) to the proposed development follows in *Section 3.2.2*.

Pursuant to *Section 75U* of the EP&A Act authorisations for an approved project are not required under the following legislation:

- *Coastal Protection Act 1979*;
- *Fisheries Management Act 1994*;
- *Heritage Act 1977*;
- *National Parks and Wildlife Act 1974*;
- *Native Vegetation Act 2003*;
- *Rivers and Foreshore Improvement Act 1948*;
- *Rural Fires Act 1997*; and
- *Water Management Act 2000*.

Therefore any permits or licences required by the above legislation for the Project Application would not be applicable should the project be approved.

Threatened Species Conservation Act 1995

Schedules 1, 1A and 2 of the *Threatened Species Conservation Act 1995* (TSC Act) list species, populations or ecological communities of native flora and fauna considered to be threatened in New South Wales. The status of threatened species, populations or ecological communities listed in Schedules 1, 1A and 2 have been determined by a Scientific Committee as either:

- Endangered (Schedule 1);
- Critically Endangered (Schedule 1A); or
- Vulnerable (Schedule 2).

Section 5A of the EP&A Act specifies that for the purposes of the Act, and in particular the administration of sections 78A, 79B, 79C, 111 and 112 of the Act, in deciding whether there is likely to be a significant effect on threatened species, populations or ecological communities, or their habitats, seven factors must be taken into account along with any assessment guidelines. This assessment is referred to as the 'assessment of significance'.

Where a proposal is likely to significantly affect critical habitat of a threatened species, population or ecological community, or is in critical habitat, as defined by Part 3 of the TSC Act, a species impact statement must be prepared to accompany the development application.

Section 5A of the EP&A Act does not apply to projects assessed under Part 3A of the EP&A Act. However, an assessment of the impact of the proposed development on threatened species, populations and ecological communities has been undertaken in accordance with the *draft Guidelines for Threatened Species Assessment July 2005* prepared by the Department of Environment and Conservation and Department of Primary Industries and is provided *Volume 2*. The assessment concluded that the proposed development would not have a significant adverse impact on any threatened species, populations or ecological communities.

Rural Fires Act 1997

The main objectives of the *Rural Fires Act 1997* are to:

- prevent, mitigate and suppress bush and other fires in NSW;
- co-ordinate bushfire fighting and bushfire prevention throughout the State;

- protect people from injury or death and property from damage as a result of bushfires; and
- protect the environment.

In accordance with section 100B(1) of the *Rural Fires Act 1997*, authorisation from the Commissioner of the NSW Rural Fire Service is required for “subdivision of bushfire land that could lawfully be used for residential or rural residential purposes”. Section 100B(2) of the Act specifies that in determining whether to provide this authorisation, the Commissioner will take into consideration the subdivision’s compliance with standards regarding setbacks, provision of water supply and other matters considered by the Commissioner to be necessary to protect persons, property or the environment from danger that may arise from a bushfire.

A bushfire risk assessment has been undertaken for the Glades Estate in accordance with *Planning for Bushfire Protection*. However, it should be noted that in accordance with section 75U of the EP&A Act, a bushfire safety authority under Section 100B of the *Rural Fires Act 1997* is not required for an approved project under Part 3A of the EP&A Act. Nevertheless the subdivision has been designed to incorporate the recommendations of the bushfire risk assessment in relation to asset protection zones, road design and layout, location of water supply and selection of landscaping species. The bushfire risk assessment is provided in *Volume 2*.

3.2.2 State Environmental Planning Policies

State Environmental Planning Policy (Major Projects)

State Environmental Planning Policy (SEPP) (Major Projects) identifies certain developments that are major projects under Part 3A of the EP&A Act. These projects are determined by the Minister for Planning. The Minister has confirmed that in his opinion the proposal is of a kind that is described in the Schedules to the SEPP and that he will accept a Concept Plan and Project Application for the proposed development.

State Environmental Planning Policy No. 11- Traffic Generating Developments (SEPP 11)

The aims, objectives, policies and strategies of this Policy are to ensure that the Traffic Authority is made aware of, and is given an opportunity to make representations in respect of, amongst other matters, the subdivision of land into 50 or more allotments (Schedule 2 of SEPP 11).

A traffic assessment forms part of this application and is provided in *Volume 3*. A key issue with respect to the proposed development is access to the Pacific Highway. The site has an existing access intersection with the highway approved by both the RTA and Council. The design of the access

intersection has been advanced with significant consultation with the RTA. A works authorisation deed has been formulated to cover the infrastructure works. The traffic assessment concluded that the access will have sufficient capacity to enable satisfactory operation for the ten year design period.

State Environmental Planning Policy No. 44 – Koala Habitat Protection (SEPP 44) and Coffs Harbour City Koala Plan of Management

SEPP 44 encourages the proper conservation and management of areas of vegetation that provide habitat for koalas to ensure a permanent free-living population over their present range and reverse the current trend of koala population decline.

The practical effect of SEPP 44 is that in consideration of a development application (DA), the consent authority must ensure that approval is not issued without prior investigation of *potential* and *core* koala habitat. The policy applies to land in relation to which a DA has been made when the site has an area of more than one hectare. This policy applies to all local government areas within the known state-wide distribution of the koala, including the Coffs Harbour local government area.

Potential koala habitat is defined as vegetation that incorporates a minimum of 15 percent of tree species in the 'upper or lower strata of the tree component' listed in Schedule 2 of SEPP 44. A person suitably qualified in tree identification (clause 7 (2)) must assess the identification of potential koala habitat. If the subject land is not deemed to contain *potential* koala habitat, the consent authority may grant development consent. Identification of *potential* koala habitat requires further investigations to determine whether the site supports *core* koala habitat.

Core koala habitat is defined as;

'...an area of land with a resident population of koalas, evidenced by attributes such as breeding females and recent sightings of and historical records of a koala population...'

If the area does not support *core* koala habitat, under clause 8 of the policy the consent authority may determine the DA. If the site is determined to support *core* koala habitat, a plan of management must be prepared and approved prior to granting development consent and determination of the DA must not be inconsistent with the plan of management.

The application is not a development application under Part 4 of the EP&A Act. However, the issue of koala habitat protection is still relevant to the proposal. The site supports a number of koala feed tree species, including Tallowwood and Swamp Mahogany and koala scats were found in the north of the site in vegetation flanking Skinners Creek.

Coffs Harbour Council has prepared and adopted a Koala Plan of Management (KPoM) for the Coffs Harbour LGA, which operates under the provisions of SEPP 44. The KPoM identifies areas of *primary*, *secondary* and *tertiary* koala habitat based on two independent methods, namely community-based survey and field-based survey.

Parts of the site have been classified as *secondary* koala habitat under the KPoM (refer to *figure 13* of the Flora and Fauna Assessment report provided in *Volume 2*). According to the KPoM, areas of *secondary* koala habitat generally have lower koala activity levels than those in primary habitat, contribute to the overall habitat available to koalas and play a vital role in linking areas of primary koala habitat.

In accordance with Clause 3.4 of the KPoM, the consent authority shall not grant consent to the carrying out of development on areas identified as Secondary Koala Habitat which will remove the following tree species: Tallowwood *Eucalyptus microcorys*, Swamp Mahogany *E. robusta*, Flooded Gum *E. grandis* (except when part of a forest plantation), Forest Red Gum *E. tereticornis*, or Smallfruited Grey Gum *E. propinqua*, unless the development will not significantly destroy, damage or compromise the values of the land as koala habitat.

An assessment of the impact of the proposed development on Koalas and their habitat has been undertaken and is discussed in the Flora and Fauna Assessment report provided in *Volume 2*. The assessment concludes that the proposal will result in some minor loss and fragmentation of koala habitat, however, suitable habitat will be retained on site and a number of amelioration measures are proposed to satisfy the requirements of the KPoM. These measures include compensatory planting of koala habitat trees in the north-west corner of the site and outside the development envelope.

State Environmental Planning Policy No. 55 – Remediation of Land (SEPP 55)

Clause 7 of SEPP 55 requires a consent authority to consider the likely contamination of land before consenting to an application for development that would involve a change of use of land that may be contaminated. In such a case, the SEPP requires the consent authority to consider the findings of a preliminary investigation of the land concerned carried out in accordance with the *Contaminated Land Planning Guidelines*.

Agricultural activities are listed as an activity that may cause contamination in Table 1 of the *Contaminated Land Planning Guidelines* and therefore a preliminary investigation is required. This investigation has been undertaken by Resource Design & Management and is discussed at *section 4.3.2*. The agricultural activities undertaken on the site in the past have been primarily livestock grazing and therefore potential land contamination is not a significant issue for the proposal.

SEPP 71 applies to land within the 'coastal zone' of New South Wales. The site is within the coastal zone and therefore the provisions of SEPP 71 apply to the proposal. The SEPP aims to ensure that development in the NSW Coastal Zone is appropriate and suitably located and that there is a consistent and strategic approach to coastal planning and management.

Part 2, clause 7(a) of SEPP 71 specifies the matters that should be taken into consideration by a consent authority when it determines a development application to carry out development on land to which the SEPP applies. These matters for consideration, which are listed in *Clause 8* of SEPP 71, are reproduced in *Table 3.2* and are considered with respect to the project.

Part 3 of SEPP 71 relating to significant coastal development does not apply to the proposal as it does not involve the construction of buildings or development within 100 metres below mean high water mark.

Part 4 relates to development control on land to which the SEPP applies and contains the following provisions:

- flexible zone provisions of an environmental planning instrument are not to apply to development within the coastal zone. The proposed development is not relying on flexible zone provisions and is permissible with consent within the existing 2(a) zone;
- public access is not to be impeded or diminished to or along the coastal foreshore. The proposed development will improve public access to the Skinners Creek and Moonee Creek foreshores;
- effluent is not to be disposed of by a non-reticulated system if it is likely to have a negative effect on the water quality of the sea or any nearby beach, or an estuary, a coastal lake, a coastal creek or other similar body of water, or a rock platform. Effluent is to be disposed of by way of a reticulated system; and
- untreated stormwater is not to be discharged into the sea or other coastal water body or onto a rock platform. Untreated stormwater will not be discharged to either Skinners or Moonee Creek. See *Volume 3* for details of the proposed stormwater management system. Runoff is to be directed through bioretention swales and vegetated filter zones.

Part 5 relates to master plans. Clause 18 specifies that a consent authority must not grant consent for certain forms of subdivision within the coastal zone unless the Minister for Planning has adopted a master plan for the land. The proposed subdivision of the site would normally require the preparation of a master plan. However, Section 75M(4) of the EP&A Act provides that where an environmental planning instrument requires the preparation of a development control plan before a specified development may be carried out on the land, then that obligation may be satisfied by the submission and approval

of a concept plan. Advice from the Department of Planning is that 'master plans' are now considered 'development control plans' so that an approved Concept Plan for the site will satisfy the provisions of SEPP 71.

Table 3.2 SEPP 71 Aims and Matters for Consideration

Consideration	Comments
<p>Part 2 Clause 8(a) the Aims of the SEPP To protect and manage the natural, cultural, recreational and economic attributes of the New South Wales coast.</p>	<p>The development of the site for urban purposes would enhance the cultural and economic attributes of the Moonee area through the appropriate provision of new dwellings. Substantial areas of the site are proposed to be protected and enhanced as open space / wildlife movement corridors, over and above those already protected within the 7(a) zone.</p>
<p>To protect and improve existing public access to and along coastal foreshores to the extent that this is compatible with the natural attributes of the coastal foreshore.</p>	<p>The development of the site for residential purposes would provide public access to and along the foreshores of Skinners Creek and Moonee Creek that is currently unavailable. The land adjoining Skinners Creek and Moonee Creek is zoned for environment protection and as public open space and is not proposed for development. Within the areas directly exposed to the estuarine environment along Skinners Creek and Moonee Creek, cantilevered deck structures will be employed to protect the sensitive environment. A coastal walking path available to the public will connect the estate to Moonee Village and beach in accordance with the open space and recreation strategy of the Moonee DCP.</p>
<p>To ensure that new opportunities for public access to and along coastal foreshores are identified and realised to the extent that this is compatible with the natural attributes of the coastal foreshore.</p>	<p>Refer to above comments. A network of public open space has been identified by Council in the Moonee DCP. The proposed development makes provision for the coastal walk as identified in the DCP.</p>
<p>To protect and preserve Aboriginal cultural heritage, and Aboriginal places, values, customs, beliefs and traditional knowledge.</p>	<p>An Aboriginal Cultural Heritage Assessment is provided in Volume 2 of this EA. The impacts of the development will largely be confined to the development footprint while the areas outside of the footprint will remain largely undisturbed. The area of cultural significance identified on the site will remain undisturbed.</p>

Consideration	Comments
To ensure that the visual amenity of the coast is protected.	The expected visual impacts associated with the use of the site for urban purposes on the amenity of the coast are expected to be negligible. The visual impacts of the development are detailed in the Landscape Concept Plan & Open Space Management Plan included in the technical reports in Volume 3 of this EA.
To protect and preserve beach environments and beach amenity.	The development site is located approximately one kilometre away from Moonee beach with the Moonee Beach Nature Reserve intervening between the site and the beach. Given the distance of the site from Moonee Beach, there will be negligible impact on beach amenity.
To protect and preserve native coastal vegetation.	The potential impacts of the development of the site on coastal vegetation are documented and discussed in the Flora and Fauna Assessment and the Landscape Concept Plan & Open Space Management Plan included in the technical reports in Volume 3 of this EA. Mangroves and other sensitive wetland species occur on the site. The layout of the subdivision has been planned to retain significant vegetation. The development will impact on grassland and scattered trees. However vegetation loss will be relatively minor, with approximately 53% of the total site area subject to urban development.
To protect and preserve the marine environment of New South Wales.	Appropriate stormwater management measures are proposed to minimise impacts on receiving environments. Runoff will be directed to bio-retention swales where it will pass through vegetation filters prior to being released into natural drainage lines. The stormwater management plan is detailed in the technical reports in Volume 3 of this EA.
To protect and preserve rock platforms.	No rock platforms are located within the vicinity of the site.
To manage the coastal zone in accordance with the principles of ecologically sustainable development (within the meaning of section 6(2) of the Protection of the Environment Administration Act 1991).	The proposed development seeks to maximise the site's potential whilst at the same time protecting its environmentally sensitive areas.

Consideration	Comments
<p>To ensure that the type, bulk, scale and size of development is appropriate for the location and protects and improves the natural scenic quality of the surrounding area.</p>	<p>The subdivision layout is sympathetic to the surrounding natural environment. Housing within the development will be of the type, bulk, scale and size that complements the coastal setting of the Moonee area and be in accordance with Council's Moonee DCP.</p>
<p>To encourage a strategic approach to coastal management.</p>	<p>The site is zoned for residential development in the Coffs Harbour City LEP 2000 and is identified in Council's urban development strategy as suitable for residential development.</p>
<p>(b) Existing public access to and along the coastal foreshore for pedestrians or persons with a disability should be retained and, where possible, public access to and along the coastal foreshore for pedestrians or persons with a disability should be improved.</p>	<p>There is no existing public access to the foreshore for pedestrians or persons with a disability.</p>
<p>(c) Opportunities to provide new public access to and along the coastal foreshore for pedestrians or persons with a disability.</p>	<p>Access to the foreshores of Skinners Creek and Moonee Creek is provided via cantilevered deck structures. A coastal walking path will connect the estate to Moonee Village and beach. The path network and access points to the wetlands area can be observed in the Landscape Concept Plan & Open Space Management Plan included in the technical reports in Volume 3 of this EA. The proposed coastal walk is in accordance with the provisions of Moonee DCP.</p>
<p>(d) The suitability of development given its type, location and design and its relationship with the surrounding area.</p>	<p>A number of environmental assessments have been carried out over the site to identify the site's opportunities and constraints. These assessments are included in the technical reports in Volumes 2 and 3 of this EA. The subdivision is sensitive to its coastal environment and the surrounding area.</p>
<p>(e) Any detrimental impact that development may have on the amenity of the coastal foreshore, including any significant overshadowing of the coastal foreshore and any significant loss of views from a public place to the coastal foreshore.</p>	<p>The development of the site for residential purposes is a sufficient distance from both Skinners Creek and Moonee Creek and of a low scale so that it would not affect the amenity of the coastal foreshore.</p>

Consideration		Comments
(f) The scenic qualities of the New South Wales coast, and means to protect and improve these qualities.		The expected visual impacts associated with the use of the site for residential purposes have been assessed and are considered to be minor due to the rolling topography, existing vegetation and proposed enhancement to vegetation. Refer to the Landscape Concept Plan & Open Space Management Plan attached in the technical reports in Volume 3 of this EA for this assessment.
(g) Measures to conserve animals (within the meaning of the Threatened Species Conservation Act 1995) and plants (within the meaning of that Act), and their habitats.		The impacts of the proposed development on flora and fauna are addressed in the ecological assessment provided in the technical reports in Volume 2 of this EA. The Flora and Fauna assessment concluded that there would be no significant impact on threatened species or their habitats. The Flora and Fauna assessment include recommendations for amelioration measures to ensure impacts are minimised on flora and fauna. The measures have been incorporated into the design of the subdivision and will be implemented during construction.
(h) Measures to conserve fish (within the meaning of Part 7A of the Fisheries Management Act 1994) and marine vegetation (within the meaning of that Part), and their habitats.		The proposed development will not impact on fish and marine vegetation. Refer to the Flora and Fauna Assessment and the Stormwater Management Assessment included in the technical reports in Volumes 2 and 3 of this EA for this assessment.
(i) Existing wildlife corridors and the impact of development on these corridors.		The site itself occurs within the Wedding Belles – Moonee Beach Regional Corridor which links Moonee Beach Nature reserve and Skinners Creek. The northern and eastern parts of the site will retain movement habitat to consolidate this link. The impact of development on the corridor is discussed in the Flora and Fauna assessment included in the technical reports in Volume 2 of this EA.
(j) The likely impact of coastal processes and coastal hazards on development and any likely impacts of development on coastal processes and coastal hazards.		The site is not affected by coastal processes or hazards.

Consideration	Comments
(k) Measures to reduce the potential for conflict between land-based and water-based coastal activities.	The proposal would not result in any conflict between land-based and water-based coastal activities as the proposed development is located a sufficient distance from the coastal foreshore.
(l) Measures to protect the cultural places, values, customs, beliefs and traditional knowledge of Aboriginals.	An Aboriginal Cultural Heritage Assessment is provided in Volume 2 of this EA. The impacts of the development will largely be confined to the development footprint while the areas outside of the footprint will remain largely undisturbed. Sites outside of the development footprint will be protected during the construction process. Any activity in the area identified as being culturally significant will be conducted in consultation with the Aboriginal community.
(m) Likely impacts of development on the water quality of coastal waterbodies.	The likely impacts associated with the proposed use of the site for residential purposes on the quality of ground and surface water has been assessed and considered to be acceptable. A Stormwater Assessment has been undertaken and is included in the technical reports of Volume 3 of this EA.
(n) The conservation and preservation of items of heritage, archaeological or historic significance.	No items of historic significance are known to exist on the site. An Aboriginal Cultural Heritage Assessment is provided in Volume 2 of this EA. This assessment makes recommendations regarding the conservation and preservation of specific sites recorded on the site. These recommendations have been incorporated into the design of the subdivision and will be implemented during construction.
Only in cases in which a council prepares a draft local environmental plan that applies to land to which this Policy applies, the means to encourage compact towns and cities.	Not applicable to this proposal.
Only in cases in which a development application in relation to proposed development is determined:	

Consideration	Comments
The cumulative impacts of the proposed development on the environment.	A concept plan has been prepared for the development of the whole of the site so that impacts of the proposal on the environment could be assessed. The assessment has concluded that the proposal will not have significant adverse impacts on the environment.
Measures to ensure that water and energy usage by the proposed development is efficient.	Residential development on the site will comply with BASIX requirements.

The State Environmental Planning Policy – BASIX 2004 introduced BASIX as a mandatory component of the development approvals process for residential development in NSW. A BASIX certificate indicating compliance with prescribed sustainability targets must accompany applications for certain residential development proposals before the proposal can be considered.

Water and energy management is of critical importance across NSW. The aims of the BASIX guidelines are to:

- reduce consumption of mains-supplied potable water in the use of a building or land;
- reduce greenhouse gas emissions; and
- improve the thermal performance of a building.

Housing within the Moonee subdivision will be designed to maximise water and energy efficiency. The majority of lots across the development are orientated to assist in gaining adequate solar access. The Moonee DCP requires that 75 per cent of lots comply with the orientation as specified by the DCP. In Stages 1 -3 of the development over 85 per cent of the lots are orientated to facilitate adequate solar access and meet this provision.

3.3 STRATEGIC POLICIES AND PLANS

The following policies and plans are relevant to the project, however, they do not limit development pursuant to *Section 75R* of the *EP&A Act*.

3.3.1 New South Wales Coastal Policy 1997

As the site is located within the Coastal Zone, the provisions of the NSW Coastal Policy apply. The Coastal Policy outlines a number of Key Actions relating to coastal planning and management. The following Key Actions apply to development proposals:

- *Development proposals will have to conform with specified design and planning standards to control height, setback and scale to ensure public access and to ensure that beaches and foreshore open spaces are not overshadowed;*
- *The use of good design principles... to ensure more compact human scale towns are developed with their own character within the constraints of existing infrastructure;*
- *Identify and consider significant views and vistas within and from towns, including street patterns and layout and items of heritage significance;*

- *To promote compact and contained planned urban development in order to avoid ribbon development, unrelated cluster development and continuous urban areas on the coast;*
- *To provide for choice in housing and lifestyles; and*
- *To increase public access to foreshores when feasible and environmentally sustainable options are available.*

The Key Actions as outlined above have been considered during the design of the proposed subdivision. The proposed development does not impact on the nearby coastal foreshore area, the layout takes into account the natural constraints of the site such as vegetation and bushfire hazard and the design aims to promote a variety of housing types and a compact urban area.

3.3.2 *Coastal Design Guidelines for NSW*

The State Government's *Coastal Design Guidelines for NSW* were developed jointly by the NSW Coastal Council, Planning NSW's Urban Design Advisory Service and Tourism NSW in 2003. The desired future character for new coastal settlements that is described on pages 32 and 33 of the Guidelines is documented in *Table 3.3* along with the proposed development's compliance with the desired future character.

Table 3.3 Desired Future Character of New Coastal Settlements

Desired Future Character		Comments
New Settlements: <ul style="list-style-type: none"> • respect the ecological limits of the site and its context; • are developed with careful consideration for landform and views from public areas; • provide alternative transport options from private car use; and • have public domain. 		<p>The proposed development has been designed to respect the ecological limits of the site. Generally the development footprint avoids ecologically sensitive areas. Some areas will be enhanced to protect the site's natural features.</p> <p>Views to the site from the Pacific Highway are mostly filtered by existing vegetation and topography. The site is not readily seen from any public areas.</p> <p>The subdivision design provides an extensive network of pedestrian and cycle paths providing internal connections and linking the site to Coffs Harbour, Moonee and the northern villages as well as Moonee Beach Nature Reserve.</p> <p>Open space areas for passive and active recreation are proposed within the estate. Recreation facilities will be sited in accordance with the Landscape Concept Plan and Open Space Management Plan prepared by Anne Harrison and EDGE Environmental Design Group NSW Pty Ltd and will be accessible to the public.</p>
The components of the public domain include: <ul style="list-style-type: none"> • a pattern of development based on the unique natural, urban, historic, visual and environmental features of the location; • reserves for nature conservation and flood processes; • open space and public places for the recreation and social needs of residents and visitors; • an interconnected street pattern providing long-term access and social and economic opportunities for the settlement; and • areas for total water cycle management. 		<p>The opportunities and constraints presented by the site have been a formative consideration in the design of the proposed development. The subdivision is sympathetic to unique natural and environmental features offered by the site. Areas of the site are reserved from development for ecological, archaeological and other reasons.</p> <p>An extensive open space network is an integral part of the design of the subdivision providing for both passive and active recreation, asset protection, vegetation rehabilitation and stormwater filtering.</p> <p>The estate is located along the Pacific Highway and is a short drive or walk to the Moonee Urban centre. The developments proximity to Coffs Harbour (15 kilometres) will allow residents long-term access to social and economic opportunities.</p>
1. Relationship to the environment <ol style="list-style-type: none"> New development avoids areas of ecological value and 		<p>The proposed development generally respects the 100 metre and 50 metre buffer zones to Moonee</p>

Desired Future Character	Comments
<p>respects setbacks between natural areas.</p>	
<p>b. Wildlife corridors, existing mature trees, rivers, streams, lakes and natural features are incorporated into green space networks, reserve areas, riverine and foreshore corridors.</p>	<p>and Skinners Creeks respectively. Areas known to contain Wallum froglet foraging habitat have been avoided and a 100 metre buffer zone surrounding the Osprey nest located on adjoining land to the south has been provided.</p>
<p>c. Aboriginal and European places, relics and items are protected.</p>	<p>Substantial areas of the site are proposed to be protected and enhanced as open space/wildlife movement corridors, over and above those already protected within the buffer zones (refer to the Flora and Fauna Assessment in Volume 2).</p>
<p>d. Foreshore and estuarine vegetation is protected.</p>	
<p>e. The potential disturbance to acid sulphate soils is managed.</p>	<p>Impacts of the proposed development on Aboriginal sites will be largely confined to the development footprint, where surface and subsurface disturbances are likely to result in damage or destruction of any archaeological materials present. The Aboriginal Cultural Heritage Assessment provided in Volume 2 recommends that a surface collection of artefacts be undertaken by representatives of the Aboriginal community and an archaeologist in the vicinity of identified sites prior to construction commencing.</p>
<p>f. Original native landscape is maintained and reinstated.</p> <p>g. Waterways and coastal lakes are protected through water sensitive urban design and total cycle water management.</p>	<p>The Moonee Beach acid sulfate soils risk map indicates that the majority of areas to be developed are not within areas with known acid sulfate soils. The Geotechnical Assessment provided in Volume 3 recommends further sampling and testing of the soils in the Zone 2 area prior to any ground disturbance. However, the areas affected by acid sulfate soils are likely to be relatively small and the scale and amount of treatment required is anticipated to be relatively minor. A preliminary Acid Sulfate Soil Management Plan has been prepared for the site and is included in the Geotechnical Assessment in Volume 3.</p>
<p>h. Degraded natural areas are rehabilitated.</p> <p>i. Vegetation is maintained whilst managing asset protection areas for bushfire protection.</p>	<p>Proposed stormwater treatment measures (refer to the Stormwater Assessment in Volume 3) will ensure that water quality levels are maintained. The subdivision design utilises bioretention swales and vegetated filter zones to achieve this outcome.</p>
<p>j. Land swaps, community stewardship programs, transferable development rights and voluntary conservation agreements provide opportunities to sensitively locate development and protect ecosystems and views.</p>	<p>No land swaps, community stewardship programs, transferable development rights or voluntary conservation agreements are proposed for the site.</p>
<p>k. Native vegetation is preferred on public and private land.</p>	
<p>l. Land is revegetated with species native to the local area.</p>	<p>The Bushfire Risk Assessment provided in Volume 2 makes recommendations regarding appropriate asset protection zones, water supply, access roads and levels of construction to ensure a reasonable and satisfactory level of bushfire protection within the development.</p>
	<p>Under the Vegetation Management Plan much of the slashed heathland on the site will be allowed to</p>

Desired Future Character	Comments
<p>regenerate, while other vegetation communities will be enhanced from rehabilitation and revegetation works. Seed sources from the site will be utilised in to maintain the genetic and species integrity of flora on the site. All streetscape planting will utilise native species that are found on site or within the local area.</p>	
<p>2. Visual sensitivity</p> <ol style="list-style-type: none"> Views to and along the foreshore align with streets. Views and vistas of the foreshore and natural features in or surrounding the site are aligned with public streets. 	<p>No foreshore views are available from the site.</p> <p>Refer to comments under New Settlements.</p>
<p>3. Edges to the water and natural areas</p> <ol style="list-style-type: none"> In new coastal settlements the centre and surrounding residential areas are separated from the foreshore by a parkland or roadway or nature reserve. Setbacks from the coastal edge and other surrounding natural areas, such as reserves and lakes, respect environmental constraints and protect properties from coastal hazards. Public access along the foreshore is generally located on the boundary between public and private land and along streets. Pathways through foreshore vegetation are restricted to ensure the ecological integrity is not degraded. Foreshore vegetation is not removed to create views. Land is not filled to promote views. 	<p>The site is separated from Moonee Beach by Moonee Creek and the Moonee Beach Nature Reserve. The design and layout of the proposed development respects key environmental constraints including:</p> <ul style="list-style-type: none"> the presence of threatened species and significant habitat; buffers to Skinners Creek and Moonee Creek; flood prone and wetland areas; existing vegetation and wildlife corridors; the presence of an Osprey nesting site; and areas of cultural significance. <p>The Landscape Concept Plan & Open Space Management Plan provided in Volume 2 details a number of formal access points to Skinners and Moonee Creeks. Access to the foreshore is gained from the perimeter road bordering the development footprint. Various structures, such as boardwalks, cantilevered decks and suspended footbridges will protect sensitive foreshore areas.</p> <p>Vegetation will not be removed nor will land be filled to promote views.</p>
<p>4. Streets</p> <ol style="list-style-type: none"> New coastal settlements have a street pattern similar to coastal hamlets or coastal villages. They present an ideal opportunity to provide a street pattern responding to the 	<p>A highly permeable interconnected street pattern is proposed that responds to the landform and is designed for pedestrians and cyclists, as well as vehicles.</p> <p>The proposed street pattern:</p> <ul style="list-style-type: none"> includes a central access road and connecting perimeter roads providing access to community

Desired Future Character	Comments
<p>landform, views and permitting a high level of visual, pedestrian, cycle and vehicular permeability.</p> <p>b. The street pattern also:</p> <ul style="list-style-type: none"> • creates public neighbourhood centres and a main street • avoids privatised enclaves by providing direct access to the foreshore • provides an interconnected and permeable street pattern • responds to pedestrian and cycle distances and connects to a local regional network 	<p>facilities and key open space areas;</p> <ul style="list-style-type: none"> • avoids private enclaves; and • includes an extensive network of paths and cycleways connect to local and regional networks, including the district cycleway and the coastal walk.
<p>5. Buildings</p> <p>a. The pattern of land development within the settlement is designed to provide amenity.</p> <p>b. The settlement has a compact footprint to reduce land take.</p> <p>c. Blocks and streets are walkable and safe.</p> <p>d. The neighbourhood centre has commercial, retail, education and civic buildings and some shop-top housing.</p> <p>e. Buildings address the street.</p> <p>f. Tourist developments integrate into the settlement's street pattern and define the edge between public and private land.</p> <p>g. Lot sizes and configurations are designed to support a range of housing types that integrate into the street pattern and the location of functions throughout the settlement.</p> <p>h. Residential areas consist of coastal cottages, detached and semi-detached houses, town houses and terraces.</p>	<p>The proposed development has been designed to provide a high level of amenity for residents and visitors.</p> <p>The development footprint for the estate responds to the physical features and environmental constraints of the site.</p> <p>Internally pathways connect to give logical links through the development, allowing for safe pedestrian/cyclist access from one side of the estate to another.</p> <p>All buildings will be designed to address the street.</p> <p>Proposed lot sizes and configurations have been specifically designed to support a range of housing types including detached housing, duplexes, town houses and villas.</p> <p>Buildings within the estate will be of a high quality design that is distinctively coastal, complementing the natural setting. Buildings will be constructed in accordance with design guidelines, incorporating WSUD and passive solar design principles and optimising visual and acoustic privacy.</p>

Desired Future Character	Comments
<ul style="list-style-type: none"> i. A diversity of lot and housing types are developed to accommodate various household sizes and types. j. Buildings are designed to suit the climate and use environmentally sustainable building design and materials. k. Housing types optimise visual and acoustic privacy, integrate passive solar design principles, minimise water use, and seek to achieve architectural distinction and excellence. 	
<p>6. Height</p> <ul style="list-style-type: none"> a. Residential buildings are one to two storeys. b. The neighbourhood centre or the main street has buildings up to two storeys. c. Where visual prominence is not apparent three storey buildings may be appropriate. d. Heights are subject to place-specific urban design studies. New development is appropriate to the predominant form and scale of surrounding development (either present or future), surrounding landforms and the visual setting of the settlement. Buildings avoid overshadowing of public open spaces, the foreshore and beaches in centres before 3pm midwinter and 6.30pm Summer Daylight Saving Time. Elsewhere avoid overshadowing of public open spaces, the foreshore and beaches before 4pm midwinter and 7pm Summer Daylight Savings Time. 	<p>A maximum height of two storeys will apply to residential buildings.</p> <p>The proposed development will not overshadow any beaches, public open spaces or the Moonee/Skinners Creek foreshore.</p>

3.4.1

North Coast Regional Environmental Plan 1988

The aims of the *North Coast Regional Environmental Plan 1988* (NCREP) are to encourage the development of regional policies that protect the natural environment, encourage an efficient and attractive built environment and guide development into a productive yet environmentally friendly sound future. The NCREP also aims to provide a basis for growth in the region, optimising the economic social benefits to the local community and visitors.

The proposed development is in accordance with the aims of the NCREP as the design considers the natural characteristics of the site and is designed to provide for an attractive built environment. The proposed development would contribute economic and social benefits to both the Moonee community and the wider population as discussed in *Chapter 5* of this report.

3.4.2

Draft Mid North Coast Regional Strategy

The *Draft Mid North Coast Regional Strategy* was released by the NSW Government on 17th January 2007. Once finalised, the Strategy will guide local planning in the eight local government areas of Clarence Valley, Coffs Harbour, Bellingen, Nambucca, Kempsey, Port Macquarie-Hastings, Greater Taree and Great Lakes.

The primary purpose of the Strategy is to support sustainable growth by ensuring that adequate land is available and appropriately located to accommodate the projected housing and employment needs of the Region's population over the next 25 years. The Strategy is based on an expected population increase of 91 000 over the next 25 years. The draft Strategy also incorporates the specific regional infrastructure requirements identified in the State Infrastructure Strategy 2006-07 to 2015-16.

According to the draft Strategy, each council in the region will be required to establish the appropriate location of agreed growth areas to accommodate expected housing demand. This work will occur prior to finalising the Strategy and be reflected in the final Strategy. The agreed growth areas maps will be drawn using the settlement planning principles and subregional dwelling projections contained in the draft Strategy and will be set out in local growth management strategies to be agreed to between councils and the Department of Planning. The rezoning of land or the development of existing zoned land within the agreed growth areas for urban, commercial or industrial uses will be subject to more detailed investigations to determine its capability and future yield.

Four distinct subregions have been identified in the Strategy to manage housing demand and settlement growth. One of these subregions is the Coffs Coast, incorporating the local government areas of Coffs Harbour, Bellingen

and Nambucca and centred on Coffs Harbour. Dwelling projections are provided for the four subregions. It is estimated that an additional 18,600 dwellings will be required to be provided within the Coffs Coast subregion over the next 25 years and it is recognised that Coffs Harbour, Moonee Beach, Woolgoolga and Sawtell-Toormina-Boambee East have the greatest potential to accommodate this growth in the coastal areas of this subregion.

3.5 LOCAL PLANNING

3.5.1 Coffs Harbour Local Environmental Plan 2000

The site is zoned part *2A Residential Low Density Zone*, part *6A Open Space Public Recreation Zone*, part *7A Environmental Protection Habitat and Catchment Zone* and part *7B Environmental Protection Scenic Buffer Zone* under the *Coffs Harbour Local Environmental Plan 2000* (Coffs Harbour LEP) as shown in *Figure 3.1*.

The aim of the *2A Residential Low Density Zone* is to provide for the low density housing needs of the population. The objectives of the zone are:

- “to enable housing development and other development that is compatible with a low density residential environment;
- to provide for development that is within the environmental capacity of a low density residential environment and can be adequately serviced.”

The aim of the *6A Open Space Public Recreation Zone* is to provide for the open space and recreational needs of the community. The objectives of the zone are:

- “to enable development for open space or recreational or other land uses compatible with the surrounding area;
- to enable development which is compatible with recreational land uses and does not jeopardise the existing and future role of the land for recreational land uses.”

The aim of the *7A Environmental Protection Habitat and Catchment Zone* is to protect and enhance sensitive habitat and waterway catchments. The objectives of the zone are:

- “to protect habitat values and water quality and enable development which does not adversely impact upon these;
- to enable development that is within the environmental capacity of the land and can be adequately serviced.”

The aim of the *7B Environmental Protection Scenic Buffer Zone* is to protect the scenic qualities of the Pacific Highway. The objectives of the zone are:

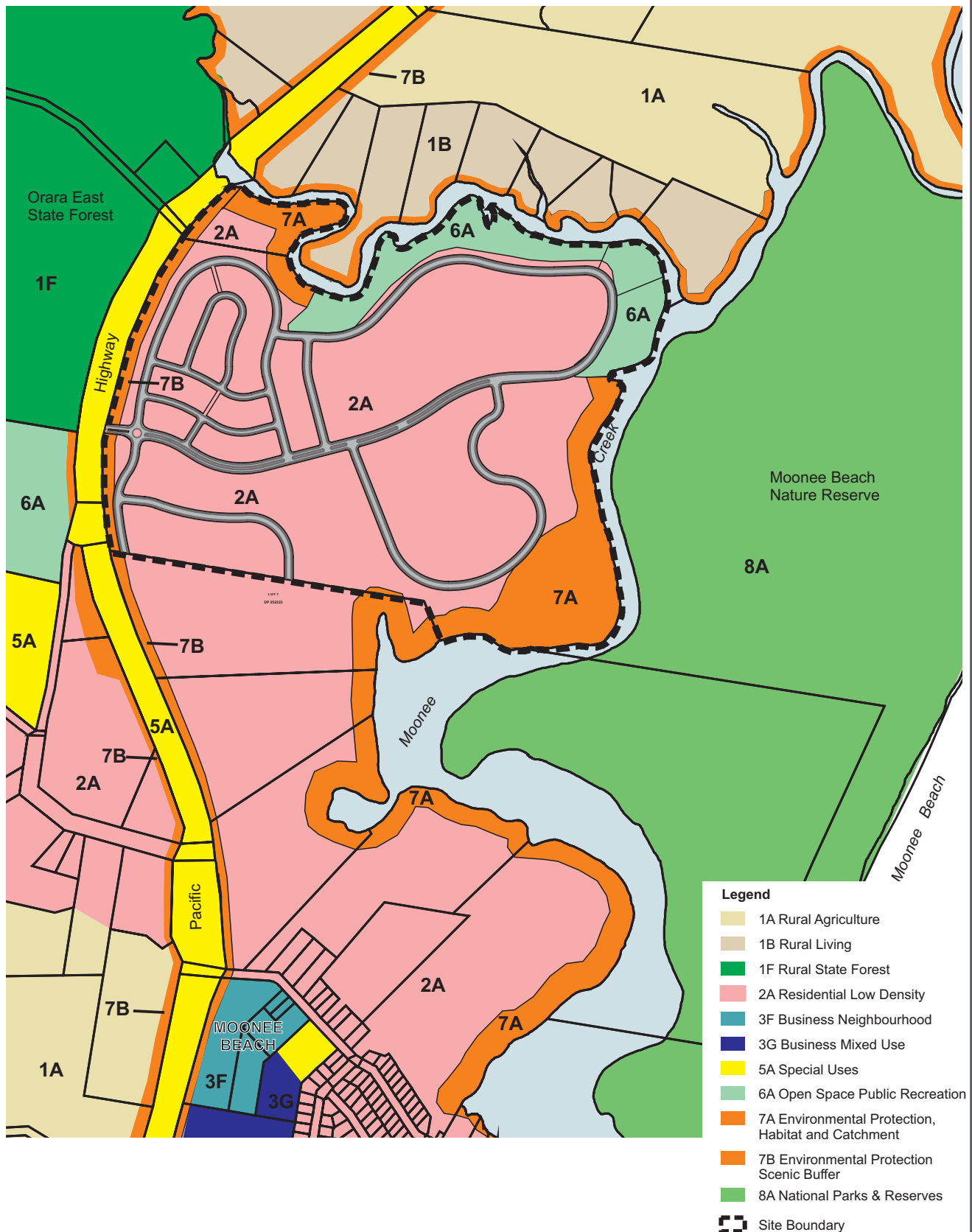


Figure 3.1

Existing Zoning

The Glades Estate, Coffs Harbour



0 250m

- *“to enable development that does not adversely impact on the scenic qualities of the Pacific Highway;*
- *to enable development that is within the environmental capacity of the land and can be adequately serviced.”*

As shown in *Figure 3.1*, the proposed residential subdivision will be primarily contained within that part of the site zoned 2A. The subdivision of land and development for the purposes of dwelling houses, dual occupancies, recreation facilities, recreation areas, roads and utility installations is permissible with consent in the 2A zone.

Within the 6A zone, development is likely to be limited to the construction of roads, stormwater treatment measures, pedestrian/cycle paths, elevated boardwalks and cantilevered deck structures, a canoe launching jetty and small boat ramp, an environmental interpretation centre, car parking, barbeque and picnic facilities, tree planting and environmental protection works, all of which are permissible in the 6A zone with consent.

Development within the 7A zone is likely to comprise the construction of roads, stormwater treatment measures, pedestrian/cycle pathways, elevated board walks, cantilevered deck structures, tree planting and environmental protection works, whilst development within the 7B zone will be limited to the construction of roads, pedestrian/cycle paths, noise attenuation mounds and tree planting. Development for all of the above purposes is permissible in the zone with or without consent.

Clause 22(4) of Coffs Harbour LEP relates to land adjoining the Solitary Islands Marine Park (SIMP) and states that consent must not be granted to the subdivision of, or the erection of a building or the carrying out of a work on, land adjoining the SIMP unless:

‘(a) the consent authority has taken into account the following objectives of the Marine Parks Act 1997:

(i) to conserve marine biological diversity and marine habitats by declaring and providing for the management of a comprehensive system of marine parks,

(ii) to maintain ecological processes in marine parks,

(ii) where consistent with the preceding objectives:

- *to provide for ecologically sustainable use of fish (including commercial and recreational fishing) and marine vegetation in marine parks; and*
- *to provide opportunities for public appreciation, understanding and enjoyment of marine parks, and*

(b) where the use of the land after subdivision, erection of the building or carrying out of the work is likely to, in the opinion of the consent authority, have an effect on the

plants or animals within the Marine Park and their habitat, it has consulted with the Solitary Islands Marine Park Authority.'

The SIMP stretches from the northern side of Muttonbird Island at Coffs Harbour, 75 kilometres north to Plover Island at the entrance to Sandon River. It extends from the mean high water mark and upper tidal limits of coastal estuaries and lakes, seaward to the three nautical mile limit of State waters and includes the entire seabed. Moonee Beach, Moonee Creek and part of Skinners Creek form part of the SIMP. Therefore, the site adjoins the SIMP.

The Solitary Islands Marine Park zoning plan protects the marine biodiversity of the area while supporting a wide range of recreational and commercial activities. Four different zones apply within the park, including a Sanctuary Zone, a Habitat Protection Zone, a Special Purpose Zone and a General Use Zone. According to the zoning plan, Moonee Beach, Moonee Creek and Skinners Creek are located within a Habitat Protection Zone.

The proposed development will not have a significant impact on plants or animals within the SIMP, or their habitat. Water sensitive urban design (WSUD) principles have been employed in the design of the proposed subdivision and stormwater treatment measures to be implemented as part of the development are likely to significantly reduce existing suspended sediment and nutrient loads from the site, ensuring that post-development water quality from the site will be of an acceptable standard. In addition, extensive vegetated buffers are proposed to be established along Moonee Creek and Skinners Creek to ensure that the development does not impact on the estuary values and ecological processes in the marine park.

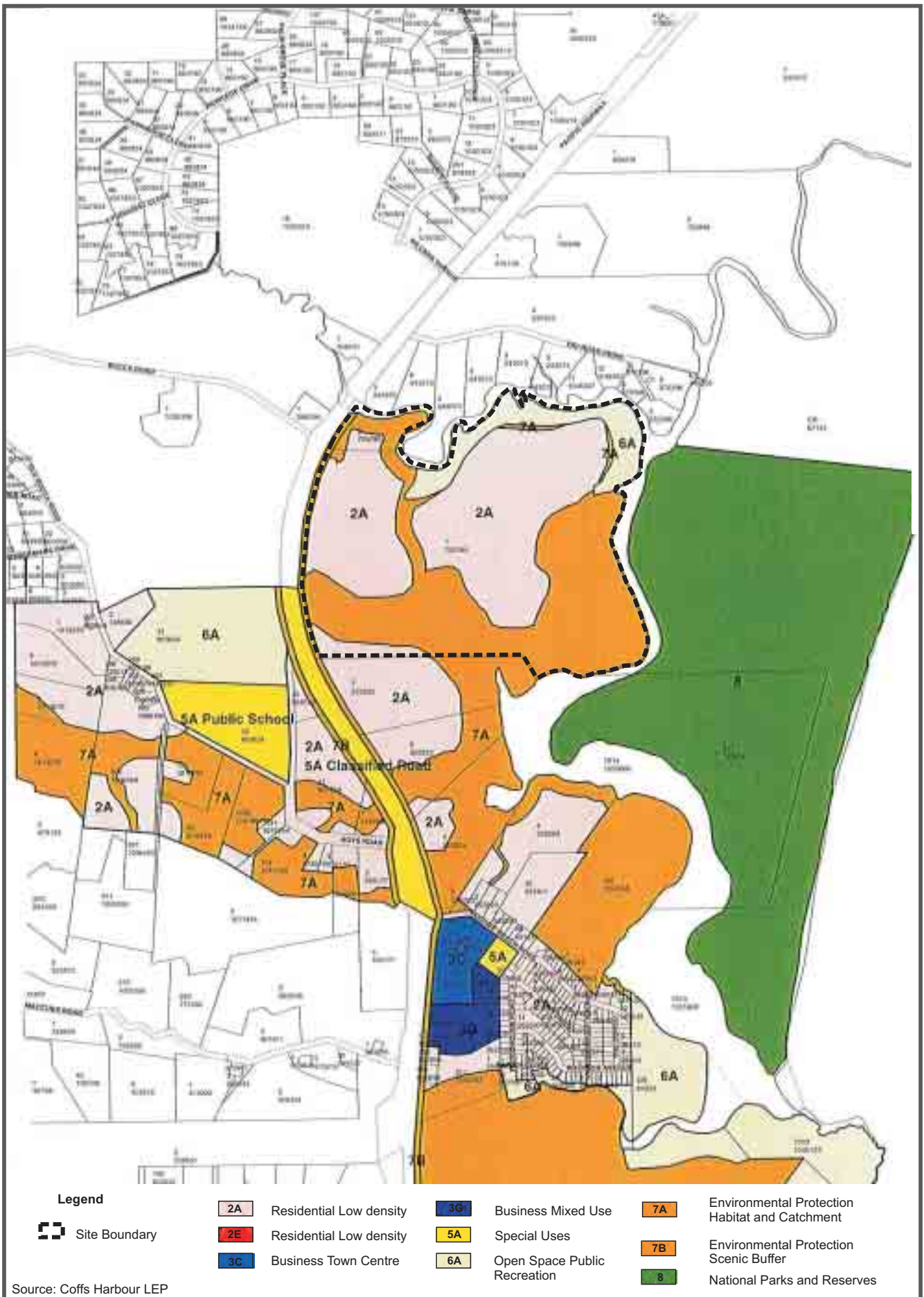
3.5.2 *Draft Coffs Harbour Local Environmental Plan 2000 (Amendment No. 24)*

In April 2005, Council prepared a draft amendment to LEP 2000 to rezone land in Moonee. The draft amendment, known as *Coffs Harbour City Local Environmental Plan 2000 (Amendment No. 24)* aims to:

- protect the Moonee Estuary, native vegetation and habitat areas;
- recognise the business precinct as a Town Centre; and
- reflect detailed planning of the area.

A copy of the draft LEP amendment map is provided as *Figure 3.2*.

The draft amendment has been placed on public exhibition and Council has received a number of submissions, including one from the Rothwell Boys Pty Ltd requesting minor amendments to the draft LEP to accommodate the proposed development footprint. In addition, a number of submissions have been received from affected landowners objecting to the proposed rezoning of their land. In some cases, the draft LEP proposes a significant reduction in the amount of land to be zoned residential.



0 350m
Approximate Only

Figure 3.2

Draft LEP Amendment No.24 - Zoning Map

The Glades Estate, Coffs Harbour

At the time of writing this report, these issues had not yet been resolved. Consequently, the draft amendment has not yet been adopted by Council.

3.5.3 *Development Control Plans*

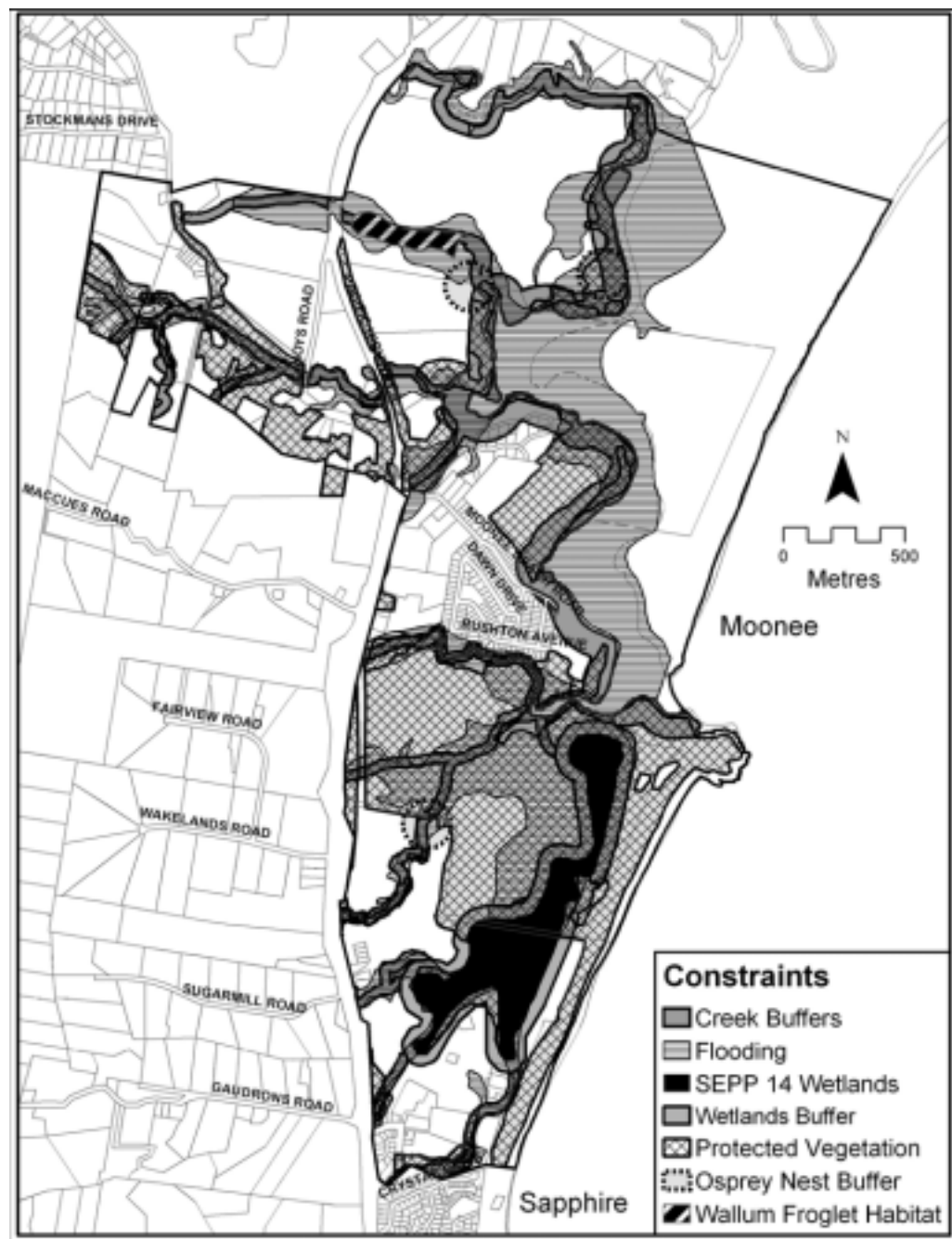
Moonee Development Control Plan 2004

The aim of the Moonee Development Control Plan 2004 (Moonee DCP) is to achieve economic, social and environmental sustainability for the Moonee Area. The Moonee DCP identifies the constraints and limitations of the Moonee area, as well as identifying an open space network and providing planning controls.

The Moonee DCP contains a number of maps identifying site constraints as well as features such as future walking tracks, open space areas and sportsgrounds.

Identified Constraints

In relation to the site, the DCP constraints map demonstrates that flooding of some areas around the perimeter of the site is the main site constraint as well as a small area in the south-eastern corner being affected by an Osprey Nest buffer area.



Extract from Moonee DCP (Sept 2004)

The proposed development generally avoids areas likely to be affected by flooding. In areas where development may be affected by flooding some minor site filling would be undertaken to minimise impacts. A Hydraulic Assessment has been undertaken to assess flooding associated with the proposed residential subdivision. The Hydraulic Assessment is contained in *Volume 3*. The assessment concludes that the proposed development will have no adverse impacts on flooding of adjacent properties and no detrimental impacts on the culvert or bridge structures under the Pacific Highway. Areas of localised filling will be required on the eastern and southern sides of the development. These are in areas classified as Medium Flood Risk and will not lead to any significant impacts on existing flood levels.

According to the DCP, urban development should be excluded from within 100 metres of Moonee Creek and 50 metres of Skinners Creek and from within 20 metres of all other creeks, to protect riparian vegetation, maintain water quality and provide habitat linkages.

The proposed development footprint lies outside the required buffer areas to Moonee and Skinners Creeks with the exception of a small area of the Estate (approximately 11 lots affected, as well as a section of the perimeter road) in the north-eastern portion of the site that lies within the 100m buffer to Moonee Creek. In addition, a very minor encroachment occurs in the south-eastern portion of the site, where the perimeter road encroaches into the 100 metre buffer. The extent of these encroachments is shown on *Figure 3.3*. These encroachments are considered minor and are compensated for in other areas where the proposed setback to Moonee Creek is up to 245 metres.

The stormwater assessment (provided in *Volume 3*) concluded that the proposed stormwater treatment measures are expected to reduce the suspended sediment and nutrient loads to levels below those from the current land use. The treatment measures recommended to achieve this include the following:

- bioretention swales around the perimeter of the developed area, designed to overtop along their full length; and
- vegetated filter zones on the down slope side of the bioretention swales.

The proposed stormwater management plan is designed to ensure that the projected water quality levels are achieved and maintained. Therefore, it is concluded that the proposed encroachments into the Moonee Creek buffer zone will not adversely impact on the water quality of Moonee Creek.

Identified Limitations

The site limitations as illustrated by Map 5 in Moonee DCP include areas in the south of the site being potential Wallum froglet habitat and having a high water table. The proposed development will not significantly impact on potential Wallum froglet habitat areas or affect the water table (refer to the Flora and Fauna Assessment and separate Wallum Froglet Habitat Assessment in *Volume 2*).

Open Space

Moonee DCP indicates that much of the land around the perimeter of the site is to be dedicated as open space. A local shareway, playground and a section of the Coastal Walk are also shown on the site.

The proposed development has taken these considerations into account by allowing the perimeter of the site generally be left for community areas. In the eastern section of the site the coastal walk can be incorporated into the community area as the DCP intended. The local shareway has been incorporated into the subdivision design and proposed internal road layout.



Figure 3.3 Skimmers Creek and Moonee Creek Buffer Areas

The Glades Estate, Coffe Harbour

Planning Controls

The proposed development complies with the relevant planning controls as follows:

- the proposed development achieves the target density and dwelling yield for North Moonee. The target density for North Moonee is 10 dwellings per hectare and the minimum dwelling yield as shown on Map 7 of the DCP is 486. The proposal will create approximately 523 residential lots and will achieve a site density of approximately 10.3 dwellings per hectare;
- the land will be serviced by reticulated water and sewerage schemes;
- a Sediment and Erosion Control Management Plan has been prepared in accordance with Council's Policy for Stages 1 - 3 project works. The Sediment and Erosion Control Management Plan is included in the Stormwater Assessment provided in *Volume 3*;
- the subdivision design includes buffer areas to Moonee and Skinners Creeks;
- over 75% of lots are orientated to facilitate solar access;
- a flooding analysis has been undertaken demonstrating that the development will not adversely impact on flood behaviour and proposed lots susceptible to flooding can be made suitable for residential development with minor filling to raise lots above the 1% flood level;
- land within 100m of the Osprey nest located on the adjoining land to the south will be dedicated to Council;
- a Flora and Fauna Assessment has been prepared that has regarded Council's Vegetation Strategy and Koala Habitat Information Sheet;
- perimeter roads separate the residential development from natural areas;
- an archaeological report has been prepared by a qualified archaeologist with recommendations to minimise impacts on cultural heritage. These recommendations have been incorporated into the design of the subdivision and will be implemented during the construction stage of the project;
- a Bushfire Risk Assessment has been prepared in accordance with Council's Bushfire Information Sheet;
- an acoustic report has been prepared that recommends measures to ensure future residents are not subject to unacceptable traffic noise levels; and
- road design and pedestrian and cycleway paths are in accordance with Council's standards.

Subdivision Development Control Plan

The Coffs Harbour *Subdivision Development Control Plan* (Subdivision DCP) provides development controls for subdivision of land within the Coffs Harbour LGA. Development controls within the Subdivision DCP relate to:

- subdivision and road design;
- energy efficiency – lot orientation;
- density;
- services;
- erosion and sediment control;
- street trees; and
- developer contributions.

The Subdivision DCP aims to provide subdivision designs that respond to the site characteristics and are therefore more pleasant to live in and are more environmentally friendly. The Subdivision DCP also aims to produce subdivisions that encourage the desired future character of an area, ensure the appropriate form of subdivision is used and that new subdivisions are adequately serviced. The proposed subdivision complies with the aims of the DCP.

Low Density Housing Development Control Plan

The *Low Density Housing Development Control Plan* (Low Density Housing DCP) contains planning controls and requirements that apply to land zoned 2A (Low Density) under the Coffs Harbour LEP. The Low Density Housing DCP includes controls regarding:

- density (not applicable to Moonee);
- design;
- solar access;
- environmental constraints;
- private open space;
- vehicle access and parking;
- developer contributions;
- erosion and sediment control; and
- services.

The objectives of the Low Density Housing DCP are:

- to encourage innovative housing that is pleasant to live in, reflects the desired future neighbourhood character, responds to the site and is environmentally sensitive; and
- to provide diverse and high quality residential environments that meet community expectations regarding health, safety and amenity.

The proposed development has taken into account both the natural constraints of the site and the desired future character of the Moonee area. All of the lots within the subdivision will have reasonable solar access, adequate area to provide private open space and vehicle parking. Appropriate erosion and sedimentation control measures would be undertaken during the construction phase and services are available to the site.

Off Street Car Parking Development Control Plan

The *Off Street Car Parking Development Control Plan* (DCP) provides requirements for car parking for various forms of development in the LGA. The proposed residential lots are of sufficient size to readily accommodate required car parking on site.

3.5.4

Developer Contributions Plans

Generally, at the development application (DA) stage for subdivision or building works, contributions are levied by the consent authority on the developer (on a per lot or per dwelling basis) to assist Council in the provision of services, community facilities, public open space and the like, as identified in the relevant Section 94 Contributions Plans. Section 94 contributions would be applicable to the proposed development unless a planning agreement is entered into that provides for an alternative arrangement.

The *Moonee Developer Contributions Plan 2005* details the required developer contributions for different forms of development in the Moonee area. It identifies how contributions are calculated and options for payment of contributions. The contributions go towards the provision, extension or augmentation of public services and facilities that will, or are likely to be, required as a consequence of development in the area (ie, community facilities, district open space, local open space, traffic facilities, stormwater management and urban planning). Council may also accept works in kind instead of monetary developer contributions where appropriate.

Council has recently undertaken a review of the existing developer contributions plan for the Moonee Release Area. The cost of all facilities and services included in the contributions plan has been reviewed to reflect the current costs of land purchases and construction costs. Over the last 2-3 years infrastructure costs have risen significantly, as has the cost of land required to

be purchased under the plan. Adoption of the *Moonee Developer Contributions Plan 2007* has resulted in a net increase in the contributions payable for the proposed development from approx \$28 500.00 to \$32 300.00 per lot.

Developer contributions will be paid in full for all allotments within the Glades Estate in accordance with Council's applicable developer contribution plans.

3.5.5 *Local Planning Strategies*

Coffs Harbour Urban Development Strategy 1996

The *Coffs Harbour Urban Development Strategy 1996* (the strategy) was a short term five year strategy for the development of Coffs Harbour between 1996 and 2001. The aims of the strategy were to provide for adequate supply of land to meet anticipated demands, ensure that necessary infrastructure was available and to incorporate ESD principles in relation to development.

The strategy identified that the Moonee area had approximately 245 hectares of land available for residential development however it had not been developed due to servicing difficulties. This strategy is no longer applicable.

Draft "Our Living City" Settlement Strategy

The draft "Our Living City" Settlement Strategy (draft settlement strategy) aims to ensure the principles of Ecologically Sustainable Development (ESD) are achieved. The draft settlement strategy identifies future growth areas in the LGA and the potential yield of these areas.

The site is identified in the draft settlement strategy as land which is zoned residential but is yet to be developed. The strategy estimates that Moonee population will increase from 610 in 2004 to 5700 in 2031, with the dwelling numbers in the Northern Beaches increasing to 5038 by 2031. The following key strategies have been developed for Moonee Beach:

- *develop as a coastal town;*
- *undertake environmental studies to determine appropriate zonings (environmental constraints) and action accordingly;*
- *allow for urban development in accordance with Moonee DCP;*
- *reinforce the commercial, retail and service role of the town centre;*
- *enhance riparian corridors to provide ecological links between coast and hinterland;*
- *reinforce the relationship of urban form and the natural environments;*

- *recognise holiday, tourism and recreation appeal;*
- *ensure development addresses impacts of Pacific Highway and Pacific Highway Strategy;*
- *prepare Place Management Plan.*

The proposed development is consistent with these strategies and the Concept Plan prepared for the site will integrate into Council's Place Management Planning.

Vegetation Strategy

The Coffs Harbour Vegetation Strategy comprises five parts, being:

1. *Vegetation Strategy;*
2. *Draft Local Vegetation Management Plan;*
3. *Draft Vegetation Conservation Development Control Plan;*
4. *Preliminary Draft Regional Vegetation Management Plan; and*
5. *Advisory Notes.*

The *Vegetation Strategy* provides a method of protecting native vegetation in Coffs Harbour LGA. It identifies important areas of native vegetation and provides controls for vegetation clearing. The *Vegetation Strategy* is a broad document that sets the targets and priorities for the LGA in terms of native vegetation. More detailed information regarding the management of native vegetation is contained within the *Draft Vegetation Conservation Development Control Plan* (applies to coastal areas), *Draft Local Vegetation Management Plan* (applies to both coastal and rural areas) and the *Regional Vegetation Management Plan* (applies to rural areas).

Draft Vegetation Conservation Development Control Plan

The *Draft Vegetation Conservation Development Control Plan* (Vegetation Conservation DCP) applies to coastal land (including the site) and land zoned 7A *Habitat and Catchment Zone* elsewhere in the LGA. The Vegetation Conservation DCP classifies the ecological status of vegetation into four categories being very high, high, medium and low.

Vegetation adjacent to Moonee Creek in the eastern part of the site is mapped as being of 'very high ecological value'. Vegetation in the south east corner of the site is identified as being of 'high' ecological value with a small area of 'medium' ecological value. Vegetation in the north of the site flanking Skinners Creek is mapped as being of 'low' ecological value. These areas of vegetation are within the open space and habitat conservation zones of the site

(and within the buffer areas to Skinners and Moonee Creeks) and are outside of the areas proposed for residential subdivision.

There is a small area on the south western boundary mapped as containing vegetation with 'medium ecological value'. There are approximately four residential lots proposed within this area. The draft DCP provides objectives and management actions in relation to clearing for each category of vegetation. The objective of the draft DCP in relation to medium value vegetation is to limit, or if possible, minimise removal. Applications for vegetation removal within this type of vegetation are to be accompanied by an assessment under section 5A of the *EP&A Act*. Compensatory planting may be required at a ratio of 2:1. The impacts of the proposal on native vegetation are discussed in the Flora and Fauna Assessment contained in *Volume 2*. The assessment includes an assessment of significance under section 5A. The assessment concludes that the proposed development will not have a significant impact on any threatened species or their habitats. The proposal includes rehabilitation and strengthening of vegetation within the open space areas of the site.

Draft Local Vegetation Management Plan

The *Draft Local Vegetation Management Plan* (LVMP) implements the strategic actions outlined in the *Vegetation Strategy*. The LVMP provides targets for conservation, rehabilitation and clearing controls. The targets in the plan relate to areas of high and very high value vegetation in the LGA. The proposal does not involve clearing of any areas of high or very high value vegetation on the site. Impacts of the proposed development on native vegetation are discussed in the Flora and Fauna Assessment contained in *Volume 2*.

This chapter addresses the potential environmental impacts of the proposed development.

4.1***BUSHFIRE RISK ASSESSMENT***

A Bushfire Risk Assessment has been prepared by Resource Design & Management Pty Ltd (RDM). The Bushfire Risk Assessment has been prepared in accordance with the relevant sections of the EP&A Act, *Rural Fires Regulation 2002* and Planning for Bushfire Protection Guidelines. The Bushfire Risk Assessment report is provided in *Volume 2* and the key findings and recommendations are summarised below.

Part of the site (generally the area around the site's boundaries) has been mapped as being bushfire prone on Council's Bushfire Prone Land Map. Vegetation within the central part of the site is predominantly open grassland with individual trees dispersed throughout. A portion of the land however, does contain a more concentrated corridor of vegetation central to the proposed development which will be retained. It is noted that this vegetation is not identified as bushfire prone land on Council's Bushfire Prone Land Map.

The Bushfire Risk Assessment has made recommendations regarding appropriate asset protection zones, water supply, access roads and levels of construction. The Bushfire Risk Assessment concludes that provided the recommendations are incorporated into the design of the proposal there will be a reasonable and satisfactory level of bushfire protection provided for the residential development of the site. These recommendations, where relevant, have been incorporated into the design of the subdivision.

4.2***ABORIGINAL CULTURAL HERITAGE***

ERM has assessed the potential impacts of the proposed development on Aboriginal Cultural Heritage. The assessment was carried out in accordance with the Department of Environment and Conservation (DEC) Interim Community Consultation Requirements for Applicants (2005) and the National Parks and Wildlife Service (NPWS) Aboriginal Cultural Heritage Guidelines for Archaeological Survey Reporting (1997). The objectives of the assessment were to identify and assess the Aboriginal cultural heritage of the site and to provide recommendations for its management. The Cultural Heritage Assessment is provided in *Volume 2*. The key findings and recommendations are summarised in this section.

The effects of past land use and the associated disturbances are likely to have impacted upon the archaeological record in terms of both the presence or absence of cultural materials and the integrity of any remaining deposits. The majority of the study area has been significantly impacted by relatively recent (post 1994) vegetation clearance. The area is used for grazing cattle, which typically increases rates of erosion.

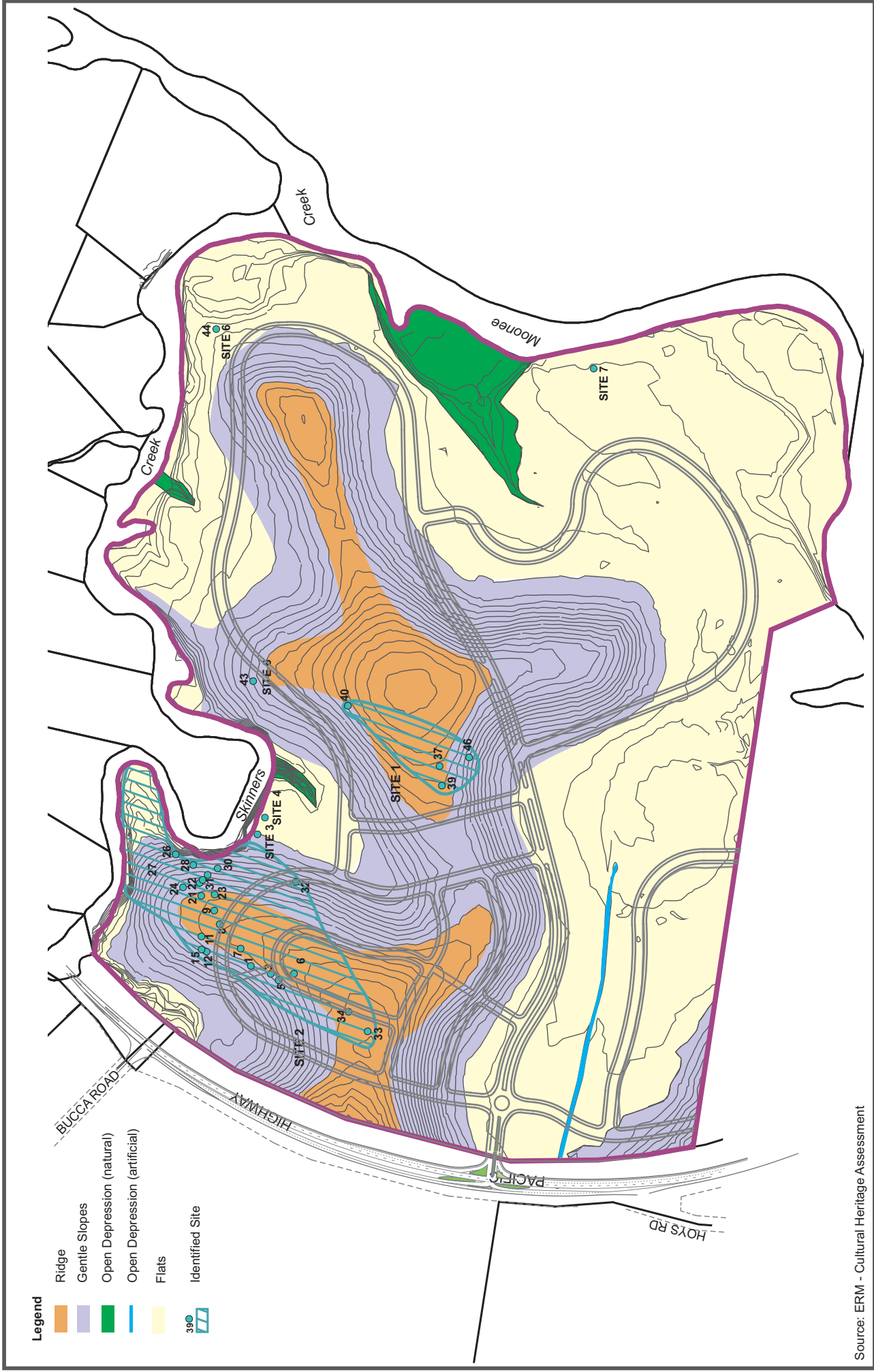
A search of the DEC Aboriginal Heritage Information Management System (AHIMS) database revealed that 41 sites are recorded within approximately five kilometres surrounding the study area. As at May 2006 there were no indigenous sites within the study area listed on the State Heritage Register, State Heritage Inventory, Register of the National Estate or *Coffs Harbour Council Local Environmental Plan 2000*.

The site has been the subject of previous archaeological assessments carried out in relation to development activities. Seven sites have been recorded within the study area as a result of these investigations. The sites are concentrated on the northerly slope above Skinners Creek and on the banks of Skinners Creek and Moonee Creek. None of the sites are extensive or concentrated and it is suggested that the occupation of the area may have been on an itinerant basis.

The majority of artefacts identified during ERM's survey are located on the ridge and gentle slope formation in the north-east of the site and are situated on either side of an area of remnant vegetation above Skinners Creek. The sites identified during this and previous investigations are clustered along Skinners Creek with only two sites on the banks of Moonee Creek (refer to *Figure 4.1*). Although a number of artefacts were identified during the most recent survey, the overall pattern of artefact density and distribution supports conclusions from previous investigations that use of the area was not extensive or concentrated.

The potential for archaeological material to be present either in areas of poor visibility and/or in a subsurface context has been considered. The majority of the study area has been disturbed due to vegetation clearance and associated sub-surface disturbance. Therefore, although additional artefacts may be present in these areas, they are likely to be disturbed and dispersed to such an extent that it is unlikely that they will provide further information. However, a number of vegetated areas remain relatively undisturbed. Of these, the areas located on relatively level elevated areas in close proximity to Moonee Creek and Skinners Creek are considered as potential archaeological deposits (PADs). An area of cultural importance has also been identified (refer to *Figure 4.2*).

The impacts of the proposed development will be largely confined to the development footprint. Sites located within the development footprint are Site 1, part of Site 2 and Site 5. The proposed development will involve clearing and earthworks within the development footprint. The highest areas along the ridge will be reduced in height by the removal of soils and fill will be placed on top of the natural deposits in the lower areas of the development



Source: ERM - Cultural Heritage Assessment




Figure 4.1

Identified Aboriginal Sites

The Glades Estate, Coffs Harbour



Legend

-  Site Boundary  Remnant Vegetation  PAD  Area of Cultural Significance

Source: LPI-Spatial Portal



0 250m
Approximate

Figure 4.2

Areas of Archaeological Potential and Cultural Importance

The Glades Estate, Coffs Harbour

footprint. Roads and in-ground infrastructure (including water, sewerage, electricity and stormwater services) will be constructed to service future dwellings. Surface and sub-surface disturbances within the proposed development footprint will be extensive and are likely to result in the movement, damage or destruction of any archaeological materials that are present within the development footprint.

The area outside the proposed development footprint will be largely undisturbed. This area includes part of Site 2, Site 3, Site 4, Site 6, Site 7, the area of cultural significance and the potential archaeological deposits (PADs) as shown on *Figure 4.2*. Impacts within these areas will be limited to the construction of recreation facilities and cycle and pedestrian tracks. The method of construction of the tracks will vary according to the sensitivity of the area and may include concrete pathways, crusher dust walkways or elevated boardwalks. The impacts in these areas will vary according to the construction method.

The following mitigation measures will be implemented to minimise any potential impacts of the development on Aboriginal cultural heritage:

- the area of remnant vegetation within Site 2 (refer to *Figures 4.1* and *4.2*) will not be disturbed. During construction, this area will be protected from potential impacts by high visibility fencing and all contractors will be made aware that the area is not to be disturbed;
- should activities involving ground disturbance within this area of remnant vegetation be unavoidable, further archaeological investigation will be conducted prior to any such disturbance;
- a surface collection of artefacts will be undertaken by representatives of the Aboriginal community and an archaeologist in the portion of Site 2 to be disturbed and in the vicinity of Site 1 and Site 5 prior to the commencement of any activities involving ground disturbance. Representatives of the Aboriginal community have stated that they wish to monitor initial ground disturbance works along the ridge on which Site 2 is located;
- the area of cultural significance and the potential archaeological deposits (PADs) identified in *Figure 4.2* will not be disturbed. During construction, these areas will be protected from potential impacts by high visibility fencing and all contractors will be made aware that the areas are not to be disturbed;
- should any activity be necessary within the area of cultural significance identified in *Figure 4.2* further consultation with representatives of the Aboriginal community will be undertaken prior to the commencement of any such activity;
- any works outside the proposed development footprint in relation to the construction of recreational areas and pathways will minimise ground

disturbance by being confined to previously disturbed vehicle tracks or through the use of elevated boardwalks. Should this not be possible, further consultation with representatives of the Aboriginal community will be undertaken regarding the proposed location of any proposed ground disturbance works and further archaeological investigations in the form of surface collections or test excavations may be required; and

- Site 3, Site 4, Site 6 and Site 7 will not be disturbed. During construction, these areas will be protected from potential impacts by high visibility fencing and all contractors will be made aware that the areas are not to be disturbed.

4.3 *EUROPEAN HERITAGE*

There are no items of European Heritage listed on the Heritage Schedule to the Coffs Harbour LEP either on the site or in the vicinity. There are no items listed on the State Heritage Register for the Moonee locality. Site inspections have confirmed that there are no items of European heritage on site or within the immediate vicinity.

4.4 *SOILS AND URBAN CAPABILITY*

Coffey Geosciences Pty Ltd has conducted an assessment of geotechnical and groundwater levels for the proposed subdivision at Moonee. The geotechnical assessment is provided in *Volume 3* and is summarised in this section.

Based on the results of the geotechnical investigations carried out to date, the site is considered to be generally suitable for a residential subdivision development. The subsurface conditions have been separated into two geological zones as shown on *Figure 4.3*. Zone 1 is considered to be generally suitable for a residential subdivision development. Zone 2 is also considered to be generally suitable for a residential subdivision development, however additional considerations in construction will be required. These include recommendations regarding the appropriate method and materials for filling this part of the site. Earthworks will be carried out in accordance with the recommendations outlined in AS3798-1996, '*Guidelines for Earthworks for Commercial and Residential Developments*'.

4.4.1 *Acid Sulphate Soils*

The 1:25 000 scale Acid Sulfate Soils (ASS) Risk Map of Moonee Beach indicates that the majority of areas to be developed are not within areas with known ASS.

As Zone 1 areas are underlain by residual soils and weathered rock they have little, if any, acid generating potential. Previous investigations indicate that

Geological Zones

areas within gullies and lower lying areas (Zone 2) between 2 to 4 metres AHD have a low probability of the presence of ASS within 1 to 3 metres below the ground surface.

Coffey Geotechnics Pty Ltd has recently undertaken an assessment of the presence or absence of ASS within an area of Zone 2 soils that will be disturbed by construction of approximately 600 metres of road within Stage 1 of the proposed subdivision. The ASS assessment is provided in *Volume 3* and is summarised in this section.

Fieldwork was carried out on 27 June 2007 and comprised excavation of five test pits to depths of about 2 metres. Soil samples were collected from each test pit at 0.5 metre intervals and sent to a NATA accredited laboratory for analysis. Samples were tested for Total Potential Acidity (TPA), Total Actual Acidity (TAA) and Total Sulfidic Acidity (TSA) and Chromium Reducible Sulfur (CRS).

The results of the testing indicate that the soils at the site are unlikely to have pyretic sulphur but may contain organic sulphur. These results suggest that the soils are unlikely to be ASS. On this basis, it is reported that the soils are not ASS but are acidic soils. Acidic soils are unlikely to cause significant harm to the environment, as the production of acid is slow and is unlikely to leach from soils in significant quantities in their natural state.

Generally, there are two options for dealing with acidic soils ie, implementation of a sediment control plan which would prevent acidic soils from entering waterways and treatment of the acidic soils with lime. The decision as to which option to adopt would depend on the need to implement a sediment control plan for the development and/or the volumes of materials that may be excavated and treated with lime. Council should also be consulted to determine if a management plan for acidic soils is required.

4.4.2

Potential Land Contamination

A preliminary investigation has been undertaken by Resource Design & Management to identify any past or present potentially contaminating activities and provide a preliminary assessment of any site contamination. The findings of this investigation are provided below.

Background

The site has a history of forestry (pre 1980's) and grazing (present). The land was substantially cleared of forest vegetation in the mid 1990's following the issue of Development Consent 257/93 which authorised the clearing and grazing of the land.

Statutory Considerations

- *Managing Land Contamination Planning Guidelines, SEPP 55 – Remediation of Land*
- *Coffs Harbour City Council – Contaminated Land Information Sheet*

The purpose of the *Managing Land Contamination Planning Guidelines* is to establish 'best practice' for managing land contamination through the planning and development control process. The principles of the Guidelines are:

- *to ensure that changes of land use will not increase the risk to health or the environment;*
- *to avoid inappropriate restrictions on land use;*
- *to provide information to support decision making and to inform the community.*

Coffs Harbour City Council introduced the *Contaminated Land Information Sheet* in 2000. This information sheet embraces the provisions of SEPP 55 by providing basic information as to the process of considering land contamination issues.

Initial Evaluation

The following considerations form the initial evaluation as to the likelihood of contamination being present:

Previous Investigations

No previous specific contamination investigations have been carried out over the site. Acid sulfate soil testing has been undertaken in the lower parts of the land. A separate report addresses this issue.

Existing Records

Other than forestry operations and cattle grazing no other activities have been approved on the site.

Zoning History

The site was rezoned from Non-Urban to Residential 2(a) in 1988 (Coffs Harbour Local Environmental Plan 1988).

Current Land Use

The current use of the land is for light grazing (4 head of cattle at present).

Regulation of Activities through Licensing

No information suggests that the site was ever subject to regulation through licensing or other mechanisms in relation to any uses listed in Table 1 of the *Managing Land Contamination Planning Guidelines*.

Land Use Restrictions

There are no land use restrictions applying to the land relating to possible contamination.

Site Inspection

Site inspections have not revealed the likely presence or history of contaminating uses.

Adjoining Land

There is no information that would suggest any adjoining lands would be subject to any contamination or uses that may cause contamination.

Having regard to the land use history associated with the subject land and site inspection, none of the information available would suggest that the land might be contaminated or that further enquiry is warranted. It is considered that there is no need for any further investigation in this instance.

4.4.3

Earthworks

Earthworks will be required within the development area in establishing fill platforms to enable the discharge of underground stormwater drainage without undue disturbance to the surrounding environs. To protect sensitive areas it will be necessary for fill platforms to be set above the 1% flood levels.

Required fill will be sourced from the ridge that traverses the site from west to east. Three main areas of cut are proposed as detailed on the bulk earthworks plan provided as *Figure 4.4*. A cut to fill volume of approximately 274 000m³ is estimated. Cuts of up to four metres will be required at the highest points tapering back to the natural surface at the cut limits. The subdivisional earthworks proposed will not require the construction of major retaining walls or steep allotment batters. It is not envisaged that any fill will be required to be imported to the site or exported from the site. Unsuitable materials and excess topsoil will be utilised for non-structural fill in landscaping mounds, noise attenuation berms and earth bunds adjacent to the bioretention trenches.