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# REVISED RESPONSE TO SUBMISSIONS

**State Significant Development (SSD 7198) - Part 4 of EP&A Act 1979**  
(Transitioned from MP09\_00167 under Part 3A Major Project pursuant to Cl.6 Sch. 6A  
(EP&A Act) State and Regional Development SEPP)

Proposed 103 Lot Residential Subdivision  
Rehabilitation and Dedication of Waterfront Public Reserve  
Residential Zoned Land, Coffs Harbour LEP 2000



**Lot 1 DP 1097743**  
**Pacific Highway, Moonee Beach**  
Moonee Parklands Trust  
Department of Planning & Environment Ref: SSD7198  
30<sup>th</sup> May 2017

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## ATTACHMENTS

- Attachment A** - Response to issues raised in submissions to Concept Plan
- Attachment B** – Proposed subdivision – Preliminary engineering plans
- Attachment C** - Landscape Plan
- Attachment D** - Revised Flooding Report
- Attachment E** - Revised Concept Stormwater Management Plan
- Attachment F** - Revised Ecological Impact Assessment Report
- Attachment G** - Additional Noise Impact Assessment Report
- Attachment H** - Traffic Impact Assessment Report
- Attachment I** - Moonee Parklands Residential Development Biodiversity Offsets Strategy
- Attachment J** - Aboriginal Heritage Assessment
- Attachment K** - DPI Fisheries advice on adequacy of buffer

## EXECUTIVE SUMMARY

This revised Response to Submissions (**RTS**) has been prepared by JW Planning Pty Ltd on behalf of Moonee Parklands Trust (**applicant**) for Lot 1 DP 1097743 (**site**). This follows the Environmental Assessment Report (**EA**) for a Part 3A Concept Plan for the residential subdivision of urban zoned land at Moonee Beach in the Coffs Harbour Local Government Area.

Following exhibition of the EA report and Concept Plan in August 2013, the Department of Planning and Environment (**DPE**) requested the applicant prepare a *draft* Preferred Project Report (**PPR**) that excluded Lot 6 DP 252223 following a request to DPE by the owner of that land for it to be removed from the Concept Plan.

With the repeal of Part 3A of the Act in 2011, the Minister for Planning and Environment transitioned the project to State Significant Development (**SSD**) under Clause 6 of Sch6A of the Environmental Planning and Assessment Act (**Act**) on 12<sup>th</sup> January 2015. On 6<sup>th</sup> February 2015, DPE advised the process undertaken for the project to date under Part 3A will be accredited under the SSD process and are taken to have been completed. As part of this transition, DPE have requested that the PPR be rebadged as a Response to Submissions.

This revised Response to Submissions report follows:

- An adequacy review of the *draft* PPR by DPE and other government agencies dated 27<sup>th</sup> January and 15<sup>th</sup> December 2015;
- Conversion of the draft PPR to an RTS document and submission to DPE on 4<sup>th</sup> May 2016;
- Further consultations by DPE with government agencies and their submissions in 2016; and
- The applicant meeting with DPE in October 2016 and consulting further with OEH and DPI Fisheries on biodiversity offsetting, aboriginal archaeological protocols and buffer issues.

Under the Coffs Harbour Local Environmental Plan 2000 (**LEP**) the site is zoned residential and part environmental protection to provide a buffer to the adjoining marine park waterway. The site is privately owned to the Mean High Water Mark, and it is predominantly grazed and largely cleared as a consequence of rural activity over many decades, which continue under existing use rights (notwithstanding the existence of an environmental zone).

The site is about 12.9ha in area and importantly, it forms part of the Moonee Beach urban growth area. The proposed development includes:

- Four new public roads connected to a Land and Environment Court approved collector road providing access to the site and an adjoining Part 3A approved residential development;
- Subdivision to create 105 lots comprising:
  - 103 Torrens Title lots for residential purposes;
  - one lot for future vehicular access through the site to adjoining land; and
  - one lot for dedication to council for environmental protection purposes;
- Public and subdivision infrastructure;
- Some two hectares of conservation land providing a secure buffer to Moonee Creek and a long term sustainable wildlife corridor connected to off-site corridors approved by the Minister for Planning and Infrastructure for the Glades Estate (north) and to the south of the site. The conservation land and buffer is proposed for rehabilitation, management and dedication to Council post construction for community purposes; and

- A voluntary offer by the applicant under *Section 127ZO Effect of issue of bio banking statement—development requiring development consent of the Threatened Species Conservation Act* to secure and retire:
  - 291 *Blackbutt - Pink Bloodwood shrubby open forest of coastal lowlands of NSW North Coast Bioregion* ecosystem credits and 170 *Forest Red Gum - Swamp Box of Clarence Valley lowlands of NSW North Coast Bioregion* ecosystem credits; and
  - 170 *Squirrel Glider (Petaurus norfolcensis)* species credits.

In accordance with the Director General's Requirements, detailed investigations undertaken include vegetation and habitat, stormwater, heritage, traffic noise, vehicle, cycle and pedestrian access etc. The findings and recommendations of the investigations have been balanced and incorporated into the design of the development. The investigations enabled the DA to retain, improve and protect the environmental buffer and create a development footprint that facilitates orderly and efficient use of residential zoned land with physical and visual access to the environmental areas. The DA is consistent with state and local statutory plans and strategies.

Development of the site is strategically important in that:

- it will remove ongoing rural activities that have evidently degraded the land for decades and are incompatible with the sensitive marine environment adjoining the site;
- it will revert privately owned waterfront land used for unmanaged rural purposes to publicly owned and managed land as a buffer to the Marine Park, at the same time enabling:
  - rehabilitation and establishment of the buffer as a protected, long term sustainable biodiversity corridor;
  - an extension to Council's public Coastal Walk;
  - Passive supervision and protection of the foreshore and Marine Park.
- it will provide housing supply and place approximately 280 new residents within walking distance to Moonee Beach Village centre, who will shop and use services at the village and in turn, ensure the long term economic and social sustainability of the local area;
- it will ensure a significant improvement in existing water quality in that all of the land would drain via a bioremediation basin before stormwater enters the adjoining waterways; and
- it will facilitate construction of the Court approved collector road from Moonee Village through the site to the approved 520 lot Glades Estate residential subdivision to the north and adjoining the site.

The revised RTS contains the following to address the adequacy review comments by DPE and agencies during 2014, and consultation with Council, OEH and Marine Park Authority in early 2015 and 2016 including DPI Fisheries:

- a table outlining how the specified key issues have been addressed;
- the main report addressing key issues for the proposed development;
- a revised Statement of Commitments; and
- Technical reports and investigations into the capability and suitability of the site the proposal.

With appropriate mitigation and management measures, including water quality controls, the preferred project will result in environmental impacts that are not significant and are acceptable in accommodating development on the site to achieve the strategic planning objectives published by Council and the Department for the local area.

## 1.0 INTRODUCTION

An Environmental Assessment (EA) for a Concept Plan (MP09\_0067) which proposed a 159 lot residential subdivision involving the site (Lot 1) and the adjoining land (Lot 6) was publicly exhibited under Part 3A of the Environmental Planning and Assessment Act between 19<sup>th</sup> June and 2<sup>nd</sup> August 2013.

36 submissions were received in response to the Concept Plan, including:

- 9 from Government agencies including Coffs Harbour City Council;
- 1 from a landowner within the Concept Plan area plus a petition;
- 1 from an adjoining land owner;
- 24 from members of the general public.

The issues identified in these submissions generally fell within the following categories:

- Adequacy of information for part of the site;
- Ecological impacts;
- Buffer to Moonee Creek and Solitary Island Marine Park;
- Flooding and stormwater management.

The applicant, **Moonee Parklands Trust**, and its consultants considered the submissions. In accordance with advice from the Department of Planning and Environment (**DPE**) on 23<sup>rd</sup> August 2013, a draft Preferred Project Report (PPR) was prepared and submitted to DPE on 14<sup>th</sup> October 2014. DPE provided its' adequacy review advice and those of other agencies on 27<sup>th</sup> January 2015.

On 12<sup>th</sup> January 2015 as part of the government's program of repealing Part 3A and transitioning undetermined concept and preferred projects to a new assessment system, the project was declared State Significant Development under clause 6, Schedule 6A of the *Environmental Planning and Assessment Act 1979*. State Significant Development requires assessment of the relevant sections of Part 4 of the Act

On 18<sup>th</sup> April 2016, the Department advised via email that the PPR be referred as a Response to Submissions report (RTS).

An RTS was submitted to DPE on 4<sup>th</sup> May 2016. DPE then consulted further with Rural Fire Service (RFS), Office of Environment and Heritage (OEH); Road and Maritime Services (RMS) and Department of Primary Industries – Fisheries (DPI) during May and June 2016.

After a meeting with DPE on 28<sup>th</sup> August 2016 where threatened species, biodiversity offsets, water quality, aquatic habitat and Aboriginal Cultural Heritage issues were discussed, the applicant consulted directly with OEH and DPI Fisheries during September to December 2016.

The revised RTS sets out the proponent's response to the issues raised during and post the exhibition period and the adequacy review of the draft PPR/draft RTS. The revised RTS describes the subsequent modifications made to the proposal, provides details on the consultation and further environmental assessment completed pursuant to the adequacy review, and provides a revised Statement of Commitments that includes a voluntary offer to enter into a bio banking agreement under the Threatened Species Conservation Act based upon investigations and advice in a Biodiversity Offsets Strategy prepared by GHD for the applicant. With this RTS, development consent is sought for the development.

This report should be read in conjunction with the EA report Moonee Parklands Residential Subdivision by JW Planning Pty Ltd 5th June 2013 and accompanying documentation. To the extent of any inconsistency, the details in the revised RTS prevail.

## 1.1 Reduced site area

The land that was subject to the Part 3A Concept Plan as described in the EA report applied to two (2) adjoining parcels of land; Lot 1 DP 1097743 and Lot 6 DP 252223 (**Figure 1**).

During public exhibition of the Concept Plan, the owner of Lot 6 indicated in a submission to DPE that they had withdrawn from the project on 19<sup>th</sup> July 2012. Consequently, the DPE advised the applicant on 18<sup>th</sup> December 2013 that it *'is an acceptable course of action for a PPR to be submitted which excludes Lot 6 DP 25223 from the residential subdivision proposed in the Concept Plan application'*.

**Figure 1 Land under Initial Concept Plan Proposal**



The proposed development now only concerns Lot 1 DP 1097743 (**Figure 1** and **Figure 2 – 'the site'**). Apart from addressing any impacts from Lot 1 upon Lot 6, submissions raising issues or concerns with Lot 6 are not matters for further consideration.

The Deposited Plan for Lot 1 (refer **Figure 3**) illustrates a Right of Carriageway (Item D) for Lot 2 over Lot 1 and 3 to provide Lot 2 with a legal form of access to the Pacific Highway. Easements for sewer, water and power are indicated along the western boundary of Lot 1. **Figure 3**



**Figure 2 Reduced Site Area for Preferred Project – Lot 1 DP 1097743**



also illustrates the location of the Mean High Water Mark - the eastern boundary of Lot 1 and the western and southern boundaries of Lot 3 (a public reserve).

## **1.2 Background - Environmental Assessment Report**

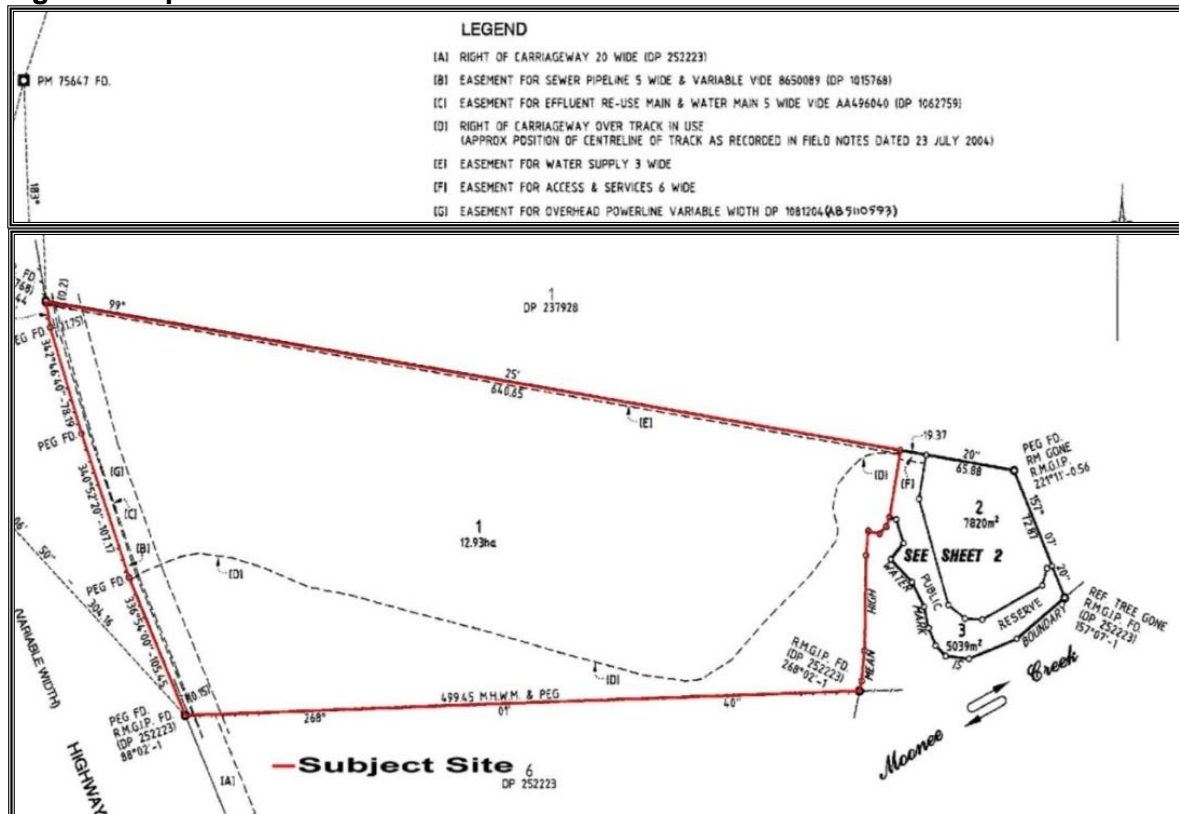
Section 1.3 of the EA report described the details of the Concept Plan. **With the exclusion of Lot 6**, the Concept Plan (now superseded by the revised RTS) is summarised as follows:

- 101 Torrens Title residential lots ranging in size from 650m<sup>2</sup> to 795m<sup>2</sup>;
- Four (4) roads (Road 1 excluded as collector road was approved by Land and Environment Court in June 2012 whilst Roads 2 and 3 are collapsed into Road 2);
- Rehabilitation of riparian land (at the cost of Applicant via a Vegetation Management Plan) degraded by existing rural activities to provide a buffer to Moonee Creek and a long term sustainable wildlife corridor linking with approved corridors on adjoining land;
- provision of a public coastal walk through the site as per the Moonee DCP 2004;
- One (1) lot to be dedicated to Council – at the cost of the Applicant- as a public reserve incorporating the buffer;
- One (1) lot to provide access to Lot 2 DP 1097743 in lieu of an existing Right of Carriageway;
- associated bulk earthworks (cut and fill);
- associated water and sewer reticulation;
- associated stormwater drainage works;
- associated Asset Protection Zones for bushfire management;
- landscaping including street tree planting, drainage swales and parkland;

The EA also included a detailed site analysis and an environmental assessment addressing the environmental, social and economic impacts of the proposed development.



**Figure 3 Deposited Plan and Encumbrances over Lot 1 DP 1097743**



Amendments to the project description arising from further design development in response to submissions and additional consultation with Council and the relevant state agencies are detailed in the description of the proposed development at **Section 2.0**.

### 1.3 Structure of the *Revised Response to Submissions*

**Section 1.4** to **1.13** of this report provides a summary of the issues raised:

- during exhibition of the Concept Plan and by DP&E and other Government agencies in their adequacy review of the PPR, as issued to the applicant on 27<sup>th</sup> January 2015.
- conversion of the draft PPR to an RTS document and submission to DPE on 4<sup>th</sup> May 2016;
- further consultations by DPE with government agencies and their submissions in 2016; and
- A meeting with DPE in October 2016 leading to the applicant consulting further with OEH and DPI Fisheries concerning biodiversity offsetting and aboriginal archaeological protocols and buffer issues with Moonee Creek.

**Section 2.0** describes the proposed development, which has been refined to address the potential for environmental impacts of the proposed development.

**Section 3.0** includes further environmental assessment of the proposed development, particularly with regard to the issues identified in the submissions. This environmental assessment informs the Final Statement of Commitments included at **Section 4.0**.

The **Attachments** contain a full copy of each technical investigation report prepared in addition to those provided in the EA report for the Concept Plan.

## 1.4 Summary of Submissions

A detailed summary and response to all submissions both during and post the public exhibition are included at **Attachment A**.

Nine submissions were received from Council and government agencies during the public exhibition period, including:

- Department of Planning and Environment (DPE);
- Coffs Harbour City Council (CHCC);
- Office of Environment and Heritage (OEH);
- Rural Fires Service (RFS);
- Agriculture NSW;
- Fisheries NSW;
- NSW Office of Water (NoW);
- Department of Primary Industries (DPI);
- Roads and Maritime Services (RMS);
- Marine Park Authority (MPA).

Of the 36 submissions some 133 issues were raised. Many issues overlap or are duplicates and do not numerically indicate 133 separate matters requiring individual consideration. The issues can be grouped into following six categories:

- i. Adequacy of information for part of the site (14 issues);
- ii. Ecological impacts (43 issues);
- iii. Buffer to Moonee Creek and Solitary Island Marine Park; (10 issues);
- iv. Roads and access to the site from the Pacific Highway (8 issues);
- v. Noise from the Pacific Highway (7 issues);
- vi. Flooding and stormwater management (5 issues).

Following submission of the RTS to DPE on 4<sup>th</sup> May 2016, further consultation was undertaken with DPI Fisheries and OEH on the buffer to fisheries habitat, offsetting the impacts of the proposed development under the Threatened Species Conservation Act and clarification of Aboriginal archaeological requirements and protocols post consent.

Further assessment of the issues raised by the submissions and in turn, refinement of the proposal to define the Preferred Project (now RTS), are included in **Section 4.0**.

## 1.5 Adequacy of information for part of the site

Fourteen issues raised concerns about completeness and adequacy of technical investigations for Lot 6. In accordance with **Section 1.1**, Lot 6 is no relevant for consideration.

## 1.6 Ecological Impacts

Some 43 issues were mainly raised by DPE, Council and OEH including:

- DPE - sought better mapping and quantifying of ecological data concerning koala and squirrel glider habitat; need for a koala PoM; better integration with landscape plan; and need for ecological offsets as per Biodiversity Offsets Policy for Major Projects (2014);
- Council – concerned development footprint impacts upon “protected” vegetation identified in DCP; adequacy of consideration of impacts upon squirrel glider and koala habitat; potential need for an SIS and preparation of a VMP for proposed compensatory works.
- OEH – sought; more data on impacts and offset measures to reduce impacts on koala and squirrel glider; consideration of offset ratios under the Coffs Harbour Koala PoM; and the need for offsetting in accordance with the Biodiversity Offsets Policy for Major Projects;

## 1.7 Buffer to Moonee Creek and Solitary Island Marine Park

Some 10 issues were raised concerning the relationship of the site to Moonee Creek that forms part of the Solitary Island Marine Park, in particular, the width and treatment of the buffer between the development and the Moonee Creek riparian corridor.

In summary, the buffer issues raised are:

- DPE - questioned adequacy of buffer and its dedication to Council within a dedication plan;
- Council – recommend buffer be 100m wide (as per Moonee DCP) and revegetated; buffer not be relied to treat urban runoff or for bushfire risk mitigation; should consider impact of detention basins, access ways, coastal walks and sewer pumping stations; ecological report needs justification for reducing buffer width; and buffer should be supported by a survey plan that identifies the top of creek bank and actual buffer distance.
- OEH - recommend that infrastructure be excluded from buffer and a Plan of Management be prepared for riparian vegetation in the buffer.
- DPI Fisheries - recommend a 50-100m buffer between development and fish habitats and measured from highest astronomical tide or height of natural breakout of Moonee Creek; stormwater and sewage infrastructure compromise buffer and not consistent with DPI Fisheries buffers policy and cannot be supported; the narrow buffer with infrastructure within does not allow the Moonee Creek lagoon to be managed with minimal intervention.
- MPA – prefer a 100m buffer from expected Mean High Water Mark for the year 2100 and that infrastructure should be outside of this area. A lesser buffer would need justification.

## 1.8 Aboriginal cultural heritage

On 1<sup>st</sup> August 2013, OEH advised DPE on Aboriginal cultural heritage that were largely focussed upon requirements and protocols at the construction stage. OEH also advised if their advice was not reflected in a revised Statement of Commitments then they should be included as conditions of approval.

On 6<sup>th</sup> February 2015 DPE advised that the process undertaken for the project to date under Part 3A will be accredited under the SSD process and taken to have been completed. Accordingly, the draft PPR/RTS documents during 2015 and 2016 did not include Aboriginal cultural heritage information. OEH's 16<sup>th</sup> June 2016 advice to DPE on their review of the RTS raised concerns that Aboriginal Cultural Heritage investigations were incomplete.

JW Planning contacted OEH Coffs Harbour in late September 2016 where it was agreed the revised RTS include the *Aboriginal Heritage Assessment Lot 1 DP 1097743 and Lot 6 DP*

252223 Pacific Highway, Moonee Beach, NSW (30th May, 2013) by Myall Coast Archaeological Services (that was contained in the EA report) and the Statement of Commitments be updated consistent with OEH advice dated 1<sup>st</sup> August 2013.

## **1.9 Roads and access to the site from the Pacific Hwy**

Some 8 issues raised roads and access to the site from the Pacific Highway that was under construction at the time of the traffic investigations and preparation of EA report. In summary, the road and access issues are:

- RMS – sought a “proper” Traffic Impact Statement, consultation with RMS; modelling to take into account the total residential development upon the collector and Moonee Beach Roads; more consideration to school bus facilities; and the design of the residential street should be designed to encourage a safe speed environment.
- Council - sought information to explain arrangements for construction of the development including easements to allow access to adjacent land to construct the collector road from the southern boundary of Lot 6 to the formed collector road, and the arrangements to allow required services to be extended to the development site.

## **1.10 Noise from the Pacific Highway**

Some 7 issues raised noise from the Pacific Highway. At the time of the EA report investigations, the highway was being upgraded into a separated dual carriageway. In summary, the noise issues raised are:

- Council - recommend assessment of proposed lots along southern and northern boundaries as they would have direct line of sight to highway; further assessment on potential need for treatment of side of dwellings exposed to highway; it is unreasonable to limit housing to single storey in the noise affected area and require mechanical ventilation systems to allow windows to be shut to meet noise levels standards contrary to sustainable housing design principles; and housing on collector road would precede other housing and therefore act as a noise shield.
- RMS – recommend assessing noise from collector road in addition to that from highway.

## **1.11 Flooding and stormwater management**

Some 5 issues were raised concerning flooding and stormwater management. This includes sea level rise and overlaps with the buffer issues raised in Section 1.7. In summary, the flooding and stormwater issues are:

- DPE commissioned WBM BMT to review the flooding and drainage investigations and proposed management. WBM BMT’s recommendations concerning water quality include:
  - further assessment of impacts of the development upon hydrologic regime of Cunningham and Moonee Creeks;
  - Consider other treatment measures than proposed SPEL Storm Ceptor units. In particular, use of surface treatment systems such as vegetated swales would reduce both sediment and nutrients into the downstream bio retention basins and would also trap any gross pollutants on their surface;
  - The applicant reviews the MUSIC modelling and modifies the treatment train such that required pollutant load reduction targets are achieved.

- WBM BMT's recommendations concerning flooding include:
  - The flood reporting would benefit from additional information to further confidence in the assessment process and developed outcomes;
  - Assessment of shorter duration flooding of the local Bucca Creek catchment and appropriateness of adopted flood planning levels;
  - Re-modelling of design PMF condition with indicative post-development ground surface profiles - to assess flood hazard across site and further specific requirements for floodplain risk management at this magnitude event;
  - Confirm potential impact on flood conditions of approved developments adjacent to site;
  - Consider the potential cumulative impacts of the development.

## 1.12 Submissions from the Public

There are 12 submissions made by members of the public, including builders and professionals interested in, or trying to establish a business or build a home, Moonee. The submissions supported the proposed development as it would provide more lots, houses and people for Moonee and support the existing infrastructure and services that were provided in anticipation of significant growth in population e.g. Moonee Shopping Centre.

A petition was submitted by the owner of Lot 6 DP 252223 to the south of the site objecting to the EA claiming it was misleading and unfairly impacting upon Lot 6. Lot 6 has been removed from the PPR and now revised RTS.

## 1.13 Submission from Owner of the Glades Estate

Winten Property Group, on behalf of the owner of the approved Glades Estate subdivision adjacent and north of the site, support the proposal provided that the proposed streets align with those of the Part 3A Project Approval for subdivision and the court approved collector road.

## 1.14 Adequacy Assessment of Draft Preferred Project Report

DPE undertook an adequacy review of the *draft* PPR including further consultation with the relevant state government agencies and Coffs Harbour Council. DPE provided this review in a letter to JW Planning dated 27<sup>th</sup> January 2015 with a further adequacy letter review dated 15<sup>th</sup> December 2015. A response to the adequacy assessment comments are provided in **Table 1**.

**Table 1 Issues raised in adequacy assessment of PPR/RTS and response.**

Item	Summary of Issue	JW Planning response
<b>Department of Planning &amp; Environment</b>		
<b>1. Cut and fill, Acid Sulfate soils</b>	Address cutting and filling in PPR & pinpoint the relevant sections where it is addressed	Refer to <b>Section 3.8</b>
	Review the adequacy of the ASS assessment	Refer to <b>Section 3.9</b>
<b>2. Staging of development</b>	Stage description & Final Treatment & visual character, southern edge of development	Refer <b>Section 2.2</b> and <b>Fig. 6A-C</b> and <b>Section 3.13</b>
	Specify the proposed number of stages	Refer <b>Figure 6A-C</b> and <b>Section 2.2</b>
<b>3. Servicing and Access</b>	SoC16 states Applicant will facilitate construction of water main within collector road reservation.	Refer to <b>Section 3.10</b>
<b>4. Other issues</b>	Design Guidelines and Mosquito Management Plan have not been addressed	Refer <b>Section 3.12</b> re guidelines and <b>Figure 5</b> and <b>Section 3.5</b> .

Item	Summary of Issue	JW Planning response
<b>5. Buffer to Moonee Creek</b>	Identify removal of infrastructure from buffer and address adequacy of buffer with reference to plan	Refer <b>Figure 13 and 14</b> and <b>Section 3.4.2</b>
	Statement of commitments 8 relates to Lot 104 but refers to the dedication of Lot 105	Typo corrected. SoC 8 is now SoC9
	Attach A & PPR should pinpoint sections which address issues and by a plan illustrating removal of infrastructure	Refer <b>Figure 13 and 14</b> and <b>Section 3.4.2</b>
<b>6. Ecological assessment</b>	Habitat mapping – identify section of PPR which reviews OEH submission [ EA report]	Refer Attachment B in <b>Attachment F Ecological Assessment Report</b> .
	Habitat mapping – is Fig 2 updated from EA?	Refer <b>Figure 26</b> in <b>Attachment F</b>
	Habitat mapping – Section 3 Impact on Vegetation does not address the issue	Refer Section 6 of <b>Attachment F</b>
	Habitat mapping – Attach E to provide assessment of receiving environments to accommodate compensation planting	Revegetate Lot 104 to reinstate native veg. No known factors that prevent this.
	Koala management - explain any differences between the terms “favoured” and “preferred”	“Preferred” in CHCKPOM 1999 - “favoured” not but known as food source by ecologist & CHCKPOM.
	Koala mgmt. - Reference relevant mapping of preferred feed trees recorded on site & individual trees & secondary koala habitat proposed to be removed.	Refer Section 5.8 in <b>Attachment F</b>
	Squirrel Glider habitat mapping – Section 4.2.7 of PPR (not listed in Took) refers Figure 18 Proposed Mitigation measures for Squirrel Glider without any discussion.	Refer Section 5.9 of <b>Attachment F</b>
	State whether landscape plan contains all endemic species using local provenance.	Landscape Plan amended - refer <b>Figure 11</b> and <b>Section 3.13</b> .
	Attachment A should also refer Attachment D.	<b>Attachment A</b> refers <b>Attachment D</b>
	OEH requirements for offsetting in accordance with Biodiversity Offsets Policy for Major Projects;	Refer <b>Section 3.14.10</b>
<b>7. Flooding and Drainage</b>	Sec 4.1 include additional flood modelling under taken & flooding scenarios developed for Cunningham Ck.	Refer <b>Section 3.2</b>
	Clarify if DCP/ SEPP (Exempt & Complying Development) setbacks apply.	Refer <b>Figure 5</b> and <b>Section 3.12 Design Guidelines</b>
<b>8. Bushfire</b>	Provide details of landscaping along Nthn & Sthn perimeter of site & over part of proposed Lot 104.	Not proposed on perimeter. Refer <b>Figure 11 &amp; Attachment C</b>
	Provide a separate plan showing proposed APZs	<b>Figure 5</b> clearly shows APZs.
<b>9. Staging</b>	Clarify the proposed staging.	Refer <b>Section 2.2 &amp; Figure 6A-C</b> .
	Identify how SoC has changed from EA version.	Refer <b>Section 4</b> entry paragraph.
<b>10. Statement of Commitments (SOC)</b>	Address interaction of basin water with groundwater	Refer <b>SoC10</b>
	Provide further details of responsibility & timing of SoC 9	Refer to <b>SoC 9</b>
	When the Applicant will revegetate the buffer	Refer to <b>SoC 9</b>
	Reference relevant drawings	Noted
	Whether Council agrees to accept dedication	Yes. Refer <b>Fig 27</b> .
	Timing of VMP or dedication of Lot 104	VMP prior to CC for Stage 1.
	Summarise amended project in Executive Summary	Refer <b>Executive Summary</b> .
<b>11. Project Description</b>	Provide development data table (No. of lots, buffer width, staging etc.) & plan of proposed subdivision comparing exhibited & preferred projects e.g. an overlay	Refer <b>Tables 3 and 4</b>  <b>Refer Figure 14</b>
	Provide full details and copies/citations of relevant plans in cross references	Noted.
<b>12. Cross referencing</b>	Figures undated, poor resolution, contain discrepancies, inadequate legend details & don't delineate site.	Noted
<b>13. Formatting</b>	Various sections contain inconsistencies	Noted
	Identify figure numbers where referenced in text.	Noted.
<b>14. Address OEH &amp; DPI Fisheries issues</b>	Ecological offsetting and Aboriginal Cultural Heritage and adequacy of buffer to fish habitat in Moonee Creek.	Refer <b>Sections 3.14.10, 3.15</b> and <b>3.4.1</b> respectively
<b>Department of Primary Industries (Fisheries)</b>		
<b>15. Buffer</b>	Removal infrastructure from buffer satisfies Policy & Guide lines - Aquatic Habitat Mgmt. & Fish Conservation	Noted
	Buffer shouldn't be used for APZs or mosquito mgmt. which requires under scrubbing.	Eastern boundary of buffer delineated by coastal walk.
	Rehabilitation of buffer in earliest stages of development.	Noted
	Buffer width be measured from highest astronomical tide	Refer Section 3.4.1

Item	Summary of Issue	JW Planning response
	Construction & operation stormwater does not compromise key fish habitats or values of Solitary Islands Marine Park.	Refer Section 3.4.2
<b>16. Waterway Crossing</b>	SoC to satisfy Sect 4.2 of Policy & Guidelines for Aquatic Habitat & Fish Conservation	Refer to <b>SoC No. 10.</b>
<b>Marine Parks Authority</b>		
<b>17. Protection Key Habitats</b>	How development will impact estuarine ecosystem via increased fishing pressure, impacts of increased boating on sea grass adjacent to site & how access to estuary will be managed & banks & riparian veg. not impacted	Access into park & regulation of boating & fishing activities within regulated by MPA & are outside scope of project.
<b>18. Buffers</b>	Buffer should be measured from predicted 2100 shoreline to enable migration of riparian zone when sea levels rise.	Refer <b>Section 3.4</b>
<b>19. Sewer Pump Station</b>	PPR should state what measures have been taken to manage overflows of pump station.	Refer <b>Section 3.4.2</b>
<b>NSW Office of Water</b>		
<b>20. Ground water</b>	Line basin to prevent ground water interaction	Stormwater basin to be lined
	Stormwater treated at source and/or diverted through stormwater treatment process designed for site, prior to discharge to surface water & groundwater receivers.	Levels & stormwater design direct storm water to basin for treatment prior to release to Moonee Creek.
	Works in riparian areas in accordance with NoW's Guidelines for Controlled Activities	Noted.
	Must obtain licences – if required.	Noted
<b>21. NSW Office of Environment and Heritage</b>		
<b>22. Biodiversity</b>	Provide suitable quantified offsets for impacts on bio diversity not been addressed. Recommend use of Bio-banking Methodology	Refer Section Refer <b>Section 3.14.10</b>
	Targeted surveys for Spider Orchid inadequate –acceptable as per 16 June 2016 submission	Refer <b>Section 4.2</b> , Table 9 in <b>Attachment F</b>
	Applicant will implement VMP & be included as a condition.	Noted
	Koala impact assessment is adequate	Noted
	Footprint to reduce impact of the subdivision on Squirrel Gliders inadequate	Refer <b>Section 3.14</b> and <b>Attachments F and I</b>
	Mitigation measures and offset requirements for loss of Squirrel Glider habitat inadequate	
	Nest boxes & other compensatory measures for impacts on fauna & fauna habitat in form of offsets inadequate.	
	Offsets and replacement plantings for the loss of Glossy Black Cockatoo feed trees inadequate.	
	Reduce footprint & impacts on threatened species	Refer <b>Attachment I</b>
	Remaining biodiversity impacts should be offset	Refer <b>Attachment I</b>
	Consideration of Wallum Froglet habitat addressed.	Noted
	Conservation reserve in SE area for koala habitat protection & reduction of edge effects not considered.	Lot 6 not part of proposed development
	Detailed description of conservation reserve fencing plans inadequate	CC matter. Timber post & rail fencing identified in ecology report
	Preparation of PoM for reserve is adequate	Noted.
<b>23. Aboriginal Cultural Heritage</b>	RTS silent on stop work protocols in event of identification of Aboriginal objects during construction.	Refer <b>Section 3.15</b>
	RTS does not provide protocol in event of discovery of human remains	
	RTS does not identify protocol on Aboriginal Cultural Heritage Induction Program.	
<b>24. Flooding and estuarine systems</b>	Exclusion of infrastructure from buffer adequate	Noted
	Size and management of ecological buffer inadequate	Refer <b>Section 3.4.1</b>
	Buffer requirements to Cunningham Ck not addressed	Ck runs through Lot 6. Not part of DA
	Flood mapping appears inconsistent with statements concerning cumulative impacts have been assessed.	Noted
<b>Roads and Maritime Services</b>		
<b>25. Collector rd. constructed &amp; dedicated</b>	Request consent condition that construction & dedication of collector rd. prior to issue of subdivision certificate and connection to local rd. network prior to issue of any subdivision certificate.	Agreed.
<b>26. Access via local road</b>	Future operational traffic from subdivision must access Hwy via local road network & Moonee Beach Rd interchange. No	Agreed



Item	Summary of Issue	JW Planning response
network and interchange	direct access to hwy for operational traffic supported. Left in/left out temporary construction access must be physically & legally closed prior to issue of SC	
27. Works in hwy road reserve	All works to reinstate Hwy road reserve are responsibility of developer at no cost to RMS & be completed to RMS satisfaction & approval under Roads Act.	Agreed.
28. Traffic impact assessment	Traffic Impact Assessment 30 Sept. 2014 doesn't justify methodology used to assess cumulative impact of development on local road network. A council matter.	Noted
29. Highway road noise	RMS reiterates requirement subdivision and/or future dwellings are designed to mitigate impact of road traffic noise. All mitigation measures are responsibility of developer at no cost to RMS.	Agreed. Refer <b>Section 3.6</b>
Coffs Harbour City Council		
30. Public reserve	Ecological report refers to Lot 1 being in public reserve but landscape & subdivision plans show a residential lot.	Ecology report amended.
	VMP should commence Stage 1 with initial works and maintenance completed prior release of Stage 1 CC	Refer <b>Soc 9</b> Maintenance period 2yrs after completion of final stage.
	Reserve should be dedicated with Stage 1	Refer to <b>SoC 9</b>
	SoC should include commitment by developer to be responsible for all costs until dedication	Refer <b>SoC 9</b>
31. Coastal Walk	Relocate coastal walk further within buffer area with fencing to prevent indiscriminate access.	Contrary to requiring infrastructure out of buffer. Located to limit impact, access & allow surveillance
32. Creek access	Access to creek from future residents to be accommodated & managed & addressed in future applications.	Noted.
33. Access Lot 2	Access through buffer not supported. RoW over Council reserve or a separate lot? Prefer access via Glades Nth.	Refer <b>Figure 3</b> RoW for access to Lot 2. Access via Glades would introduce new impacts to buffer.
34. Fill batters	Unclear if there will be impact on buffer from proposed filling of site.	Refer <b>Figure 7</b> . "Spillage" of fill is incorporated by coastal walk.
35. Acid sulfate soils	Detailed ASS Mgmt. Plan required future DAs	Noted.
36. Water quality, WSUD & Music modelling	use 10k litre in modelling when BASIX require 4 -5kl	MUSIC model rerun with 5kl tanks.
	Council does not support Enviropods due to maintenance burden. WBM report identified natural water quality treatment measures should be employed.	No enviropods proposed. Refer to <b>Attachment E</b>
	Type of basin be identified to cater for high groundwater table and ASS	Basin lined to prevent exfiltration and infiltration. Refer <b>SoC 10</b> .
	Basin to demonstrate how pH of 4 - 5.5 is maintained for Wallum Froglet	Requirement to line basin & OEH advice on species - measure removed.
37. Roads and services	Roads 4 and 5 are not of sufficient width	Roads are sufficient width.
	Collector road to be provided with a bus bay	Court approved the collector road.
	For all stages, Cul de sacs and services downstream installed to standards are required	Noted.
	Lots 88 to 92 to be sewerred at front due to fall	Noted
	Proposal fails to identify arrangements for construction	Refer <b>Section 3.10</b>
	No evidence of land owner agreements for easements to allow access to construct collector rd. & services	
Coffs Harbour Council letter no. 2		
38. Osprey nest	Further details on proposed nesting structure. Is a nest being relocated?	No nest relocated or new one proposed.
39. Hollows	Hollow replacement ratio of 1:3 = 45 artificial hollows.	Refer <b>SoC No. 9</b>
40. Landscape Plan	Remove koala resource trees adjacent highway Amend species list -endemic local species	No koala trees planted adjacent to Hwy. Refer <b>Figure 11</b>
41. Concerns with ecology report	No detail supplied on loss of squirrel glider resources – hollows and foraging	Refer 7 part test in <b>Attachment F</b>
	Planting large trees along rear of lots along southern & northern boundaries questionable.	10m APZ prohibits planting trees or retain vegetation on boundary.
	Basin not used as Wallum froglet compensatory habitat	Agreed.
	Basin located within 100m buffer to Moonee Ck.	Basin outside buffer. Refer <b>Section 1.14</b>

Item	Summary of Issue	JW Planning response
	Restrictions under S88B to be applied and where.	Refer <b>Figure 5</b> for APZ
	Retention of trees on Lots 100-104, 88-95 and 2-20	Trees not retained due to competing engineering & bushfire requirements.
<b>42. Moonee Estuary Mgmt. Plan</b>	64 to 86m buffer with average of 78 m not consistent with EMP 100m average nor consistent with adjacent development approvals. Buffer to be widened	Adopted Coffs Harbour Deferred Matters LES retains existing zone boundary under LEP 2000.
<b>43. VMP requirements</b>	Targeted threatened species habitat resource provision as outlined in PEA report	Noted.
	Protection details for sensitive environs onsite i.e. for wetland	Refer to <b>SoC No. 9</b>
	Hollow resources, design, location, management, maintenance and monitoring	
	Identify works required prior to commencement of works e.g. clearing hollow bearing trees & replacement with nest boxes etc.	
	Works under VMP to have 10 yr. lifespan.	Refer <b>SoC No. 9</b>
<b>Rural Fire Service</b>		
<b>44. APZs</b>	10m APZ within northern and southern boundary and 27m APZ for E and NE lots	Refer <b>Figure 5</b>
<b>45. PBP Guide lines</b>	Conditions 1 to 9 listed by RFS to be included in Conditions of consent concerning PBP guidelines 2006	Agreed.

### 1.15 Coffs Harbour Environmental Study for Deferred Areas (Moonee Beach)

The Coffs Harbour LEP 2013 was gazetted with the site a '*deferred matter*', leaving the Coffs Harbour LEP 2000 (LEP 2000) as LEP in force. Consequently, Council's previous resolution to amend the LEP to apply a 100m wide buffer to Moonee Creek was, until recently, unresolved and uncertain.

Since the adequacy assessment of the Draft PPR by DPE on 27<sup>th</sup> January 2015, Council adopted a Local Environmental Study (**LES**) on 26<sup>th</sup> March 2015. The LES was prepared in consultation with the community for Council by Monteath and Powys Pty Ltd and David Broyd Consulting Services Pty Ltd. The LES provides land use zones and controls for areas gazetted as '*deferred matters*'.

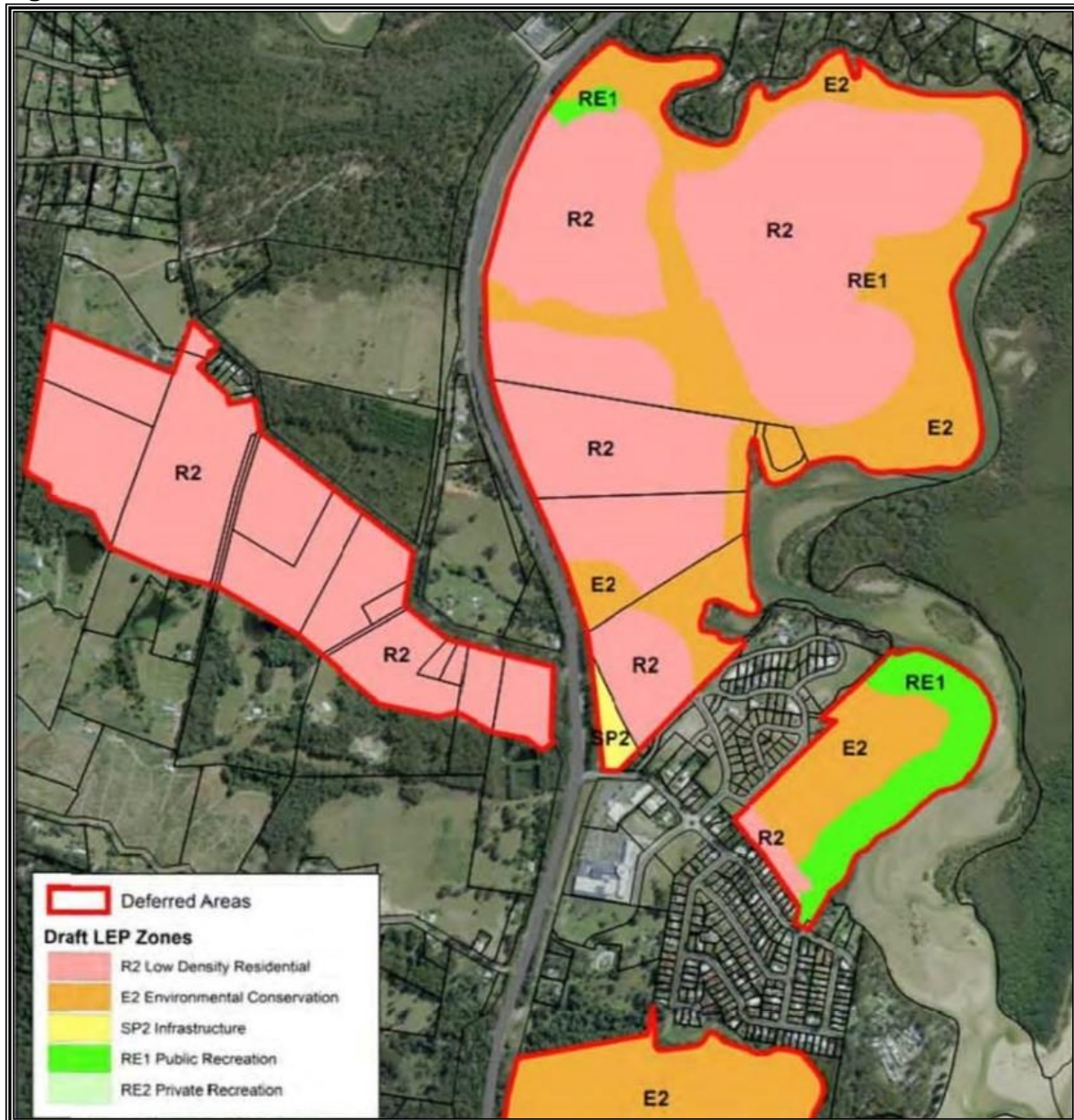
Council's consultants reviewed all submissions concerning the *deferred matters* when the *draft* Coffs Harbour LEP 2012 was publicly exhibited in 2012. The consultant's reviewed all available technical reports relevant to areas gazetted as *deferred matters*, and consulted with Council and State Government agencies. In *Chapter 10 Recommendations* on page 82 of the Environmental Study, the following is stated:

*Based on a review of current policies and guidelines and discussions with state agencies and Council, a 50 metre buffer should be applied to existing creek lines/major water courses. This may increase due to other environmental issues (e.g. ecology, archaeology, water quality, sea level rise etc.).*

After considering all the issues and data available, the consultants provided recommendations on zoning, lot size, building height etc. for each of the sites gazetted *deferred matter* to inform a planning proposal to amend the Coffs Harbour LEP 2013 and rezone the *deferred matters* accordingly. The zoning recommendation for the Moonee Beach area is provided in **Figure 4**.

On 24th July 2015, a Gateway Determination was issued by the DPE to Council authorising Council's planning proposal to proceed in accordance with the requirements of the Act.

**Figure 4 LES Buffer recommendation for Moonee Beach**



On 9<sup>th</sup> March 2017 Council adopted the planning proposal for the deferred areas based upon the LES that rezones the site R2 Low Density Residential. The LES recommendations, Gateway Determination and council adoption of the Planning Proposal align with the consistent advice of the applicant's consultants that a 100m buffer to Moonee Creek in the circumstances of this particular site is unnecessary.

While the LES has independently assessed an appropriate 50m buffer, detailed investigations for Environmental Assessment determined a more significant buffer width of between 60m and 85m in width (an average of 72m wide excluding bushfire APZs and any infrastructure). The width of undeveloped land between Moonee Ck and the edge of the development will be as much as 107m in some parts (inclusive of APZ and coastal walk).

## 2.0 PROPOSED DEVELOPMENT

In response to the issues raised in submissions and further design refinement since the EA report was exhibited, the applicant has made a number of changes to the subdivision design and layout contemplated in the Concept Plan.

### 2.1 Description of Proposed Development

The project for which development approval is now sought involves:

- 103 Torrens Title lots for detached dwellings (one on each lot) (refer **Figure 5**). Land take budget and lot size mix are provided in **Tables 2** and **3** respectively;
- Four new roads (Roads 2 and 3 are now collectively 'Road 2', whilst Road 1 is the north-south collector road approved by Land and Environment Court in June 2012 and excluded);
- Dedication to Council (in addition to the collector road reserve) of residual land containing the north-south infrastructure corridor within existing easements west of the collector road;
- provision of an integral section of the public Coastal Walk as per the Moonee DCP 2004 within an Asset Protection Zone that is located outside of the buffer (refer **Figure 12**);
- Rehabilitation of riparian land degraded by existing rural activities to establish an environmental buffer to Moonee Creek and a long term sustainable biodiversity corridor linking with approved corridors on adjoining land. The buffer is proposed to be between 60m and 85m in width (excluding APZs) where Council only propose a 50m wide buffer under a planning proposal (refer **Section 1.14**);
- One lot (Lot 104) be dedicated to Council as a public reserve; partly for drainage and services (stormwater detention basin, sewage pump station and electrical substation) outside of Moonee Ck buffer; and partly for the rehabilitated buffer, wildlife corridor, and the public coastal walk (but excluding drainage infrastructure or services)(refer **Figure 13**);
- One lot (Lot 105) to retain legal access to Lot 2 DP 1097743 in lieu of existing access via a Right of Carriageway (refer **Figure 13**);
- associated bulk earthworks (cut and fill) (refer **Figure 7**);
- associated water and sewer reticulation (refer **Figure 8**);
- associated stormwater drainage works and sewer pump stations in locations on residential zoned land outside the buffer (refer **Figure 5**);
- Sediment and Erosion control plan (refer **Figure 8**)
- landscaping including street tree planting (refer **Figure 11**);

**Table 2 Land Budget – exhibited concept plan vs proposed development**

Description	Concept Lot No's	DA Lot No's	Concept Plan Area (ha)	DA Area (ha)	Concept Plan % Total Area	DA % Total Area
Buffer Reserve (Lot 104)	1	1	1.80	1.99	13.9	15.4%
Access (Lot 105)	1	1	0.33	0.11	2.5	0.8%
Road Reserves			4.01	3.54	31	27.4%
Residential Lots	101	103	6.79	7.29	52.6	52.6%
<b>Totals</b>	<b>103</b>	<b>105</b>	<b>12.93</b>	<b>12.93</b>	<b>100%</b>	<b>100.0%</b>

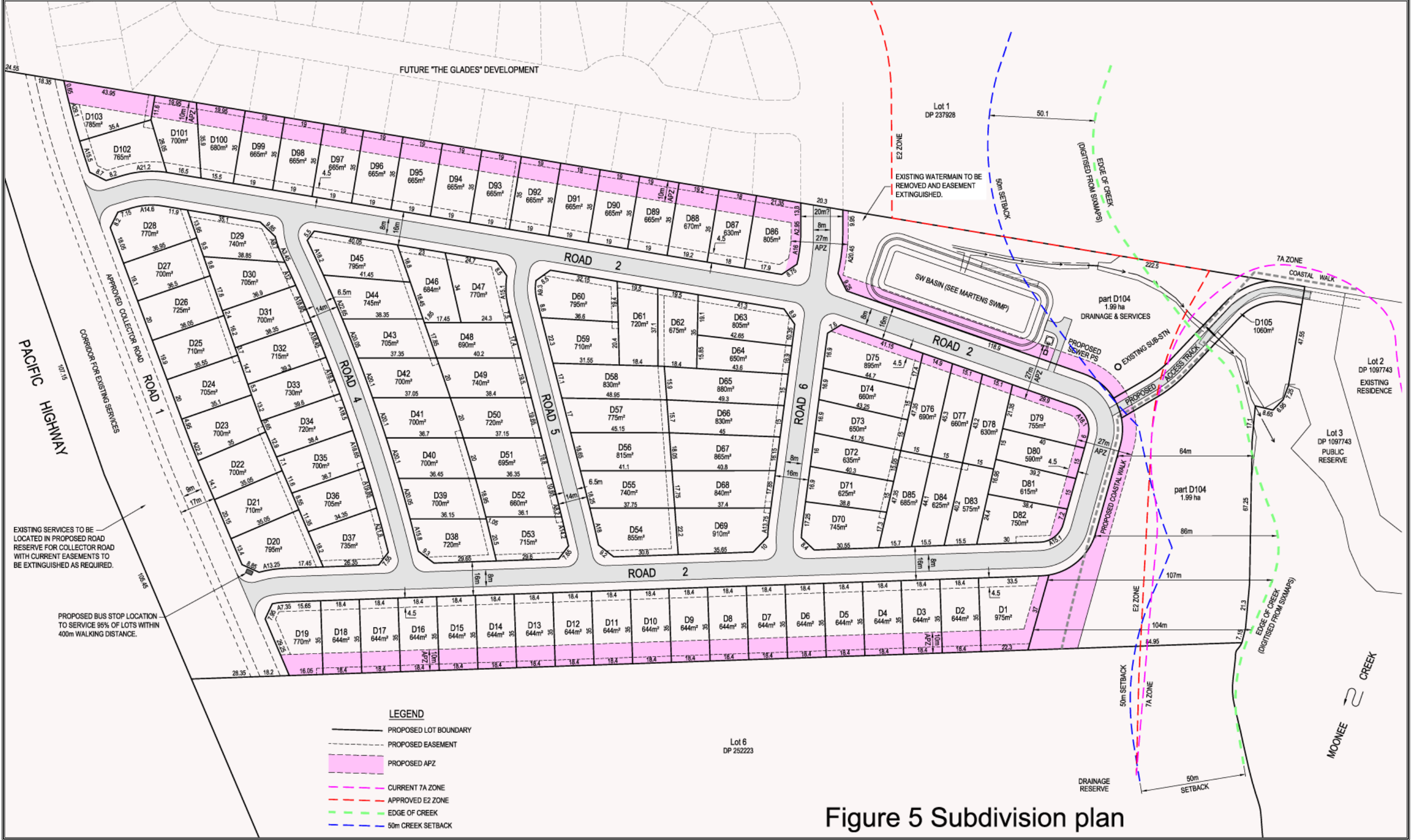
Density is 7.8 dwellings per hectare

**Table 3 Lot Mix – exhibited concept plan vs proposed development**

Area Range	Concept Plan No.	DA No	Concept Plan % of Total	DA % of Total
550m <sup>2</sup> -599m <sup>2</sup>	0	2	0	1.9%
600m <sup>2</sup> -649m <sup>2</sup>	10	22	9.9	21.4%
650m <sup>2</sup> -699m <sup>2</sup>	29	25	28.7	24.3%
700m <sup>2</sup> -749m <sup>2</sup>	41	31	40.6	30.1%
750m <sup>2</sup> -799m <sup>2</sup>	21	12	20.8	11.7%
800m <sup>2</sup> and greater	0	11	0	10.7%
<b>Total</b>	<b>101</b>	<b>103</b>	<b>100%</b>	<b>100.0%</b>



Figure 5 Proposed Plan of Subdivision



## 2.2 Development Staging

Implementation of the subdivision is proposed to occur in four (4) construction stages beginning in the north-west corner. **Construction of Road 1 (the collector road) will be separate to construction of the subdivision and be undertaken by other parties.**

Staging in terms of order and scope, is subject to future marketing and finance and other developer considerations. Accordingly, staging of the development will not be precisely ascertained until a construction certificate has been prepared that will include detailed engineering design and be approved by Council.

Preliminary staged works as indicated in (refer **Figures 6A to 6C**) are as follows:

### Stage 1

- a. Site preparation and environmental impact mitigation tasks (fence off and protect buffer, implementation of erosion and sediment control plan, commence buffer rehabilitation and planting where practical, nest boxes etc.).
- b. Bulk earthworks for the entire 103 lots to reduce costs and disruption/impacts on adjoining residents.
- d. Connections to trunk power, water and telecommunication infrastructure located within the collector road.
- e. Construction of vehicular access to the proposed sewer pump station as well as to stormwater treatment and detention Basin.
- f. Services extended as required and access to the existing residence on Lot 2 maintained.

**Stage 2** - Extension of Roads 4, 5 and 6 with associated services.

**Stage 3** - Extension of Road 3 (northern) & 6 and partial construction of Road 3 (southern) with associated services.

**Stage 4** - Connection of Road 1 and 2 and complete Roads 4 & 5 and associated services.

The proposed staging plan aims to provide a cost effective construction sequence while minimising impact on any local residents. Whilst subject to possible variation via more detailed construction certificate design, and market considerations as well as land owner circumstances, the proposed staging is practical and logical.



Figure 6A Construction Staging plan - Stage 1.

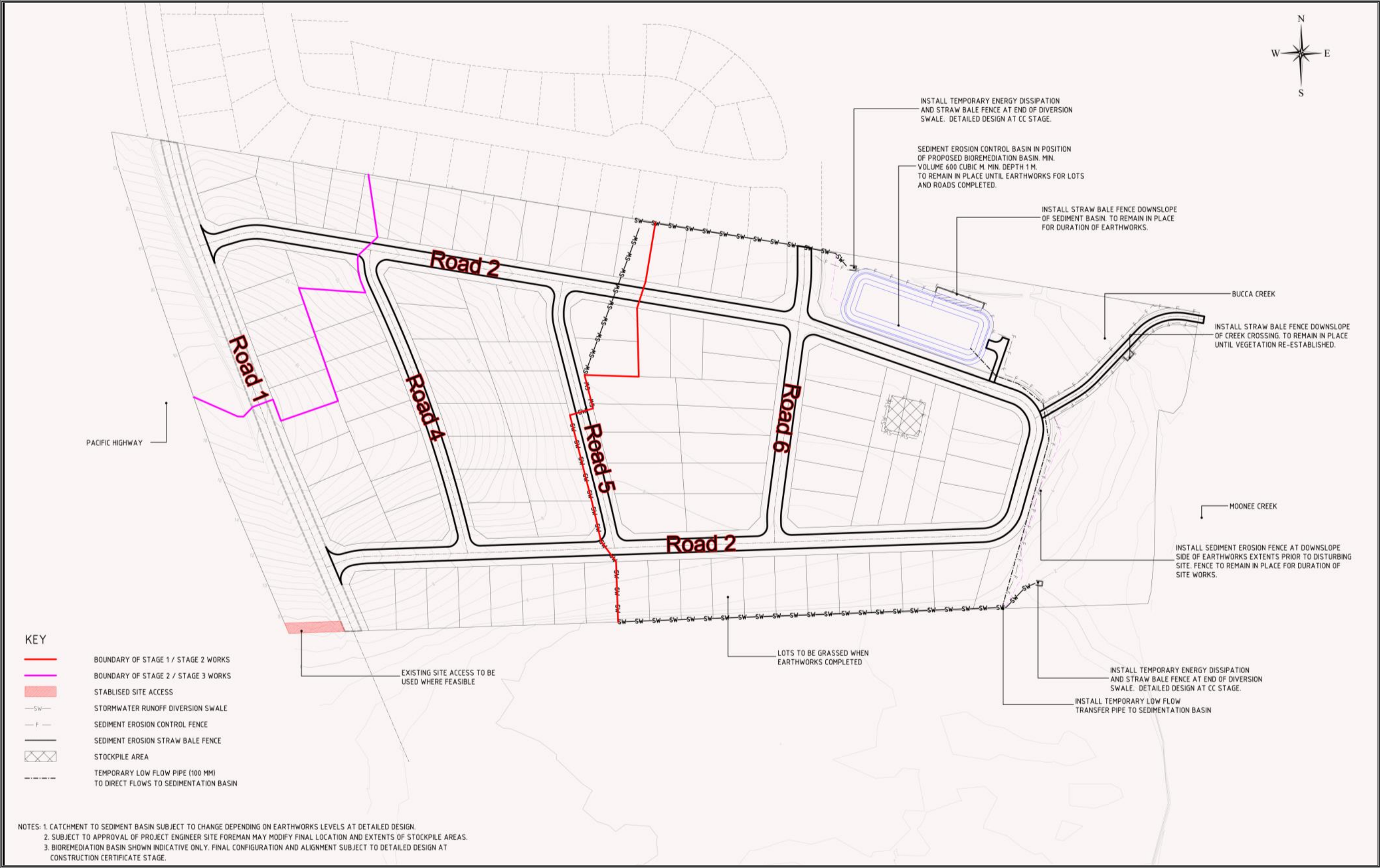




Figure 6B Construction Staging Plan – Stage 2

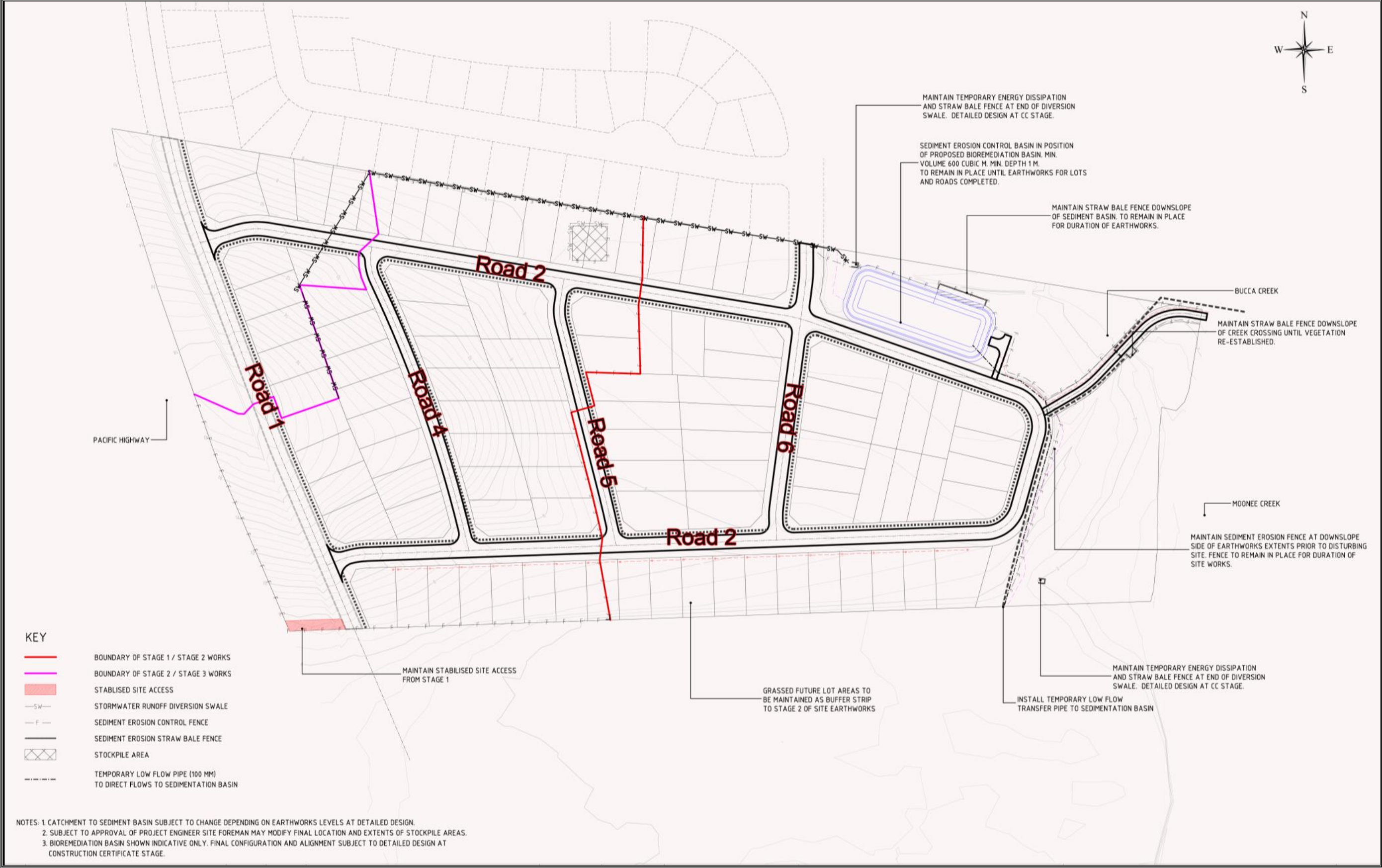




Figure 6C Construction Stage Plan – Stage 3

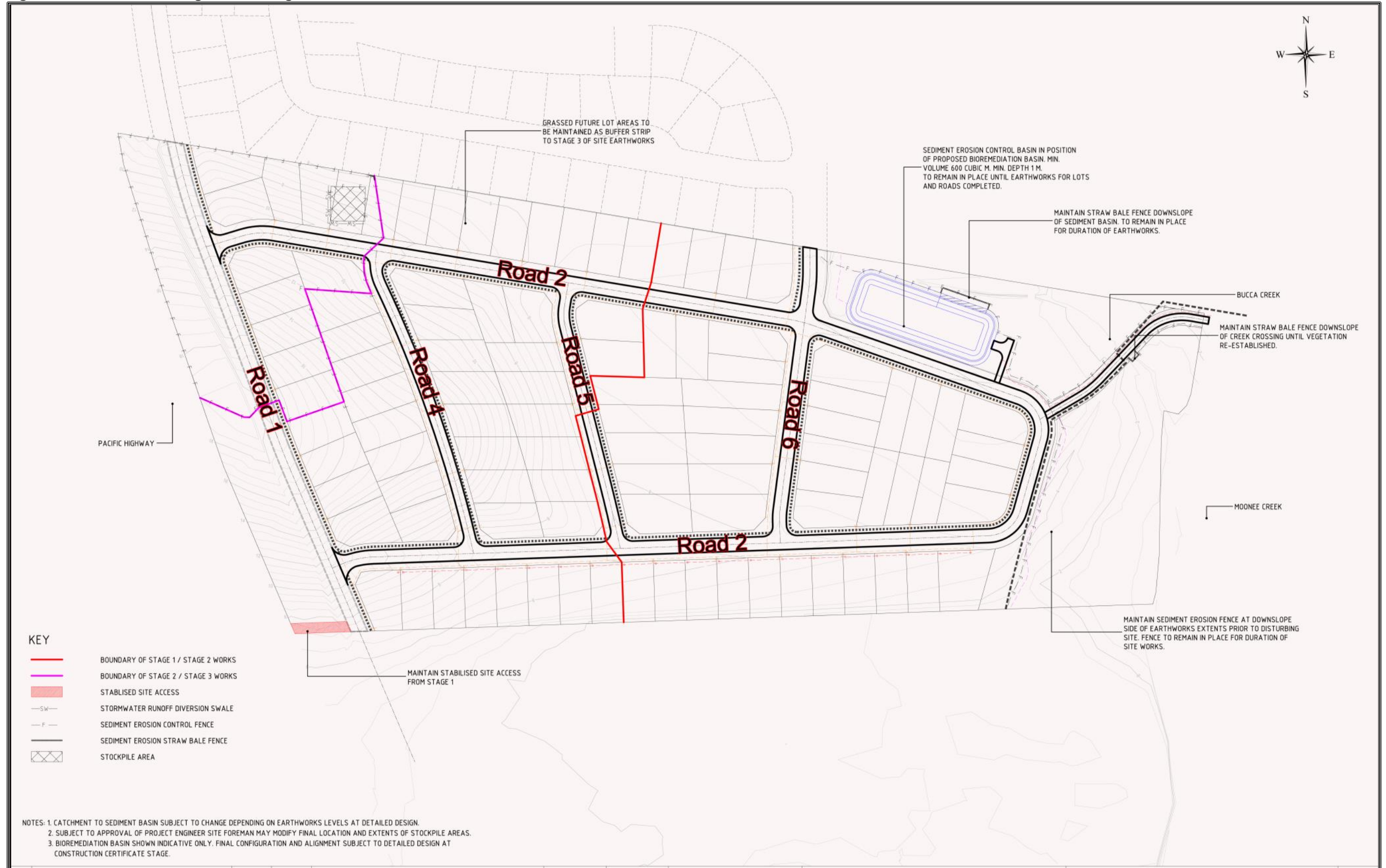




Figure 7 Earthworks Plan (Blue = fill/Pink = cut)

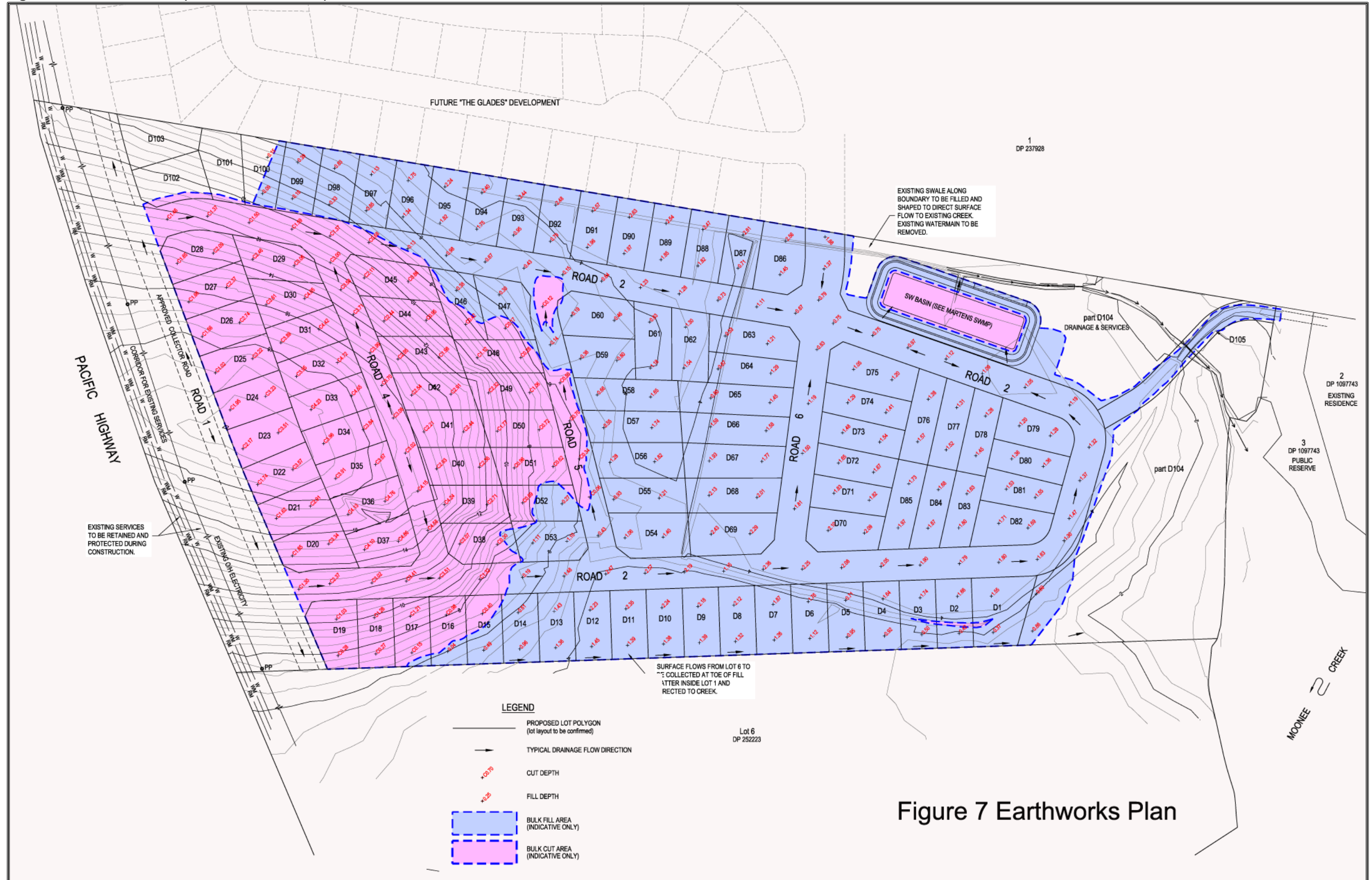




Figure 8 Services Plan

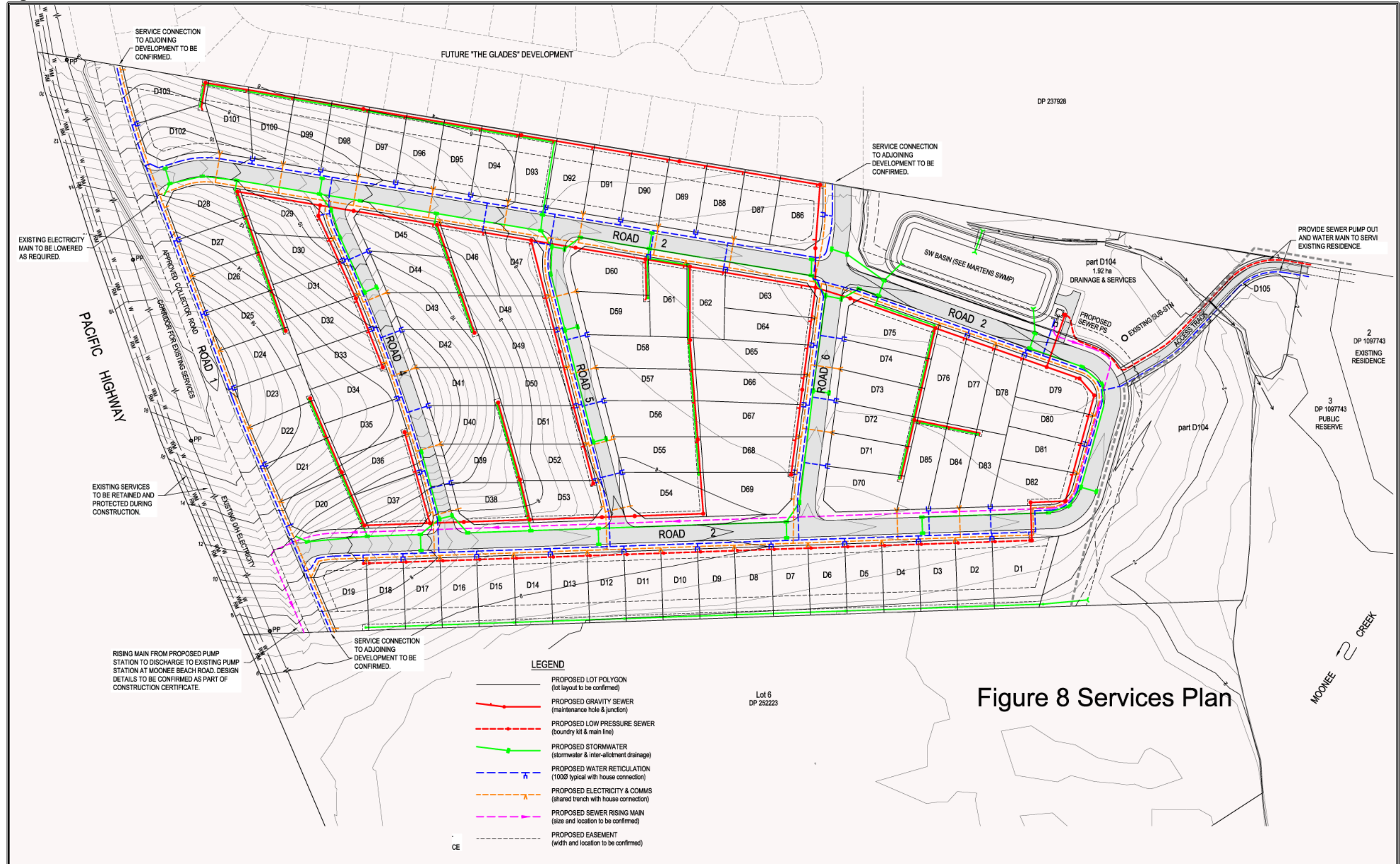




Figure 9 Stormwater Management Plan

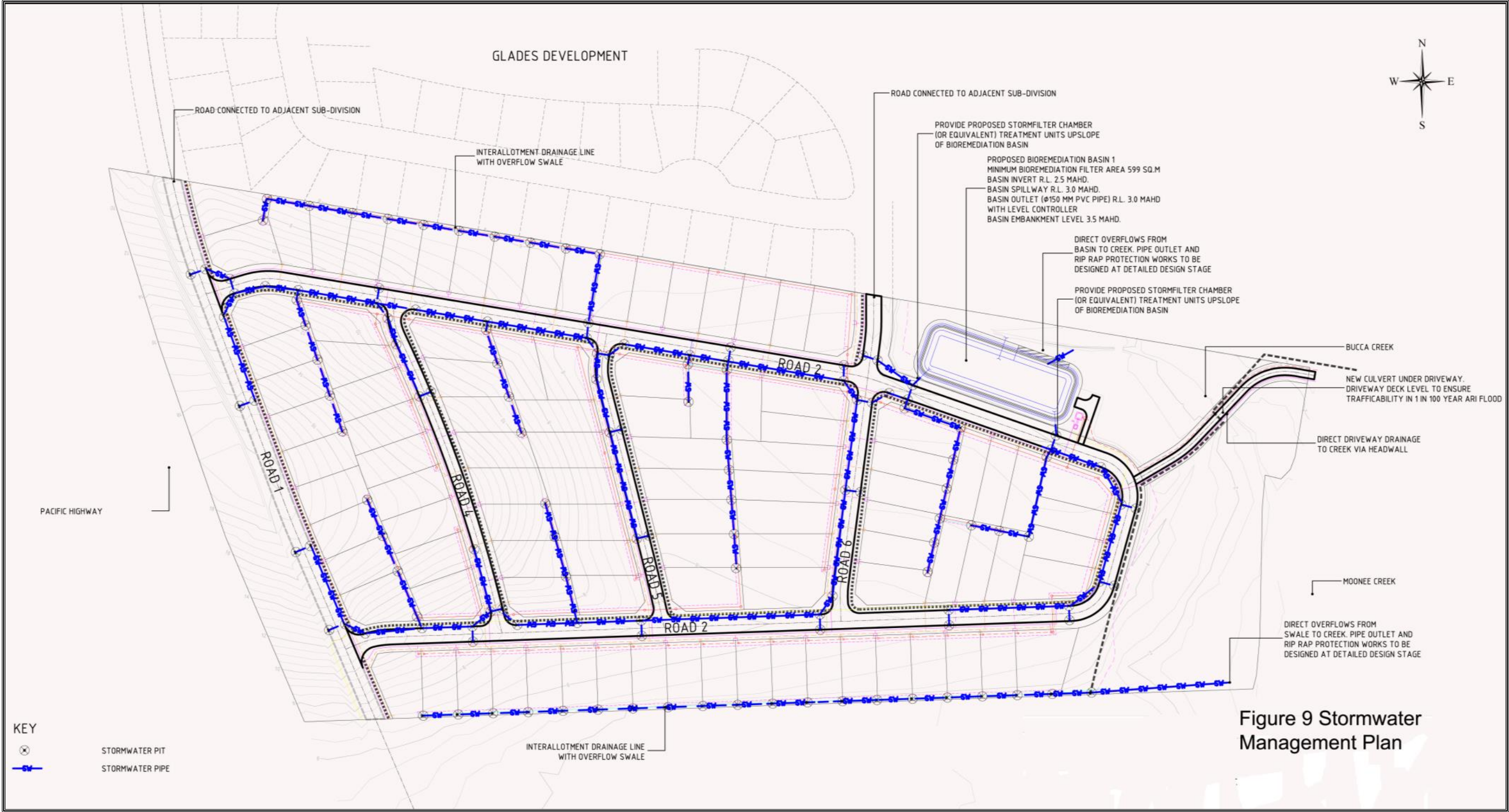




Figure 10 Erosion and Sediment Control Plan

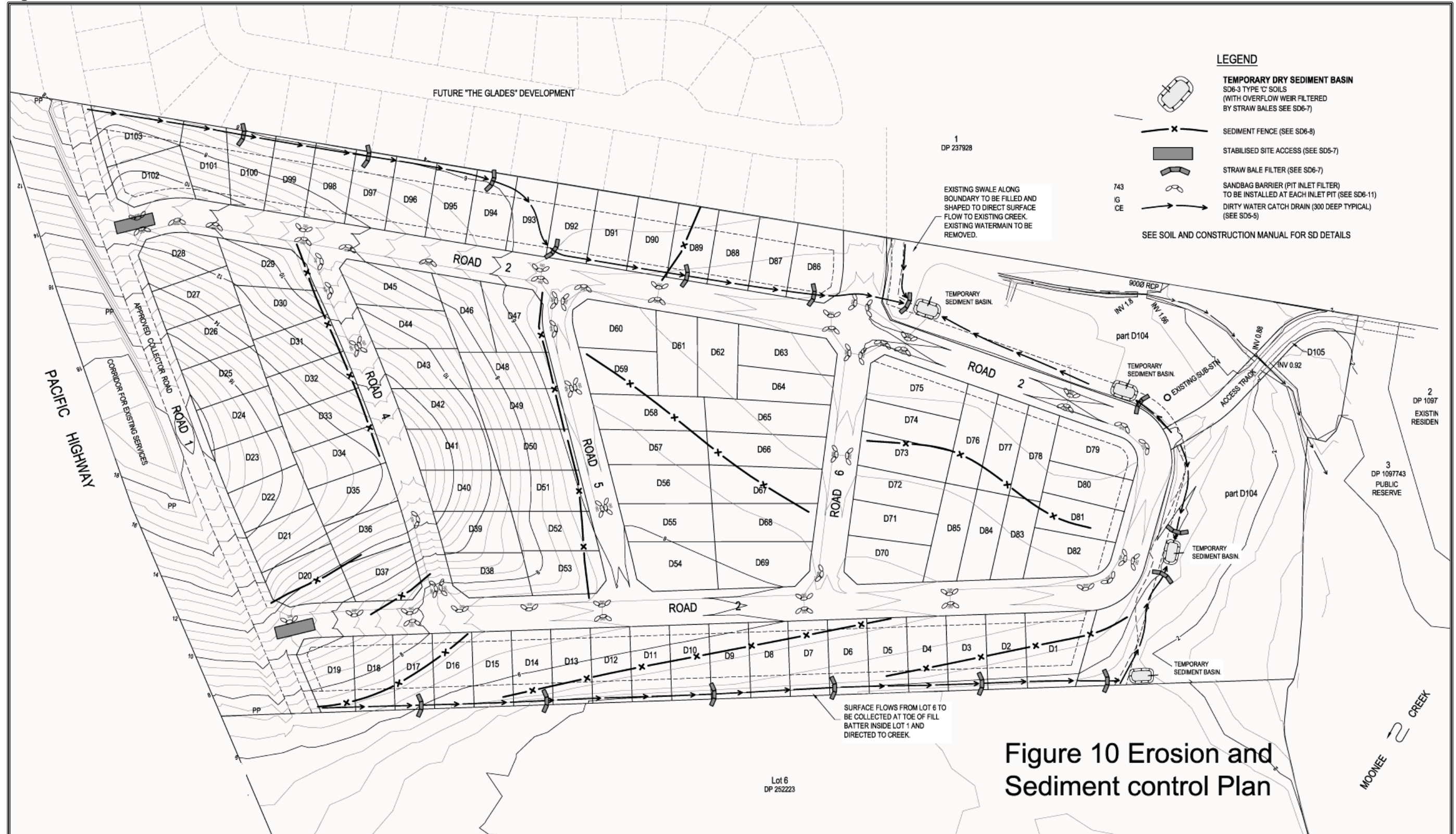
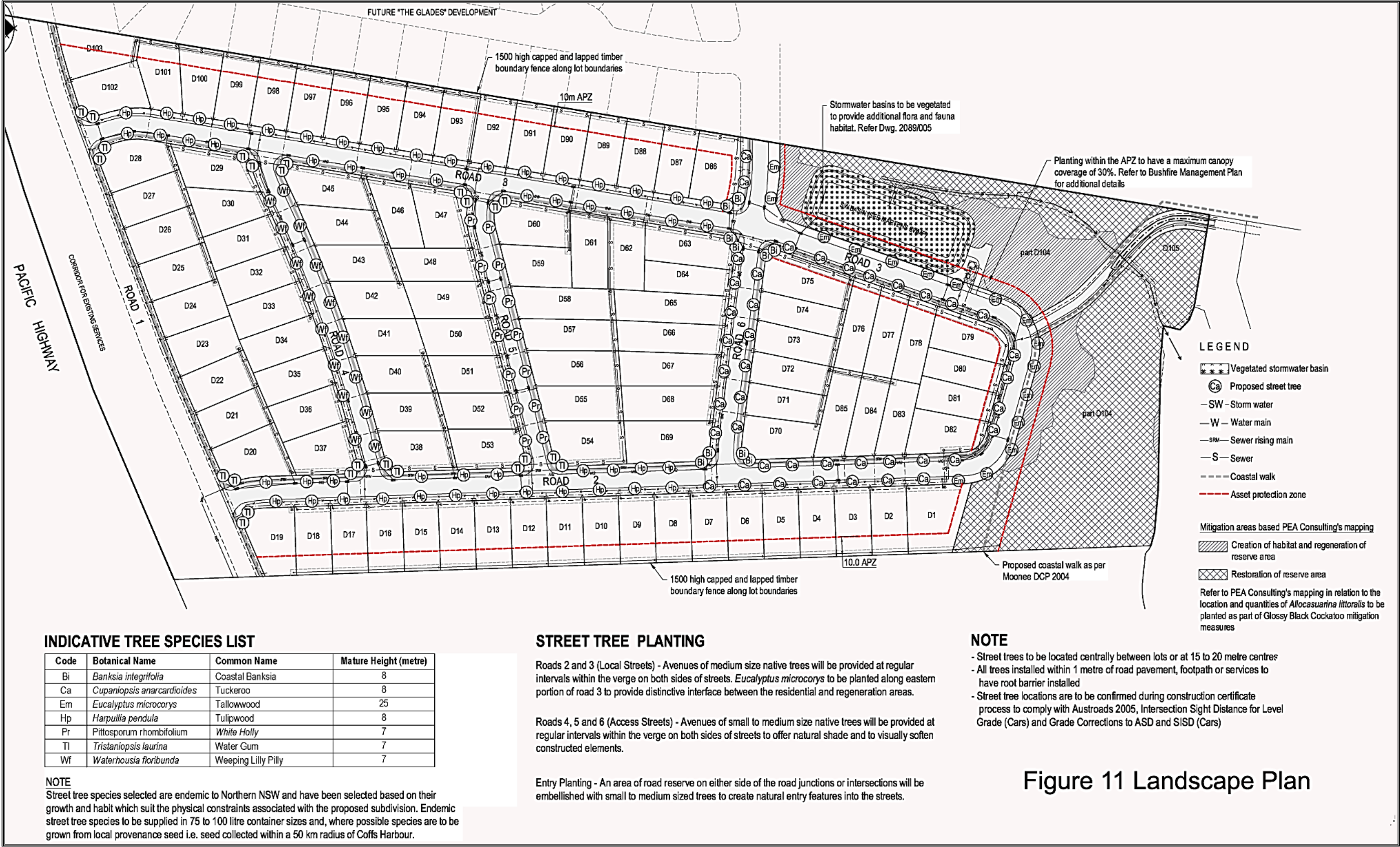




Figure 11 Landscape Plan





**Figure 12 Proposed Revegetation of Buffer**

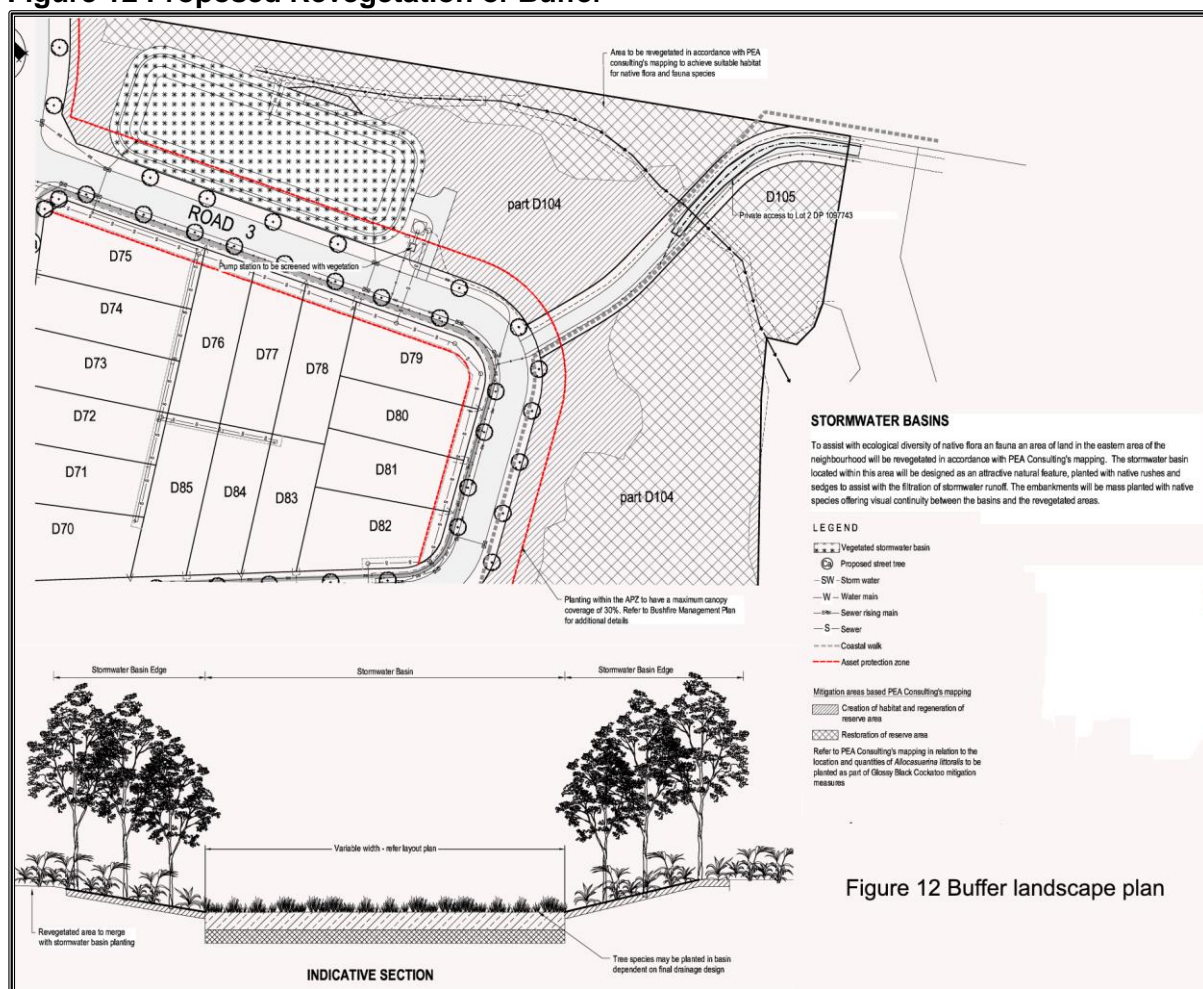


Figure 12 Buffer landscape plan

## 2.3 Changes in Proposed Development from Exhibited Concept Plan

### 2.3.1 Removal of Lot 6

Following a submission from the owner of Lot 6 that they withdraw from the Concept Plan process and DPE advice, Lot 6 has been removed. The proposed development concerns Lot 1 DP 1097743 only.

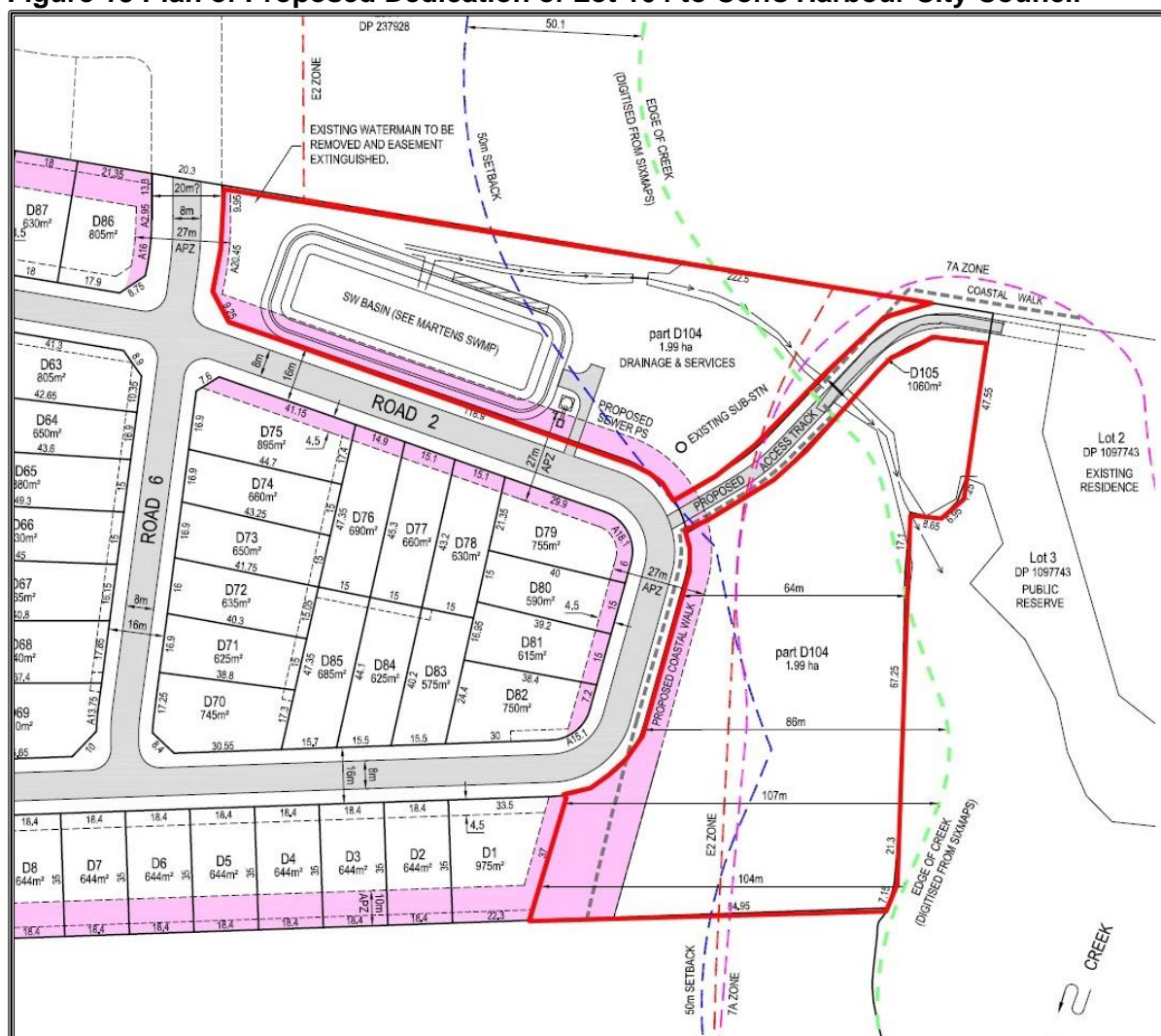
The Concept Plan footprint totalled approximately 16.88ha with Lot 1 being 10.80ha. Removal of Lot 6 has reduced the development footprint to Lot 1 now totalling 10.91 ha (for reasons explained in **Section 2.3.6**).

### 2.3.2 Realignment of Roads

Removal of Lot 6 makes provision of future access to this lot from the site redundant. Hence, Roads 2 and 6 have been altered with the residual space allocated to additional lots.

The number of lots facing east toward Moonee Creek increased to benefit from the amenity and increase passive surveillance of the buffer by altering geometry of Road 3 to make the street block more regular. A tighter curve radius of Road 3 (northern) slows vehicular speed yet still allows traffic to loop back to the collector road via Road 3 (southern). The depth of some lots in this block has been reduced by realigning Road 6 to the east.

**Figure 13 Plan of Proposed Dedication of Lot 104 to Coffs Harbour City Council**



### 2.3.3 Increase in the number of lots

Adjustments to street block and lot widths in accordance with dwelling design for block thresholds (to facilitate Complying Development) plus other changes in **Section 2.2.2** have led to an increase in the number of proposed residential lots to 103.

### 2.3.4 Relocation of Infrastructure out of the Moonee Creek Buffer

The revised design removes the detention basin from the environmental zone that forms the Moonee Creek buffer; instead the proposed Stormwater Detention basin on residential zoned land near the northern boundary has been enlarged. The Sewage Pump Station has also been relocated out of the buffer and closer to the bioremediation basin (Refer **Fig 14**).

### 2.3.5 Earthworks

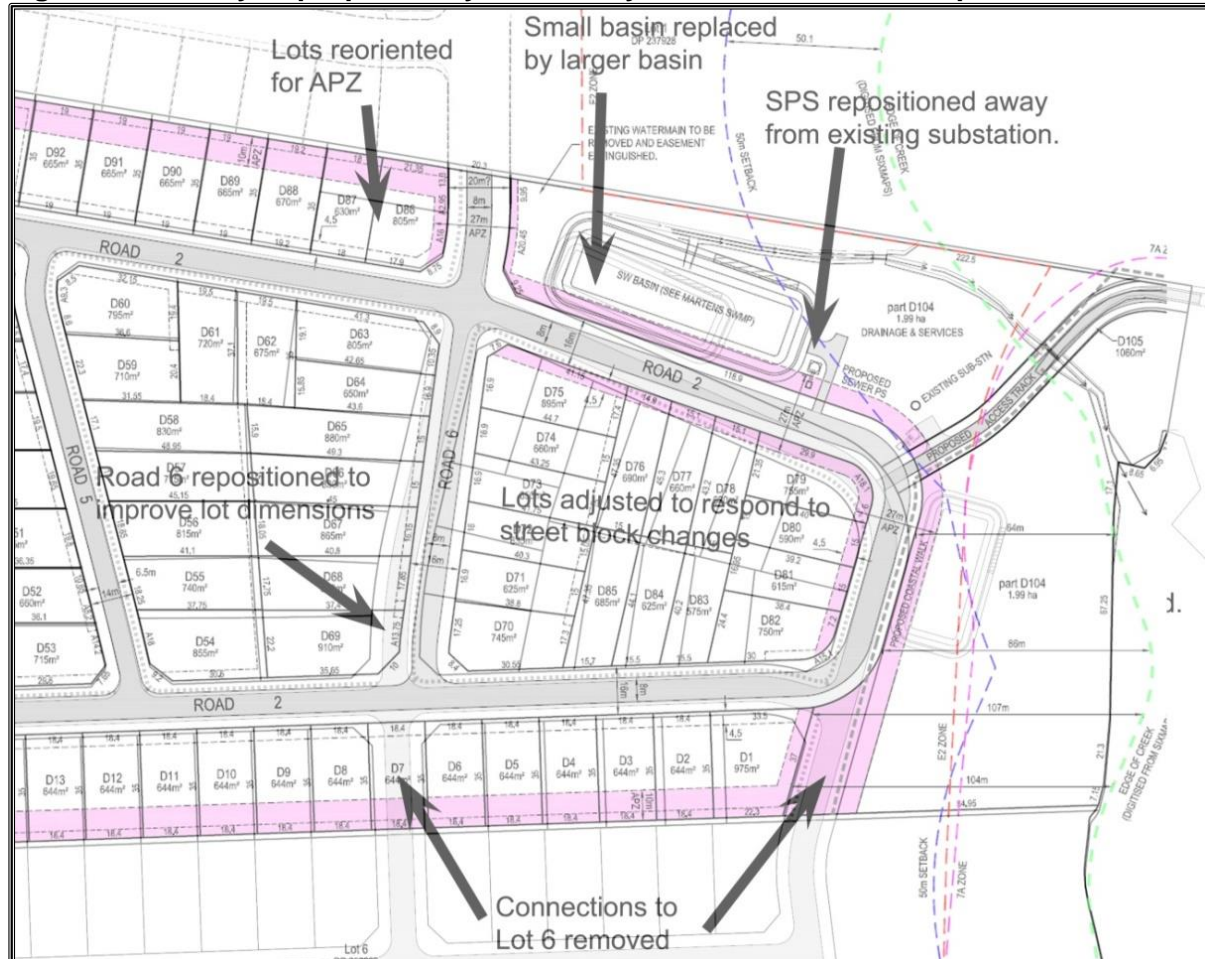
The removal of the basin from the buffer and its' enlargement required the finished levels towards the southern half of the site to be revised to enable stormwater to be directed towards the enlarged basin. Consequently, the bulk earthworks plan has been adjusted to achieve the levels and gradients of lots and roads for stormwater drainage (refer to **Fig 5**).

### 2.3.6 Development Footprint – changes from concept to development layout

The slight increase in the footprint in Lot 1 is due to adjusting the geometry of Road 3 along the northern boundary of the eastern street block to improve the relationship of lots and

future dwellings to Moonee Creek buffer. The relationship of the project footprint to the LEP zone boundaries is illustrated in **Figure 14** where the existing 7A zone boundary and the draft E2 zone boundaries largely correlate.

**Figure 14 Overlay of proposed layout with layout exhibited in Concept Plan**





## 3.0 FURTHER ENVIRONMENTAL ASSESSMENT

In some instances, the submissions have requested further assessment, or more detailed assessment for particular issues. These are as follows:

### 3.1 Flooding and Water Quality

Martens were engaged to respond to the submissions including the review of Marten's flooding and stormwater data provided in the Concept Plan by WBM BMT on behalf of DPE. The revised flooding report and water quality assessment report are provided in **Attachments D and E**.

### 3.2 Additional Flood Modelling

The additional modelling involved the following:

- Additional RAFTS modelling to determine the impacts of the change in site impervious area on flood peak flow rates and to determine the design hydrographs for the critical duration 1 in 20 year ARI, 1 in 100 year ARI and PMF specifically for the Bucca Creek catchment.
- Additional DRAINS modelling to determine minimum trunk drainage requirements and the effect of the proposed bioremediation basin on peak discharge rates from the site.
- Additional SMS Tuflow modelling of shorter duration flood events for the Bucca Creek catchment and review and amendment of previous flood model including design surface levels in the adjacent Glades Development, amended design ground levels within the site and amended driveway access across Bucca Creek.

Five flooding scenarios, detailed in the Concept Plan flooding investigations, were rerun for existing and proposed conditions implementing the above modifications. Five (5) additional scenarios were run for the short duration Bucca Creek-specific flooding assessment. The (total of) 10 scenarios are as follows:

- i. 1:20yr ARI Moonee Creek c'ment flood with 1:100yr ARI ocean boundary cond (2.4m AHD).
- ii. 1:100yr ARI Moonee Creek c'ment flood with 1:20yr ARI ocean boundary cond (2.1m AHD).
- iii. 1:100yr ARI Moonee Creek c'ment flood with neap tide ocean boundary cond (0.6m AHD).
- iv. PMF Moonee Creek c'ment flood with neap tide ocean boundary cond. (0.6 m AHD).
- v. 1:100yr ARI with climate change Moonee Creek c'ment flood with 1:20yr ARI with climate change ocean boundary cond. (3.01m AHD).
- vi. 1:20 yr. ARI Bucca Creek c'ment flood with 1:100yr ARI ocean boundary cond. (2.4 m AHD).
- vii. 1:100yr ARI Bucca Creek c'ment flood with 1:20yr ARI ocean boundary cond. (2.1m AHD).
- viii. 1:100 yr. ARI Bucca Creek catchment flood with neap tide ocean boundary cond (0.6m AHD).
- ix. PMF Bucca Creek catchment flood with neap tide ocean boundary cond (0.6 m AHD).
- x. 1:100 yr. ARI with climate change Bucca Creek c'ment flood with 1:20yr ARI with climate change ocean boundary cond. (3.01m AHD).

Results of the new hydraulic modelling are summarised as follows:

- Changes to site levels have not significantly changed previous results for all Moonee Creek flooding events (Scenarios 1 – 5).
- Bucca Ck catchment specific modelling showed that peak flood levels are lower adjacent to site for the Bucca Ck specific 90min. storm events as compared with the 9hr Moonee Ck specific critical duration events for all average recurrence intervals. This indicates that the Bucca Ck floodplain peak flood levels are influenced by the flood levels in Moonee Ck more than the peak flows direct to Bucca Ck (hence critical Moonee Ck flood duration also gives the peak flood levels in Bucca Ck adjacent to site).
- Scenario 7 gave the highest peak flood levels adjacent to site for the 1:100 yr. analyses. This is the same for the Moonee Ck critical duration flood events modelled previously.
- Impacts of site development on flood levels on the adjacent properties appear to be nil to negligible. Minor increases in the peak flood level on the Bucca Ck floodplain occur during the PMF. However these increases are generally less than 0.015 m which is considered to be within the margins of error for the model.
- Depth, velocity and hazard mapping indicate that the access to Lot 2 DP1097743 will be trafficable up to and including the 1 in 100 year ARI at a level of 2.7m AHD. This may be achieved by minor earthworks and the provision of multiple box culverts under the access to convey flows in Bucca Ck or the provision of a small bridge.
- Depth, velocity and hazard mapping indicate during the PMF, the access to Lot 2 DP1097743 will be untrafficable and that residents of Lot 2 DP1097743 will need to either evacuate early in the event or shelter in place. Results of modelling suggest that hazard on the subject site is less than 0.4 m<sup>2</sup>/s at the peak of the PMF which should allow for site evacuation to the Pacific Highway where necessary.
- **Figure 15** indicates the peak water level for the 1:100 yr. ARI with climate change flood with 1:20yr ARI. This indicates that the predicted impact of sea level rise by the year 2100 will be contained within the buffer to Moonee Ck.

### 3.3 Storm Water Quality

The MUSIC modelling results in **Table 4** shows that Council stormwater pollutant retention targets will be met by the proposed water quality treatment measures.

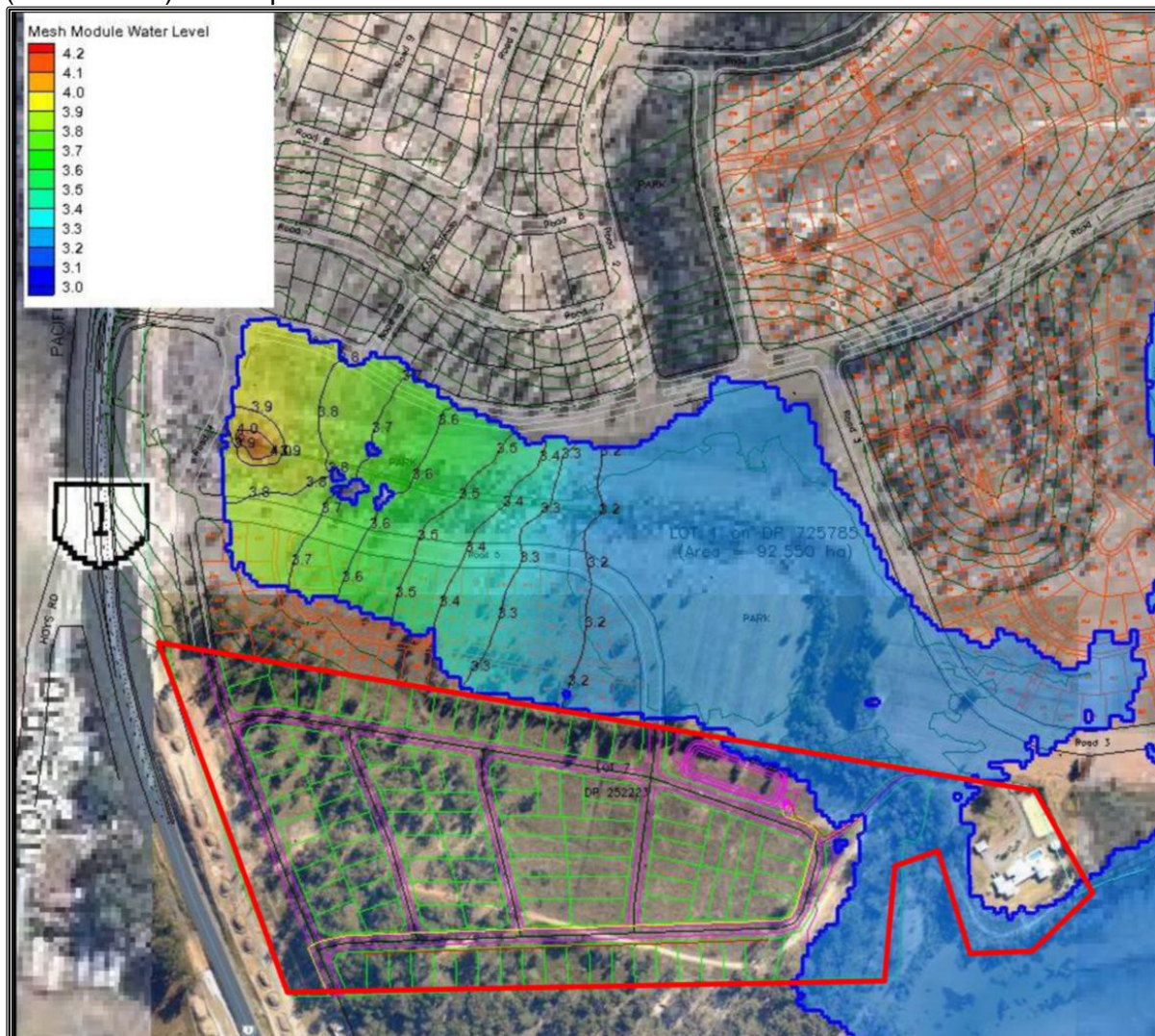
**Table 4 Music modelling results of water quality post development**

Parameter	Sources	Residual Load	Reduction (%)	Reduction Target CHCC(%)
Flow (ML/yr.)	122	108	10.9	-
Suspended Solids (kg/yr.)	20,900	2,860	86.3	85.0
Phosphorus (kg/yr.)	41	14.3	65.2	65.0
Nitrogen (kg/yr.)	247	99.9	59.5	45.0
Gross Pollutants (kg/yr.)	2,130	137	93.6	90.0

Assessment of the average annual site discharges compared to existing conditions (completed using MUSIC model) shows that the development will increase stormwater discharges to Moonee Ck by approximately 29.5 ML/year. The site soils indicate that these flows would have otherwise reached Moonee Ck via groundwater. The increased surface runoff from the proposed development is not anticipated to impact negatively on existing creek water quality as this runoff is to be treated by the stormwater treatment measures outlined above. As this water would have reached the creek via groundwater, the results suggest that the hydrological regime of both Moonee and Cunninghams Ck is unlikely to be adversely impacted by site development.



**Figure 15** Peak Water Level – 1:100 Yr ARI With Climate Change Bucca Ck Flood (Scenario 10) Developed Conditions



Size of the catchment upslope of the site (approximately 29.5 km<sup>2</sup>) compared to the site area (approximately 12.9 ha or 0.4% of total catchment) indicates that increases to existing environmental flows in the creek will be minor compared to the overall catchment discharge.

MUSIC modelling results suggest that the average site discharge of 108 ML/year is approximately 0.6% of the total average catchment discharge (18.2 GL/year) and the increase in surface flows from the development constitute an average increase of approximately 0.2%.

Local creek systems should be capable of accepting any additional flows without suffering any adverse impacts as a result. It is also not anticipated that there will be any significant change to creek salinity levels as a result of the development.

The development does not propose any significant building within 70m of Moonee Ck, and access to Lot 2 DP1097743 already exists.

Exfiltration and infiltration rates for bioremediation basin (i.e. into and from ground water) will be nil as the basin will be lined.

Final levels and stormwater design of the development direct all stormwater to the proposed basin for treatment prior to release to Moonee Ck.

### 3.4 Buffer to Moonee Creek

#### 3.4.1 Delineation of Buffer

DPE, OEH and DPI Fisheries raised concern on the adequacy of the buffer to Moonee Ck. DPI were advocating the buffer should commence from the Highest Astronomical Tide.

Riparian corridors are typically measured from the top of bank e.g. Water Management Act. It is understood the 100m buffer is derived from Marine Park Authority advice to Council concerning the protection of the Solitary Islands Marine Park. However, as stated in **Section 1.14**, planning decisions by Council and Gateway Determination have determined the appropriate buffer to Moonee Creek to be 50m in width.

**Figure 13** illustrates the buffer delineated by the existing 7A zone and proposed E2 zone boundary, and the distance the proposed subdivision from the top of the bank. It can be seen that the subdivision is setback from the zone boundary providing a wider buffer than currently provided by the 7A environmental zone, and the draft E2 zone. Unlike the design and layout under the Concept Plan, no infrastructure is proposed within the buffer with the exception of maintaining the existing vehicle access to existing Lot 2 (via Lot 105) and an existing electricity substation.

The MPA identified the need to measure the buffer from the predicted 2100 shoreline to enable migration of riparian zone when sea levels rise.

The EA report for the Concept Plan stated the following:

*“The top of bank was derived from detailed ecological investigations identifying riparian vegetation and survey data (refer Figure 32) and measured 40m wide from top of bank in accordance with the Water Management Act.*

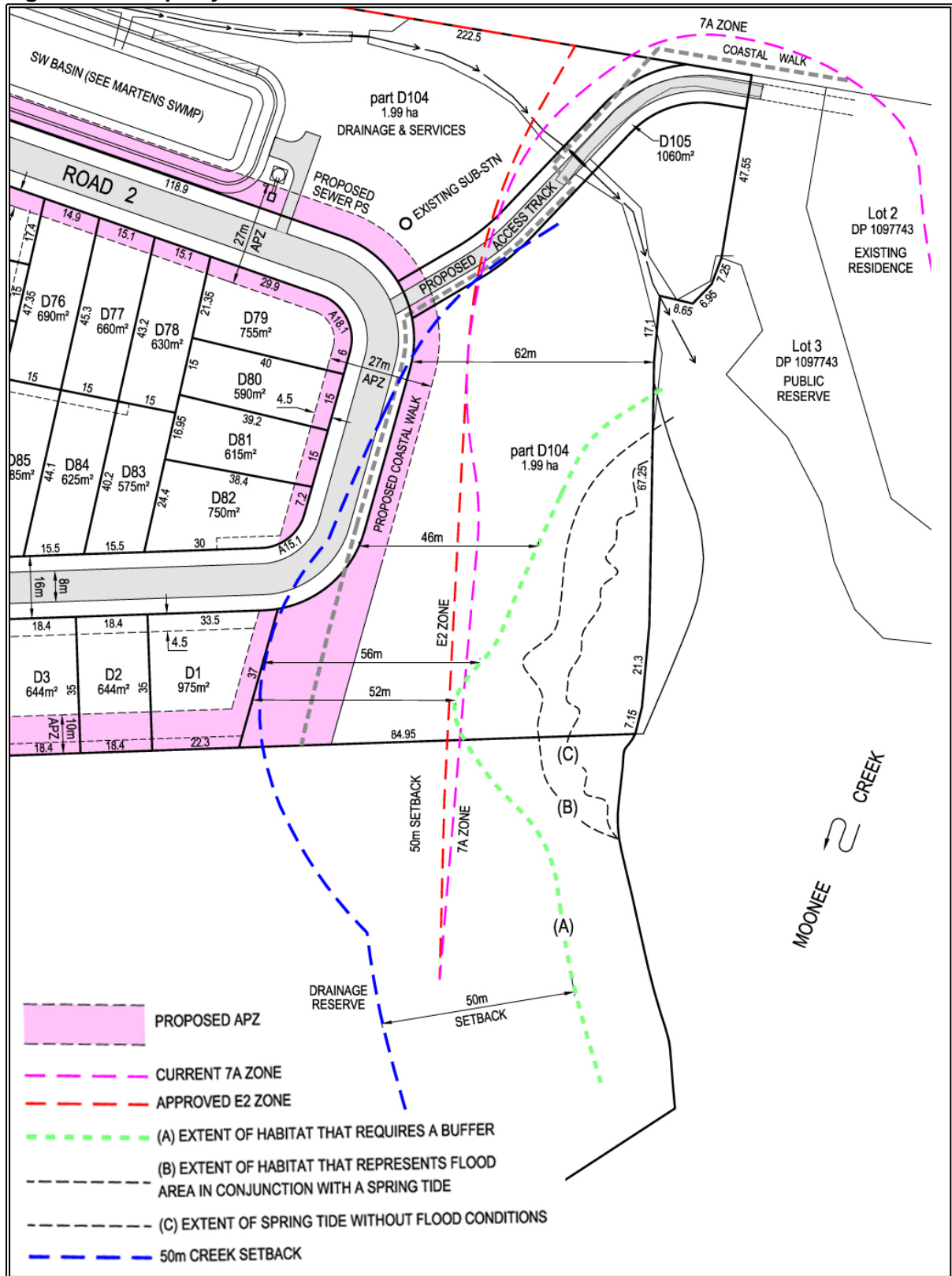
Figure 32 of the submitted EA is reproduced in **Figure 16** supplemented with existing wetland vegetation data and recalculation of buffer from the highest astronomical tide. It can be seen there is considerable capacity for shoreline movement over time within the buffer.

In fluvial geomorphological terms, if sea levels rise were to occur to the predicted levels, riparian zone migration will vary along the entire extent of Moonee Ck to accommodate an increase in volume of water. Therefore, if there were to be a physical restriction on riparian zone migration on the site by (natural or constructed), the displaced tidal waters would disperse across the entire tidal zone in places where the creek banks would be lower and where riparian zone migration will naturally occur.

Regardless, the impacts of potential retardation of riparian zone migration are not likely to be significant and for reasons already stated, will not automatically lead to a reduction in available riparian zone.

MPA also raised concern how the development will impact the estuarine ecosystem via increased fishing pressure from residents of the development, impacts of increased boating on the sea grass adjacent to the site, and how access to the estuary will be managed so that stream banks and riparian vegetation are not adversely impacted.

### Figure 16 Adequacy of Buffer to cater for shoreline movement over time



regulated by the Marine Parks Authority under the revelation legislation and are outside the scope of the RTS.

DPI Fisheries were directly consulted on the buffer and their interpretation of Highest Astronomical Tide in accordance with DPI Policy and Guidelines. Following submission of **Figure 16** to DPI (revised mapping using existing data), DPI Fisheries advised:

*“the proposed buffer is generally consistent with the Department’s policy and guidelines for fish habitat conservation and management contingent upon any approval for this development requiring;*

- *rehabilitation and sound management of the buffer zone undertaken consistent with best practice techniques; and*
- *dedication of the buffer zone to Coffs Harbour City Council.” (refer Attachment K)*

### **3.4.2 Infrastructure in buffer**

Comments were made by DPI and others that the buffer should not be used for APZ’s or mosquito management as these require under scrubbing of vegetation. However, despite Council wanting the coastal walk placed further into the buffer (contrary to avoiding infrastructure in the buffer), the coastal walk – a 2.5m concrete path - has been located along the western interface of the buffer with Road 2 (the perimeter road (refer **Figures 12 and 13**)) to both provide a hard edge to the buffer, to contribute to the APZ (i.e. additional perimeter road edge), and to provide casual surveillance by future residents of the lots looking on to the buffer and the walk.

Street trees can be planted between the coastal walk and the perimeter road provided that the canopy does not exceed 30% for an outer protection area. However, no under scrubbing would be required as this stretch of the coastal walk would be directly accessed by pedestrians from the perimeter road and form the eastern verge of the road reserve.

Council raised concerns about how access for future residents to the creek is to be accommodated. As the creek is part of the Solitary Islands Marine Park under the management of the Marine Park Authority and consistent with minimising infrastructure in the buffer, no access is proposed through the buffer to the Creek. Council has the capacity to reconsider strategic access points along the entire proposed coastal walk to Moonee Creek to address this issue prior to construction and in consultation with the Park Authority.

MPA question whether measures have been taken to manage overflows of relocated pump station. The Water Services Association Australia Sewer Pump Station Design guideline provides details on emergency overflow storage volume. Typically, horizontal round concrete pipe storage is used which is normally designed at the CC stage. These guidelines are consistent with EPA Licensing Guidelines for Sewage Treatment Systems (July 2003).

### **3.4.3 Marine Parks Act and the Solitary Islands Marine Park**

The MPA advised DPE concerning the major project, (12<sup>th</sup> January 2010 - Doc10/1339) that a 100m buffer is typically asked but *‘if a buffer less than this is proposed the Applicant needs to show how the proposal meets the objects of the Marine Parks Act and the objects of the SIMP zoning of the Moonee Creek system (page 3)’*.

Marine Parks Act 1997 has been replaced by the Marine Estate Management Act 2014 No 72 (MEMA). The objects under Section 3 of the Act are addressed as follows:

*(a) to provide for the management of the marine estate of New South Wales consistent with the principles of ecologically sustainable development in a manner that:*

- (i) promotes a biologically diverse, healthy and productive marine estate,*

**Response** – the site is currently degraded from decades of rural activity which continue under existing use rights (notwithstanding the 7A Environmental Zone). In effect, there is no formal buffer in place to protect the adjoining waterways. The land is privately owned and managed up to the mean high water mark without routine or passive supervision of land use activities near the Creek(s).

The development will establish a public owned and managed riparian area that at its narrowest, introduces a 60m vegetated buffer to the Creek (the buffer has an average width of 72m). The narrowest point is some 10m wider than Council's independently prepared LES recommended to Council in March 2015 following a review of relevant matters in consultation with state agencies. The LES concluded this site, that a 50m buffer should be applied, although the recommendations of the site specific assessments that inform the RTS have led to a design and layout with a wider buffer (up to 107m in places) to avoid adverse impact on the biological diversity of the marine park estate or the health and productivity of the marine estate.

and

(ii) *facilitates:*

- *economic opportunities for the people of New South Wales, including opportunities for regional communities,*

**Response** – The proposed development is economic development for the locality to provide housing for the Moonee Beach locality and support the businesses, jobs and services located in the Moonee Beach village centre. The proposal does not propose access to the marine estate and with appropriately designed stormwater management carried out as proposed, and a long term sustainable buffer to the adjoining creeks, the proposal will not conceivably impact on the economic opportunities associated with the marine estate.

and

- *the cultural, social and recreational use of the marine estate,*

**Response** – no recreational use of the park are facilitated by the proposed development as no public access is proposed from the site into the marine park. However, in accordance with the Moonee Beach DCP, a Coastal Walk is proposed on the western boundary of the buffer that will facilitate cultural and social use and appreciation of the park.

and

- *the maintenance of ecosystem integrity,*

**Response:** integrity of the SIMP ecosystem is maintained. The riparian corridor of Moonee Ck is maintained (as recognised in guidelines under the Water Management Act being 40m measured from the top of the bank for a Level 4 river). Runoff from the entire development (including those parts of the development closest to the Creek will be captured and treated by the proposed bioremediation basin. The quality of stormwater exiting the site via the basin will improve existing water quality to the following extent:

- phosphorous reduced by 11%
- nitrogen reduced by 25%
- total suspended solids reduced by 79%
- gross pollutants reduced by 28%



and

- the use of the marine estate for scientific research and education,

**Response:** The proposed development will not adversely impact on the estate for scientific research and education.

(b) to promote the co-ordination of the exercise, by public authorities, of functions in relation to the marine estate,

**Response:** N/A

(c) to provide for the declaration and management of a comprehensive system of marine parks and aquatic reserves.

**Response** - the proposed development located adjacent to the SIMP does not adversely impact the management of the marine park.

The Solitary Islands Marine Park zones Moonee Creek as a “habitat protection zone”. This zone conserves marine biodiversity by protecting habitats and reducing high impact activities. There do not appear to be objects available for this zone prepared by the MPA. Regardless, the site investigations indicated that measures proposed by the Project will improve, and not adversely affect, marine biodiversity or habitats within Moonee Creek.

### 3.5 Mosquito Management

The management of mosquitos will be undertaken and applied at the appropriate development stage and process as follows:

- All dwellings will be at >50m away from Moonee and Bucca Cks and potential mosquito breeding areas (refer to **Figure 5 and 13** indicating 50m distance) – consent;
- The bio remediation basin will have edges with a minimum 45 degrees slope – consent and construction certificate (CC);
- Site preparation to ensure ponding of water doesn’t occur after rain – consent and CC;
- All dwellings will be equipped with effective screens on all windows, doors and openings – complying development certificates or consent ;
- All rainwater tanks and fabricated water storage structures will be equipped with effective screens on all openings – complying development certificates or consent.

It is noted that Moonee Beach DCP 2004 and Coffs Harbour DCP 2015 do not contain controls relating to the management of mosquitoes.

### 3.6 Noise Impacts and Mitigation

Wilkinson Murray reviewed the submissions from Council and RMS concerning noise emanating from the Pacific Highway and the proposed collector road within the western boundary of the site. **Table 5** lists noise issues raised and Wilkinson Murray’s response whilst **Table 6** indicates the standard mitigation measures for future dwellings in the yellow mitigation zone. A full copy of Wilkinson Murray’s advice is provided in **Attachment F**.



**Table 5 Response to comments concerning noise from Pacific Highway**


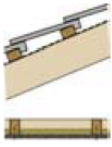


Council comments	Wilkinson Murray response
Properties along boundary have “direct line of sight” & require further assessment and may extend to southern lots.	Assessment consistent with SEPP & DPE “ <i>Development near Rail and Busy Roads – Interim Guidelines 2008</i> ”. Lots on northern and southern side identified as noise impacted.....and have a “direct line of sight” with Hwy. Actual angle of view of rd. is much reduced thus resulting in lower level of noise exposure. Additional assess-



	ment not required as it was considered in initial noise assessment.
Report specifies only the façade is to be treated however depending on the final house design this may need to extend to the flanks of the building. Further assessment is required	Assessment identified lots that require consideration of noise mitigation and typical mitigation necessary to meet ISEPP. Specific noise mitigation would be identified during DA depending on house design and orientation. Design for dwellings might require some noise mitigation on the “flanks”. Dwellings in yellow zone should be required to submit a noise report identifying specific noise mitigation requirements for specific house design.
Unreasonable to limit housing in “yellow mitigation zone” (fronting collector rd.) to single storey when the planning controls allow for more than single storey housing.	“Yellow mitigation zone” should apply to both levels. As first storey of house in this area would be exposed to higher noise levels as it would have a greater view of Hwy it would require a higher level of mitigation when compared to ground floor. <b>Table 4</b> sets out standard treatment for sleeping areas/habitable areas for 1st floor of houses located in yellow mitigation zone.
Unreasonable to require mechanical ventilation systems to affected housing to allow windows to be shut to meet ISEPP requirements as this is contrary to sustainable housing design principles.	Mitigation based on windows and external doors closed consistent with “ <i>Development near Rail and Busy Roads – Interim Guidelines 2008</i> ”. For each DA with a specific house design consideration of ventilation requirements for noise-exposed rooms will be required to meet BCA provisions. 3 possible ventilation options stated in the noise assessment. Other possible ventilation solutions could be developed during detailed design of house by a mechanical engineer.
Housing on collector rd. will not necessarily precede other housing in the subdivision, thereby allowing other housing to be impacted acoustically (see staging plan).	Unreasonable to impose cost for additional noise mitigation on other dwellings for a temporary impact. 1st row of houses out of noise mitigation zone would have rear of lot facing hwy. These lots outside of the zone should be required to install fencing to a height of 1.8m to shield noise to the house prior to occupation certificate.
Additional impact of noise from collector road upon adjacent dwellings – more detail required.	Assessment consistent with SEPP and DPE guidelines which only requires consideration of high traffic roads >20,000 vehicles p.d. Hwy has 20,000+ vpd & trucks driving at 100km/hr. Collector rd. may have up to 4,000 vpd at 50 km/hr. Noise contribution of Collector Rd would be approx. 8-10dB less than hwy & wouldn’t contribute significantly to traffic noise. Consideration of Collector Rd would not change previous noise recommendations.
<b>RMS Comments</b>	<b>Wilkinson Murray response</b>
.....projected future noise envelopes for Hwy...does not include additional impact that collector Rd traffic will have...it would appear that this hasn’t been taken into account.	See above.

**Table 6 Standard treatment for sleeping areas and other habitable areas**

Building Element	Standard constructions	Example
Windows/sliding Doors	Openable with minimum 10.38mm laminated glass and full perimeter acoustic seals	
Frontage facade	brick veneer construction: 110mm brick, 90mm timber stud or 92mm metal stud, minimum 50mm clearance between masonry and stud frame, 10mm standard plasterboard internally.	

Building Element	Standard constructions	Example
	Or Double brick cavity construction: 2 leaves of 110mm brickwork separated by 50mm gap	
Roof	Pitched concrete or terracotta tile or sheet metal roof with sarking, 2 layer of 10mm sound-rated plasterboard fixed to ceiling joists, R2 insulation batts in roof cavity.	
Entry Door	45mm solid core timber door fitted with full perimeter acoustic seals	
Floor	Concrete slab floor on ground	

### 3.7 Traffic

Better Transport Futures undertook a Traffic Impact Assessment (refer **Attachment G**) following advice from Roads and Maritime Services and following the completion and opening of the Pacific Highway dual carriageway after the submission of the Concept Plan.

Extracts from this Assessment are provided as follows:

#### a) Daily traffic flows

*Based on peak hour flows typically representing some 10% of the daily flows, this would indicate that the daily 2-way traffic movement on Moonee Beach Road between the highway and the roundabout could be in the order of 3,570 whilst on Estuary Drive could be in the order of 595 vehicles per day 2-way in this location (refer **Table 7**).*

#### b) Current Road Network Operation

*Observations on site during the morning and afternoon peak periods show that the intersection of Moonee Beach Road and Estuary Drive works well with minimal delays. There are no delays for traffic entering or exiting the Pacific Highway, due to the grade separated intersection design*

**Table 7 Peak traffic flows on existing nearby roads**

Street	Direction	Direction	2-way
Moonee Beach Road	160 AM west	124 AM west	284 AM
	305 PM east	125 PM east	430 PM
Estuary Drive	11 AM north	35 AM south	46 AM
	43 PM north	30 PM south	73 PM

**b) Site Distances**

*The internal roads connect at right angles to maximise visibility and as such the 80 metres visibility requirement will be met.*

*For the intersection of Estuary Drive and Moonee Beach Road, roundabout is well laid out and provides good visibility on the approaches. Once on the immediate approach to the roundabout, visibility for 80 metres is available on all legs.*

**c) Internal Bus Movements**

*...The layout of the site allows for a bus to circulate around the site.*

**d) Traffic Generation**

*The daily rate is given at 7.4 trips per dwelling. For the 104 lot development, this gives additional flows of 74 in the AM peak, 81 in the PM peak and 770 per day.*

**e) Traffic Distribution and Assignments**

*All traffic will access the site via the roundabout controlled intersection of Moonee Beach Road and Estuary Drive. The majority of traffic will then head towards the Pacific Highway to access the numerous facilities within Coffs Harbour.*

**f) Origin / destinations assignment**

*Assumed all traffic will travel via the above roundabout and that 90% of traffic will then use the Pacific Highway to access Coffs Harbour.*

**g) Impact on daily traffic flows**

*RMS guide states that for a local street, maximum environmental limit is 300 vehicles per hour. It can be seen that the flow of 154 vehicles is well within this limit and therefore acceptable.*

**h) Peak Hour Impacts on Intersections**

*The major impact of the redevelopment of the subject site would be at the roundabout controlled intersection of Moonee Beach Road and Estuary Drive. Observations on site show that this roundabout currently operates very well with minimal delays and congestion.*

**i) Sidra modelling – intersection of Moonee Beach Road and Estuary Drive**

*The current traffic flows surveyed by Seca Solution were used to assess the current operation of the roundabout at the intersection of Moonee Beach Road and Estuary Drive (refer **Table 8**)*

*The above results demonstrate that the roundabout will continue to operate to a very high standard with minimal delays and congestion.*

**j) Modelling of roundabout with additional traffic allowances:**

- Traffic movements right in and left out of the access to the shopping centre were increased by 25% per annum, giving a 250% increase over current demands inclusive of the development traffic.*
- Traffic movements turning left in and right out of Estuary Drive were increased by 25% per annum, giving a 250% increase in current demands inclusive of the development traffic.*

The results of this Sidra analysis are presented in **Table 9**.

**Table 8 Current operation of roundabout at Moonee Beach and Estuary Drives**

Approach	Level of service	Delay (seconds)	Queue (metres)
Access to shopping centre	A / A	5.4 / 5.4	1.2 / 3.0
Moonee Beach Road east	A / A	5.1 / 5.8	2.1 / 1.9
Estuary Drive	A / A	8.8 / 8.8	1.0 / 1.0
Moonee Beach Road west	A / A	7.3 / 7.3	4.0 / 8.9
Note: results for AM / PM peak			
The above results confirm the on-site observations with minimal delays and congestion for road users.			
Table 3 - Current operation of roundabout at Moonee Beach Drive / Estuary Drive plus development traffic			
Approach	Level of service	Delay (seconds)	Queue (metres)
Access to shopping centre	A / A	5.6 / 5.4	1.3 / 3.2
Moonee Beach Road east	A / A	5.3 / 5.9	2.2 / 1.9
Estuary Drive	A / A	8.8 / 8.8	2.3 / 1.3
Moonee Beach Road west	A / A	7.3 / 6.8	4.2 / 11.2
Note: results for AM / PM peak			

**Table 9 Roundabout at Moonee Beach & Estuary Dr's + development + 25% growth/annum on side roads**

Approach	Level of service	Delay (seconds)	Queue (metres)
Access to shopping centre	A / A	7.5 / 5.4	3.1 / 13.2
Moonee Beach Road east	A / A	8.6 / 10.9	4.8 / 6.1
Estuary Drive	A / A	11.4 / 14.0	13.0 / 11.7
Moonee Beach Road west	A / A	7.9 / 8.4	18.2 / 96.5
Note: results for AM / PM peak			

The above results demonstrate that the roundabout will continue to have adequate capacity over the 10 year design horizon, allowing for significant increases in traffic flows associated with ongoing development within Moonee Beach. This level of growth assessed would allow, for example, for another 250 residential lots to be developed off Estuary Drive and demonstrates that the current roundabout will continue to provide a good level of operation for road users.

**k) Impact of Construction Traffic**

Majority of construction work contained within site so minimal impact upon external road network. There will be a requirement for construction machinery to access the site and traffic associated with workers. A Traffic Management Plan may be required for work on site and access controls. This will be completed as part of the design process by the contractor on site.

All contractor vehicles will be able to park within the site, with no impact upon the external road network.

### **l) Improvements to External Road Network**

None required as the future traffic flows associated with the development are within the capacity of the existing road network. The key intersection of Moonee Beach Road and Estuary Drive has been assessed with Sidra and shows that the roundabout will continue to operate well with minimal delay and congestion.

The connection of Moonee Beach Road to the Pacific Highway is a grade separated intersection providing a high quality connection with considerable capacity. The network modelling completed as part of the upgrade of the Pacific Highway in this location allowed for the continual development along the Pacific Highway corridor and caters for the additional traffic associated with the development of the subject site.

## **3.8 Cutting and Filling**

DPE questioned suitability of the site subsoil for use as fill and clarify the quality and suitability of the subsoil for this purpose. Whilst Table 11 of the *Geotechnical and Acid Sulfate Soils Assessment* (Martens Mar. 2013) indicates that inorganic clays with high plasticity on site are unsuitable in their natural state for fill, Section 4 *Geotechnical Risk Management Recommendations* Section 4.2 *Fill Material* of the report identifies the methods and the Australian Standards to be complied and documented at construction certificate stage. Section 4.2 is provided in its entirety as follows:

### **4.2 Fill Material**

We recommend that fill in excess of 0.5m be suitably engineered to ensure good stability, compaction and water exclusion and/or drainage. The placement of fill is to be performed in accordance with **Australian Standard 3798 (2007)**. This **compliance will be outlined in CC documentation.**

If fill from off-site is utilised, it should be suitable in accordance with AS 3798 (2007), be well graded, have a maximum particle size of 75mm and be certified as free of unsuitable material. **Site sub-soils are not likely to be suitable for use as engineered fill without treatment and/or re-engineering.**

**All earthworks are to be undertaken in accordance with AS 3798 (2007). Proof rolling of sub-grades should be conducted before placement of any fill, and this should be closely monitored by the site supervisor to identify sub-surface moisture issues and soft / unstable layers.** Fill should be free of organics, deleterious substances such as wood, metal, boulders and plastic. Fill should be placed in 150 – 200mm layers. Preliminary site compaction criteria and frequencies of compaction testing for different types of placed fill are outlined below:

1. Building pads: minimum dry density (MDD) of 98% standard (for clay soils), or minimum density index (ID) of 75% for cohesion less soils (silts and sands), with moisture variation not to exceed +/- 2% of optimum moisture content (OMC).

**2. Site pavements: MDD of 98% modified, ID of 75%, with moisture not to exceed 2% of OMC.**

3. Other controlled non-load bearing fill: MDD of 95% standard, ID of 70%, with moisture not to exceed 2% OMC.

### **4.3 Sub-grade Preparation**

We recommend that any stripping of topsoil or unsuitable sub-grades (CBR < 4) be undertaken at the onset of excavation and suitably stockpiled for on-site non-engineering uses (landscaped mounds or topsoil re-use) or off-site disposal to a suitable location.

**For all areas where fill is to be placed to raise site levels and where on-grade slabs or pavement are to be constructed, preparation of sub-grade should consist of:**

1. Stripping of topsoil, unsuitable material and trimming to desired levels providing level foundation keys.

2. Compact sub-grade to achieve a minimum density of 98 % Standard Maximum Dry Density (SMDD) for cohesive soil ; and

3. Proof roll the sub-grade with a minimum 12 tonne deadweight smooth drum roller.

Proof rolling should be closely monitored by the site supervisor and confirmed by geotechnical engineer to detect soft or unstable areas which should be removed and replaced with engineered fill.

Council indicated it was unclear if the fill batters would impact on the buffer. **Figure 7** indicates the eastern extent of fill is the eastern boundary of the perimeter road and well outside of the buffer.

### **3.9 Acid Sulfate Soils**

DPE requested a review of the adequacy of the Acid Sulfate soils assessment. Section 5.3 of the geotechnical report recommends that excavation "*greater than 3m would require further **testing** of deeper soil horizons*". Under Section 6 Preliminary Acid Sulfate Soils Management Plan (section 6.1) states:

*"the current assessment and management plan has addressed soil layers as deep as 4.0 m below existing ground level, which is sufficient for excavation to 3.0 m depth".*

The preliminary ASS management plan has addressed potential excavation down to 4m. Furthermore, there is nothing preventing further testing to be either required at CC or as a performance requirement during construction.

The issue of ASS is one of management during construction. Any "*testing of deeper soil horizons*" (if necessary and to be confirmed in the preparation of the construction certificate) can be included into ASS management protocols as a condition of approval.

This would be consistent with Council's submission indicating that a detailed ASS Management Plan will be required for future applications (i.e. construction certificate).

### **3.10 Servicing and Access**

The Department and Council raised concerns as to how the site is to be accessed from the Highway and implications for the provision of services and access to the site if Lot 6 does not proceed.

On 5<sup>th</sup> March 2009 the Minister granted project approval for the 524 lot residential subdivision to the north of the site. In Part B of the Project approval are 3 conditions to be satisfied prior to issue of a construction certificate for the subdivision (refer **Figure 17**).



**Figure 17 Part 3A Conditions of approval for Access to Glades Estate**

<b>PART B—PRIOR TO ISSUE OF CONSTRUCTION CERTIFICATE</b>	
<b><i>Provision of Access to the site</i></b>	
<b><i>B1 Access via Northern Collector Road</i></b>	
1)	Access to the site shall be provided via the northern collector road (generally as identified in Moonee Development Control Plan 2004 or as otherwise agreed to by the Department) from its existing northern limit (near Tidal Crescent) to the southern boundary of the site, over Lot 5 DP 252223, Lot 6 DP 252223, and Lot 1 DP 1097743.
2)	<p>Prior to the issue of any Construction Certificate for the project the proponent shall provide to the satisfaction of Council and the Certifying Authority evidence of appropriate legal agreements being signed with landowners of Lot 5 DP 252223, Lot 6 DP 252223, and Lot 1 DP 1097743, as well as creation of any relevant easements or instruments on title, for the construction of the northern collector road and associated project infrastructure works, over the respective lots.</p> <p>The proponent shall also provide to the satisfaction of Council and the Certifying Authority evidence of any relevant assessments and approvals required under the Act and the <i>Roads Act 1993</i> being in place to enable commencement of the construction of the northern collector road (generally as identified in Moonee Development Control Plan 2004 or as otherwise agreed to by the Department).</p>
3)	The funding of the road is subject to agreements with the landowners of Lot 5 DP 252223, Lot 6 DP 252223, and Lot 1 DP 1097743 and also subject to the provisions of Moonee Developer Contributions Plan 2008 and any agreed credits for 'works-in-kind', refer to condition <b>E18</b> .

These conditions were satisfied when Rothwell Boys for the Glades Estate prepared and submitted a DA for the Collector road to Council in 2011. Due to the refusal of the NSW Office of Water to issue its General Terms of Approval, Council had to refuse the DA. On appeal, the Land and Environment Court approved the road connecting the Moonee Beach village across 3 parcels of land including the site to connect the approved project for the Glades Estate (refer **Figure 18**).

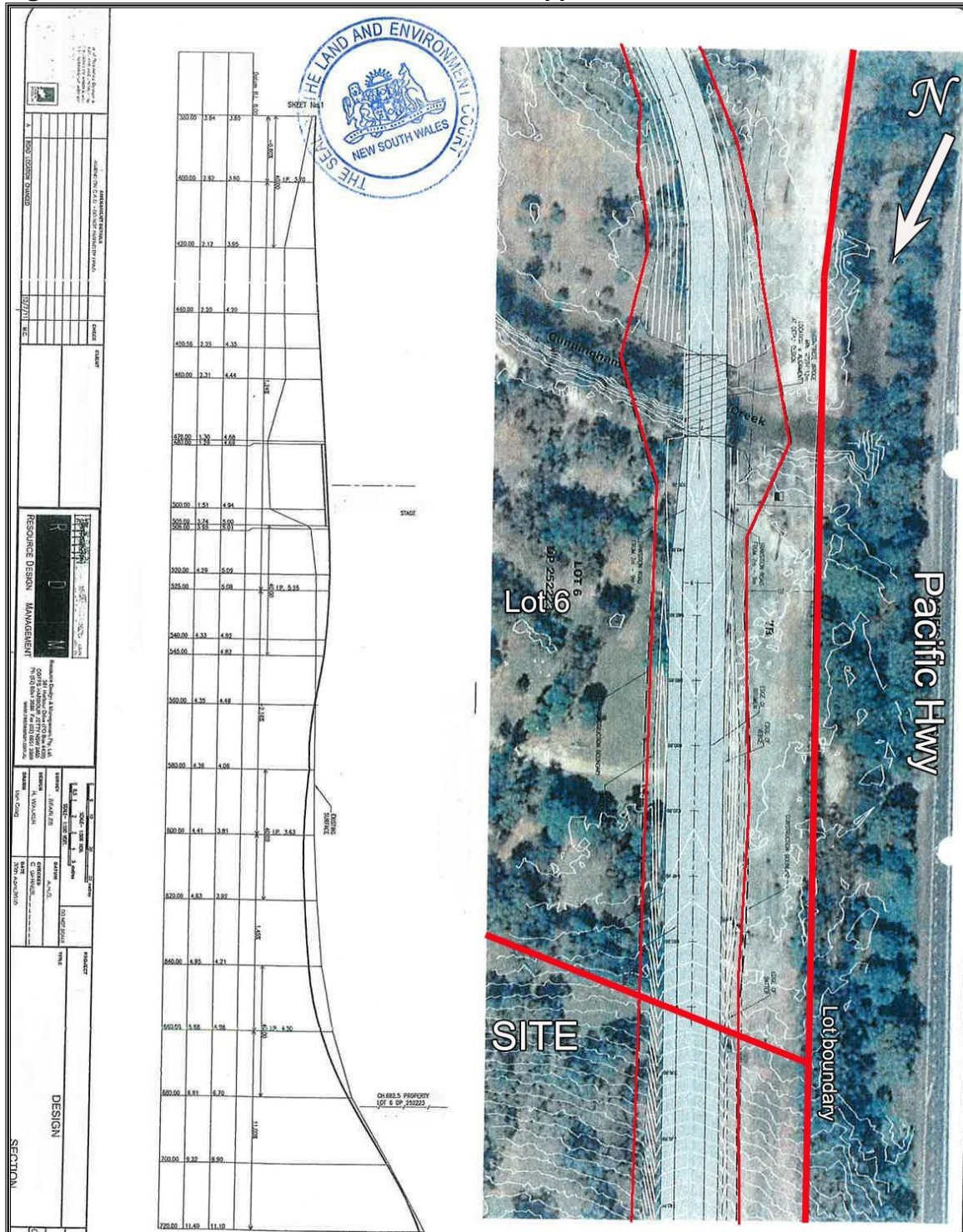
*Rothwell Boys Pty Ltd v Coffs Harbour Council & Ors* [2012] NSWLEC 1152 was approved by the court on 6th June 2012. In its decision, the court noted that Rothwell Boys had negotiated with all relevant landowners for the construction of the collector road culminating in deeds of agreement with each land owner. The terms of these deeds include that Rothwell Boys will pay for the construction of the road including all ancillary works as required by the consent, Council and the service authorities.

The court recognised that the Project Approval for the Glades Estate (MP 06\_0143) as modified, requires construction and dedication of the collector road before the issue of any Subdivision Certificate for any of the lots in the approved subdivision.

The applicant has renegotiated a Deed with Rothwell Boys (8<sup>th</sup> December 2014) for the express purposes of satisfying Part B B1.2) and 3) of the Glades Project Approval.

DPE, in its adequacy assessment advice dated 15 December 2015, requested further consideration of the implications for servicing and access to the site should development on Lot 6 not proceed as well as a copy of the aforementioned deed. In short, these are not development assessment matters but private matters between landowners who wish to

**Figure 18 Access to site via Lot 6 from Court approved collector road**



implement the development consent. In *Rothwell Boys Pty Ltd v Coffs Harbour Council & Ors* [2012] NSWLEC 1152 it was stated:

*A grant of development consent has no impact upon proprietary rights. In particular, if the result of the present appeal to this Court is that development consent is granted to construction of the collector road, that consent, of itself, will afford no right to Rothwell to enter upon Lot 6 and undertake road construction.*

*In that regard the observations of Cripps CJ in Wharf 11 Pty Ltd v Sydney City Council [1991] NSWLEC 21 are relevant to be noticed. His Honour there said:*

*"A development consent raises a regulatory prohibition, namely, that development cannot be undertaken unless consent is given by a local authority. A development consent does not authorise development. Generally speaking, **the process is not concerned with relations between owners and other people who wish to implement the development consent.**"*

This legal approach is consistent with the Minister's Determination of the Glades Estate (MP 06\_0143), where it was deemed that the conditions of approval for access to Glades Estate (**Figure 17**) were sufficient to allow the approval of the project. Uncertainties on whether a private land owner did not wish to develop and the implications of servicing and access were not matters for development assessment of the project but for subsequent processes and approvals under the Environmental Planning and Assessment Act. By extension, this is the same situation for the current preferred project.

It is within the context of the court approval, the aforementioned deeds of agreement to implement the construction of the collector road and the conditions of approval of MP06\_0143, that the RTS is seeking approval. It is requested that a condition be provided in the project approval that the construction and dedication of the collector road be made over the site before the issue of any Subdivision Certificate for any of the lots in the approved subdivision.

### **3.11 Pedestrian Access to Moonee Creek and Solitary Island Marine Park**

Council and the MPA raised concerns of future residents walking through the proposed buffer area to access the creek. No access is proposed in the development design in accordance with MPA requirements in the DGRs.

Council will be the future land owner of the buffer whilst the MPA is the manager of the Moonee Creek as part of the Solitary Islands Marine Park. Accordingly, access to and regulation of, these two areas are the responsibility of each respective authority. However, to assist the management of this issue the following is proposed:

- a) location of the coastal walk close to the perimeter street to contribute to a hard edge to the buffer, limit impact of coastal walk on buffer and provide casual surveillance of the path and safety to users;
- b) Provide a timber post and rail fence on eastern side of coastal walk (including driveway access to Lot 2) to restrict people from walking within the buffer and into Moonee Creek.

### **3.12 Design Guidelines**

In a meeting with the Department on 4<sup>th</sup> October 2013 to discuss preliminary assessment comments on the concept plan, it was discussed and agreed that the proposed design guidelines would not be required.

The lot design is based upon accommodating future detached dwellings. If a dwelling design satisfies the development standards in Part 3 General Housing Code of SEPP Exempt and Complying Development 2008 then a complying development certificate can be issued by the principal certifying authority. Under the SEPP, lots between 300 to 900m<sup>2</sup> can have a minimum front setback of 4.5m. Under Moonee Beach DCP 2004, the minimum front setbacks for low density housing on traditional lots, is 6m.

If a dwelling design does not satisfy the development standards for complying development, then it will require development consent. The DA would be prepared and determined in accordance with the provisions of the Coffs Harbour LEP 2013 and Moonee Beach Development Control Plan 2004 (adopted by Council 22<sup>nd</sup> September 2004).

The majority if not all of the lots are of a size and dimension that would satisfy the development standards of the SEPP and enable future dwellings to be complying development. However, it will be up to future lot owners and their dwelling aspirations and expectations that will inform whether individual dwellings on each lot are complying development or require development consent.

### **3.13 Landscaping**

DPE requested details on the proposed landscaping along the southern and northern boundaries and the proposed lots that back onto these boundaries. The approved lots from the Glades Estate back onto the northern boundary of the site. Accordingly, proposed Lots 87 to 103 will back onto the Glades Estate lots and hence the northern boundary fence line will not be visible from any proposed public streets in the site or from the Glades Estate.

Lot 6 to the south is zoned for development and backs onto proposed lots 1 to 19. Council has maintained this zoning following its adoption of a planning proposal for the deferred matters in the Coffs Harbour LEP 2013 early in 2015 (**Figure 4**). Accordingly, when Lot 6 is subdivided in the future, lots created will ultimately back onto Lots 1 to 19.

As an interim measure and to address the visual impacts of rear boundary fences visible from the approved Collector Road (primarily proposed Lots 15 to 19 (as remaining proposed lots along boundary will be screened by existing native vegetation in Lot 6)), a capped and lapped timber fence will be constructed along the entire southern boundary (**Figure 11**). This will also apply to the northern boundary.

The Rural Fire Service has required 10m Asset Protection Zones at the rear of proposed lots along the northern and southern boundaries (**Figure 5**). Requiring landscaping in the private back yards of these lots would conflict with this requirement. Furthermore, prescribing landscaping for private back yards would be inappropriate. If in the event such landscaping were to be prescribed in the project approval and implemented by the developer at subdivision construction stage, future owners of each affected lot would likely change or remove such landscaping to their own satisfaction.

The landscape plan species list has been amended to only include endemic local species, no koala feed trees are proposed in the western portion of the site adjacent to the Highway and no planting of large trees is proposed along the southern and northern site boundaries.

### **3.14 Ecology**

P.E.A. Pty. Ltd. were re-engaged to respond to the adequacy review and this required further consultation and field work to supplement that undertaken for the EA report and Concept Plan. The results of this work are provided in **Attachment G**.

The following species and habitat issues required further survey and assessment:

- Tree hollows;
- Vegetation type and area;
- Koala habitat;

- Spider Orchid *Dendrobium melaleucaphilum* habitat; and
- Squirrel glider habitat.

The results of this further assessment have led to a revised series of recommendations in response to OEH, DPE and Council comments, as follows:

- Vegetation management plan;
- Koala management;
- Plan of Management for the conservation reserve; and
- Conservation reserve area.

### 3.14.1 Corridors and connections

Two (2) sub-regional area connections were identified. One extending from the lower slopes up the Hinterland from south west of the site to the North West (11,600 ha and includes a mix of habitat types mostly to the west of the Pacific Highway). The other connection is the coastal connection running from the northern side of Moonee Creek to the southern headland of Emerald Beach (451ha) and is large enough to support viable populations (**Figure 19**).

Local forest connections between the site and sub-regional corridors are critical for maintaining genetic flow, decrease likelihood of stochastic events have long term deleterious effects on meta populations and provide movement corridors for species requiring semi-continuous forest to undertake critical activities for improved population viability (e.g. Koala for satellite breeding males or Squirrel glider moving to winter feed resources).

The corridor in **Figure 20** has 3 fingers and 4 corridor connections for a total size of 55 hectares and 2.9 km in length with a connection between the site and the Moonee Local remnant and Sub-Regional remnant less than 1 kilometre. This remnant is considered too small to maintain long-term viable populations for the significant species under consideration that require semi-continuous connections, such as Koala and Squirrel glider.

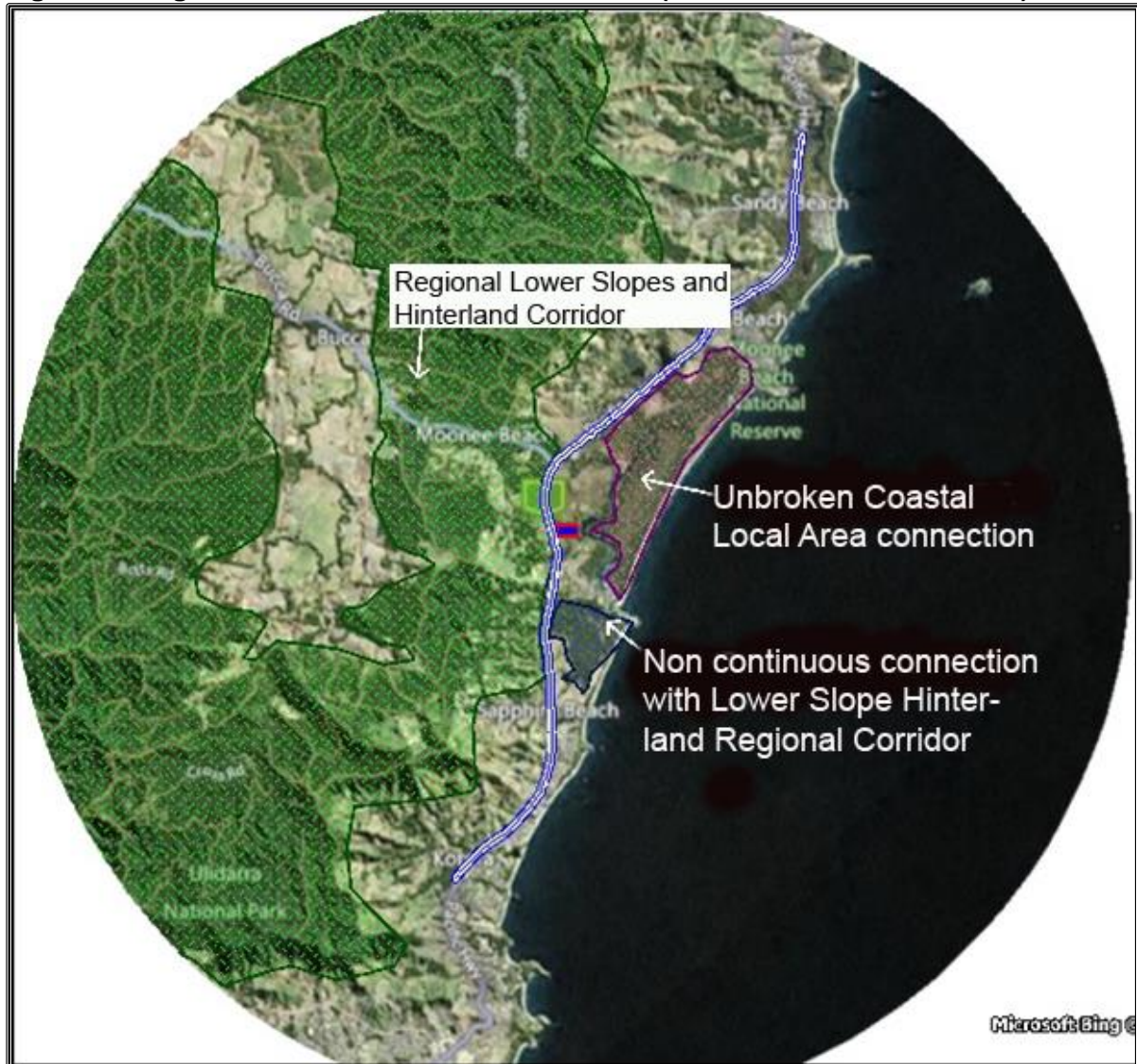
The 4 connections illustrated in **Figure 20** achieve different objectives in the Local Area:

- Connection 1 - an indirect connection through the Glades Estate and the 11,600 hectare Sub-Regional via the enhanced Pacific Highway underpass.
- Connection 2 - a direct connection between the site and the 11,600 hectare Sub-Regional via the new Pacific Highway underpass and creek line corridor onsite.
- Connection 3 - a direct connection between the site and the Moonee Beach remnant and the larger remnants.
- Connection 4 - an indirect connection through the Glades Estate and the Coastal corridor (>500 hectares).

The Pacific Highway has until recently presented a barrier to movement for fauna in an east west direction. This had genetic flow implications especially for the population on the eastern side of the highway in the Moonee Creek area because of lack of habitat size and pressures from development. This was a major concern to OEH in consultation during February 2015.



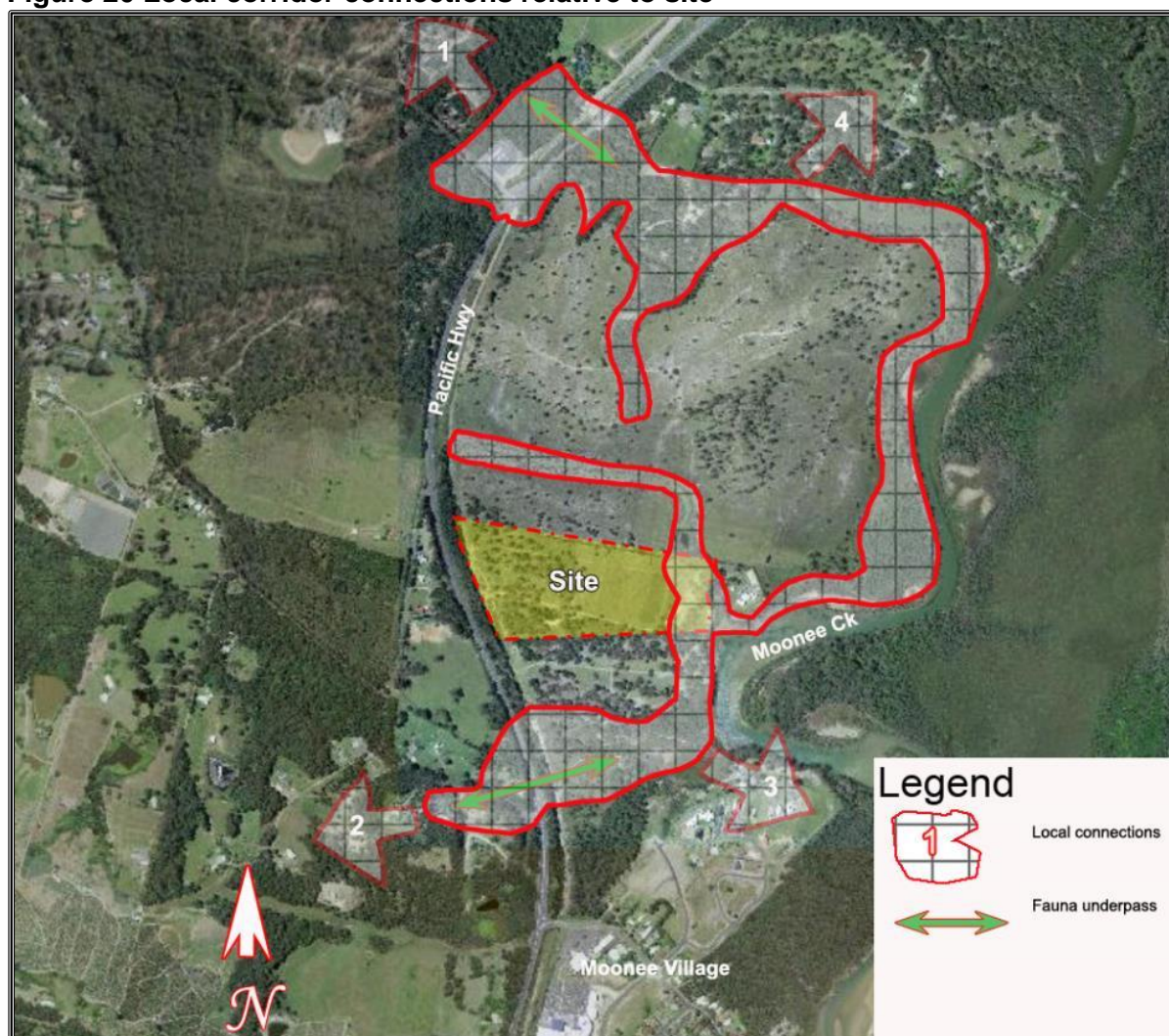
**Figure 19 Regional Corridor Links and Remnants (Site = blue with red outline)**



On 13<sup>th</sup> January 2009, the Minister for Planning approved the *Coffs Harbour Highway Planning – Sapphire to Woolgoolga Project* (06\_0293). The Environmental Assessment report for the project proposed fauna crossings in conjunction with corridors. **Figure 21** illustrates these crossings with two in relatively close proximity to the north and south of the site.

This project has now been constructed in the form of a two lane separated carriageway and forms the western boundary of the site. Subsequent to consultation with OEH in February 2015, PEA Consulting inspected these crossing and advise the RMS has installed a new rope bridge specially for fauna crossings approximately 1.2 kilometres south of the site which effectively now provides an important link for the eastern population thus reducing the risk of genetic isolation and pressures from stochastic events such as fire.

**Figure 20 Local corridor connections relative to site**



### 3.14.2 Site vegetation type and area

Four (4) vegetation communities were identified in the EA report and the PPR report.

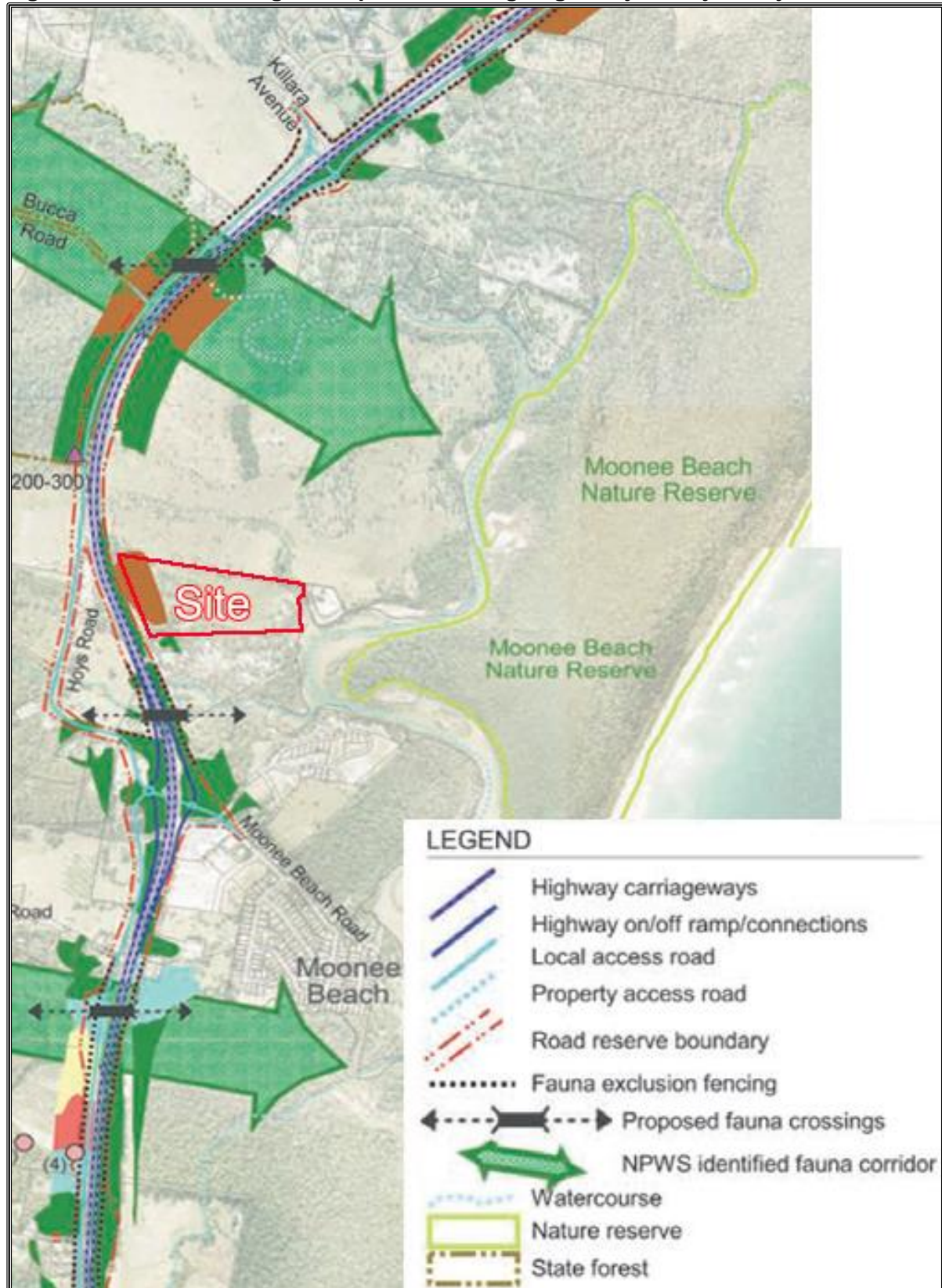
Further investigations (walking surveys and quadrats) and reconsideration of the vegetation communities now include the Twig rush Closed Sedge land and Grey Mangrove Riparian Forest (**Table 10** and **Figure 22**). The division of these communities is based on floristic and structural differences.

**Table 10 Vegetation Map Units**

Unit	Community Type	Area
1	Dry Sclerophyll Blackbutt Pink Bloodwood modified Forest Community	4.18
2	Red Mahogany -Paperbark Sclerophyll Forest	1.64
3	Broadleaved paperbark, She Oak, Red Mahogany Swamp Sclerophyll Forest	0.71
4	Man-made drain with Broad leaved paperbark, She Oak, Red Mahogany	0.32
5	Twigrush Closed Sedgeland	0.22
6	Grey Mangrove Riparian Forest	0.08
	Cleared Land	5.8
	<b>Total Land area</b>	<b>12.95</b>



**Figure 21 Fauna crossings in Sapphire to Woolgoolga Project Major Project 06\_0293**



(Source: annotated by JW Planning from EA report)

**Table 11** indicates Endangered Ecological Communities (EECs) found on the site and their correlation with the vegetation map units in **Table 10** and **Figure 23**.

**Figure 22 Vegetation Communities on Site**



As indicated in the “Relevance to site” column and demonstrated in **Figure 23**, these EECs will not be impacted by the proposal either by clearing or via changes hydrological regimes, and will be rehabilitated via a Vegetation Management Plan (refer **SoC No. 9 and 10**).

**Table 11 EECs and Protected marine communities listed under the TSC Act 1995**

EEC	Status	Relevance to site
<b>Freshwater Wetlands on Coastal Floodplains of NSW North Coast, Sydney Basin &amp; SE Corner Bioregions</b>	EEC	Recorded onsite at edge of Moonee Creek as <b>Unit 5</b> – Table 10. Falls in conservation reserve area of site
<b>Swamp Sclerophyll Forest on Coastal Flood plains of NSW North Coast, Sydney Basin &amp; SE Corner Bioregions</b>	EEC	Recorded onsite as <b>Unit 3</b> – Table 10. 0.71 ha subject to long term clearing & grazing. Great portion of forest cover on adjoining land removed.
<b>Riparian Mangrove Forest</b>	NA	Recorded onsite at edge of Moonee Creek. Falls in conservation reserve area of site.

The only significant flora recorded in the region listed under the TSC Act and the EPBC Act that might be impacted by the proposed development is Spider Orchid *Dendrobium melaleucaphilum*. Five (5) hours of survey undertaken during the prime flowering period Aug-Sep (approximately 1 hour per ha) did not find evidence of this species (refer **SoC 7**).

### 3.14.3 Tree Hollows

17 hollow bearing trees were recorded during field surveys undertaken 28th August and 1st September 2014. The most significant trees were recorded along the N and E boundaries. The western and upper slope central part of the site had no hollows (**Figure 24**).

The proposal will retain at least two (2) hollow bearing trees onsite. Vegetation that provides important habitat onsite on the northern and southern boundary should ideally be retained. However, there are existing development approvals (i.e. development adjoining the site and a collector road crossing the site) and associated engineering and bushfire constraints that make its retention impractical. Furthermore, the site will be cut and filled as per **Figure 7**.







Mitigation for loss of potential habitat will include the erection of falling hollows in reserve area and supplementation of hollows by the erection of nest boxes a ratio of 3:1 (**SoC 10**).

#### **3.14.4 Koala Habitat**

The data from the Coffs Harbour Koala Plan of Management (**PoM**) indicates Koalas are found mainly in the SE sector of the LGA. There was less evidence of Koala activity around Moonee and to the west of the LGA indicating Koalas occur in these areas but probably at a lower density.

Additional surveys were undertaken between 28th August and 1st September 2014 to increase the understanding of the site for koala usage, habitat and update surveys to be consistent with the new EA (Cth) Koala assessment guidelines.

Eight (8) random plots (2500m<sup>2</sup>) were surveyed across the site to collect koala usage, koala habitat, feed trees and vegetation condition details such as leaf litter, trees size, structure, debris and dog activity.

To establish if koala had used trees outside of the plots an additional 4 hours of pellet searches were conducted on trees outside of the plots. This involved searching under trees and targeting tree species favoured by Koala. 231 trees were surveyed for Koala pellets throughout the subject site. No trees were recorded as having koala pellets present (or where only Brush-tailed possum pellets were recorded).

Given the extensive survey effort undertaken and the poor quality understorey nature of habitats surveyed, there is a high level of confidence that the site is not primary/core or significant koala habitat, and must be considered as marginal supplementary habitat. This fits the definitions as detailed in the PoM, the Koala Planning Guidelines as proposed by the Save the Koala Foundation and, the Recovery plan for the koala (DECC 2008).

The preferred koala tree species of *E. Robusta* and *E.microcorys* had a very low representation. Only 7 trees recorded - approximately 2% of tree coverage across the site. Conclusions of koala and habitat surveys are:

- One (1) koala was recorded 500 metres south of the site in 2010. The area where the individual was recorded includes a higher density of preferred feed trees than the site.
- No koalas have been recorded on the site.
- No koala scats have been recorded on the site.
- Only 5 preferred feed trees were recorded on site.

Absence of scats and visual sightings of koala is consistent with the current knowledge of koala in the Moonee Beach area, in that, it is at very low densities and is likely restricted to the better quality areas where preferred trees occur on high quality Quaternary soils. The absence of use following 3 detailed surveys undertaken over 4 years indicates that the site is poor habitat for koala. This is a result of past clearing and ongoing rural activity in the area.

The CKPOM identified the site as secondary habitat and cleared areas as non-koala habitat. The proposal will impact on 4.9 ha of secondary habitat and retain 2.5 ha of habitat. The area mapped in the CKPOM is sparsely covered by trees, a major part of this proposal will include the rehabilitation of this with known koala feed trees.

#### **3.14.5 Proposed Koala Mitigation Plan**

The proposal will impact on 5.4 ha of disturbed vegetation. The mitigation measures for the koala are provided in **Table 12**.

**Table 12 Mitigation Measures for the Koala**

Lots to be mitigated	Details of vegetation mitigation	Area of mitigation	Other mitigation	Management	Timing
<b>Reserve Area (regeneration area)</b>	Create habitat & regenerate reserve to achieve example of Broad Leaved Paperbark- Swamp Box Broad Leaved Paperbark- Forest red gum Red Mahogany Transitional Dry open forest of coastal lowlands and valleys	5360m <sup>2</sup>	Area to be fenced to permit animal movement yet restrict human movement	VMP to be prepared for reserve areas.	To be established during construction
<b>Reserve Area (established vegetation)</b>	Restore reserve to achieve example of Broad Leaved Paperbark- Swamp Box Broad Leaved Paperbark- Forest red gum Red Mahogany Transitional Dry open forest of coastal lowlands & valleys	13,100m <sup>2</sup>	Area to be fenced to permit animal movement yet restrict human movement	VMP to be prepared for reserve areas	To be established during construction
<b>Landscape tree planting</b>	95 <i>E. microcorys</i> & <i>Robusta</i> planted as street trees per Figure 4 & maintain 2.5m canopy crown gap for bushfire protection.	95 trees	Prohibit dogs & cats & 20km/hr speed limit to reduce risk of road kill. Backyard pools require safety ropes attached.	VMP	End of construction

### 3.14.6 EPBC Koala assessment

No koala scats were identified within the site. None of the sampled plots had a known koala feed tree representation (this means all types of koala feed tree species) greater than the threshold for koala impact under SEPP 44 of 15%.

While secondary koala habitat is present, there is no evidence that koala use the site, however they are known to inhabit the local Moonee area at low densities. The level of use in the local area is consistent with our current understanding of low density koala population usage and reflects activity levels recorded in similar habitats.

Based on a low density koala population, the clearing of only 4.9 ha of supplementary koala habitat we conclude that a referral to the minister is not required. This advice directly follows the Draft EPBC Act referral guidelines for the vulnerable koala (combined populations of Queensland, New South Wales and the Australian Capital Territory).

### 3.14.7 Glossy Black Cockatoo Habitat

Evidence of this species foraging was recorded along the northern boundary. Feeding had been quite heavy on *Allocasuarina torulosa* seed pods, and the area is used somewhat frequently by individuals from the local population. This species was recorded at all reference sites during surveys and heard from the Moonee Beach Nature reserve on several occasions during surveys. Two individuals were recorded on Lot 6 during surveys. The site provides a “mixed Bag” of habitat for the species, which is largely the result of slashing and clearing over time. Based on field evidence and historical photographs, the site would have been ideal habitat for the species. There is a clear need to provide mitigation for this species.

The proposal will retain over 70% of the original Glossy-Black Cockatoo found onsite and enhance 2.8ha of habitat by planting an additional 420 *Allocasuarina sp.* within the reserve areas. This is a net gain in habitat for this species on the site.

### 3.14.8 Squirrel Glider Habitat

Two individuals were recorded onsite in 2010 as indicated in the EA report. Local records show a patchy distribution along the Coffs coastal strip. Locally over 600 ha of similar forest is connected on the Eastern side of the Highway. The proposal will remove 4.9 ha of habitat or <1% of the potential local habitat, given that gliders cannot cross to the Western side of the Highway using one of the many crossing points. Nonetheless, considering that only 50% of the available 600ha is suitable habitat, the potential impact is <2% of available habitat.

Regardless, winter foraging resources on the site are lower than commonly recorded for the species. There is a lack of Ironbarks, swamp Mahogany and winter flowering shrubs.

### **3.14.9 Ecological Management Recommendations**

The following should be considered as the future ecological management actions for the site via a Vegetation Management Plan and carried over in to a Plan of Management once the land is dedicated as a Public Reserve:

- Placing of felled trees between areas of remnant bushland to provide runways of ground cover for the dispersion of animals;
- Supplementary planting of locally occurring native species (using local provenance) in landscape areas;
- Introduction of additional nest/roost boxes (>20) into the conservation area;
- Development of a clearing management plan by an experienced ecologist;
- Development of a restoration plan by a suitably qualified ecologist;
- Development of a best-practice erosion and sediment control plan.
- Provide appropriate stormwater and nutrient control systems designed to reduce the effects of runoff and ensure water flowing from the site does not enter Moonee Creek directly and when it does get there it is of a suitable “best practice” quality.
- The construction site should be managed to ensure that there is no accidental incursions into wetlands or any other areas which are not subject to the proposal.
- Any landscaping associated with the proposal including street trees, should comprise endemic native plants and where possible these should be sourced from local seed stock to ensure that genetic viability is maintained.
- Suitable tree hollows removed should be re-erected to retained forests on site. Nest boxes should be installed to mitigate loss of hollows which are unable to be re-erected. Hollows which cannot be re-erected should be placed on ground within retained forest.
- Glossy Black Cockatoo and Squirrel glider feed tree species should be planted within the buffer area and as street trees.
- Dogs and cats should be prohibited and swimming pools should have koala rescue ropes;
- Max. speed limit of 20km should be established within parts of the estate closest to the vegetated buffer areas for safe koala movement;
- Vegetation being retained on the site should be effectively managed to enhance and maintain the ecological integrity of area.
- Regeneration plan of the site should include habitats for koala, squirrel glider, glossy-Black Cockatoos and Osprey;
- The approval and implementation of the restoration plan including a bond should be in place prior to the release of construction certificates;
- Reserve habitats be regenerated as per a detailed restoration plan specifically for Koala.

Management recommendations which are specific to the reserve area for incorporation in to a Vegetation Management Plan:

- Structures that are man-made “natural” structures, e.g. swales and detention basins must meet the like-for like test of the ecological communities being created;

- These structures should also be a shape that does not prevent movement of organisms through the corridor. Ideally, these structures will be linear running north-south allowing the creation of a continuous forested corridor.

Management recommendations specific to the reserve area and Buffers for Wetlands:

- The interface between the reserve area and estate (buffer zone of 4m) should include a mix of native shrubs that form a low vegetative barrier that discourages unlawful access through the reserve. This in conjunction with post and rail fencing will improve the integrity of the wetland core.
- No storm water or landfall (diffuse) flow should pass from the site across this boundary to the Moonee Creek system. To prevent this on the eastern edge of the perimeter road a higher swale will direct flow into the storm water system away from the edge.
- There will be no “garden” edge to the boundary and this area can only be maintained by regenerators. Maintenance by mowing and slashing can only occur beyond the edge.
- Restoration design and regeneration program within reserve must include details of edge management and design, specifically targeting the minimization of movement across the barrier, including humans, nutrients, and water.
- Vegetation establishment within reserve must focus on limiting human access and providing fauna habitat as a priority, and not to provide visual amenity for residents which is viewed as an ancillary benefit.
- Once the rehabilitation is established it shall be managed by ongoing physical maintenance for a period of 5 years consistent with an approved restoration and management plan.

### 3.14.10 NSW Biodiversity Offsets Policy for Major Projects

After deliberation of OEH and DPE requests that an offset scheme be prepared in accordance with the *NSW Biodiversity Offsets Policy for Major Projects 2014* and the *Framework for Biodiversity Assessment 2014 (FBA)*, the applicant engaged GHD to investigate and prepare a biodiversity offsets strategy to support the revised RTS.

The assessor Daniel Williams (GHD, Assessor Accreditation No:082) consulted with OEH late 2016 where it was agreed the project was not required to complete a Biodiversity Assessment Report in accordance with the FBA as the PEA Report (2013) had adequately considered the site’s biodiversity values. DPE and OEH agreed that BOS be prepared, giving consideration to the requirements and application of the FBA in relation to biodiversity offsets, only (refer **Attachment I**). A summary of the strategy is provided in **Table 13**:

**Table 13 Ecosystem and species credits required.**

Ecosystem credits required			
Plant Community type		Area (ha)	Credits created
Blackbutt - Pink Bloodwood shrubby open forest of coastal lowlands of NSW North Coast Bioregion		6.23	291.00
Forest Red Gum - Swamp Box of Clarence Valley lowlands of NSW North Coast Bioregion		5.08	170.22
<b>Total</b>		<b>11.31</b>	<b>461</b>
Species credits required			
Common name	Scientific name	Extent of impact Ha or individuals	No. species credits created
Squirrel Glider	<i>Petaurus norfolcensis</i>	7.71	170

Accordingly, the applicant volunteers to enter into a Bio banking Agreement to retire these credits. Via condition of consent, these credits are to be secured and retired prior to the issue of a construction certificate.

### 3.15 Aboriginal Cultural Heritage

*Myall Coast Archaeological Surveys* (MCAS) were engaged in 2012 to assess the potential impacts of the proposed development on Aboriginal Cultural Heritage (refer **Attachment J**). The assessment was carried out in accordance with the Department of Environment and Conservation (DEC) *Interim Community Consultation Requirements for Applicants* (2005).

The site was first assessed in 2006 in relation to a DA for subdivision. The Coffs Harbour Aboriginal Land Council undertook the initial assessment and found the site is disturbed and whilst it may be possible for artefactual evidence to randomly occur within the study area, such evidence would have lost any contextual integrity. Their observations in 2006 did not reveal evidence.

#### 3.15.1 Predictive Modelling of Landscape

The 2012 assessment undertook a landscaped approach to determine any potential Aboriginal archaeological evidence, rather than only attempting to identify individual sites across the study area. This required the identification of the range of landscape units likely to contain Aboriginal archaeological evidence. This ensures that the landscape context is assessed for significance and a predictive model of Aboriginal occupation of the study area is determined.

Aboriginal Heritage is centred on Moonee Creek, its tributaries particularly the confluence with Skinners Creek and Yellow Waterholes. Moonee Beach and the coastline was also a favoured area. The study area is but part of the wider landform centred on Moonee Beach and Yellow Waterholes; a substantial occupation area for Aboriginal people. Whilst all landscapes are of significance to Aboriginal people, there are no areas of archaeological or cultural significance within the study area.

#### 3.15.2 Predictive Modelling of Artifacts

The predictive model to identify site type, location and density of isolated stone artefacts, stone artefact scatters, scarred trees and middens, indicates two areas of the site have potential for having archaeological evidence as indicated in **Figure 25**.

#### 3.15.3 Site Inspection

A site inspection was undertaken on 30 November 2012 by MCAS in conjunction with Mr Ian Brown, Mr Mark Flanders and Mr Josh Anderson from LALC, Mr EJ Williams representing Yarra group and Mr Cecil Laurie from the Garby Elders.

As the proposed development footprint is over 2 distinct landform units, estuarine flat and small rise, the development footprint was broken into 2 survey units - *Unit 1 Rise and Unit 2 Estuarine flat*. Each unit was considered separately (refer **Figure 26**).

Only Unit 1 contained an artefact scatter of interest. The individual artefact consisted of a red silcrete flake, a greywacke flake, a baked greywacke flake and a white quartz core. The red silcrete flake was only 3m distant from the others which were in close proximity to one another. The finds were in a gravel driveway. The site had been levelled and appeared to have been used in the past as a log dump for timber getting. The artefacts were located within in a very disturbed context. There was very little topsoil, if any at all and the underlying soil composition appeared to be bedrock.

As the artefacts were in a spread gravel, it is likely that the artefacts were imported with the gravel. One of the members from the CHLALC who inspected the area in 2006 remembers examining the Unit 1 area carefully and is confident the artefacts were not there then and the



Figure 25 Predictive model of archaeological sensitivity of site

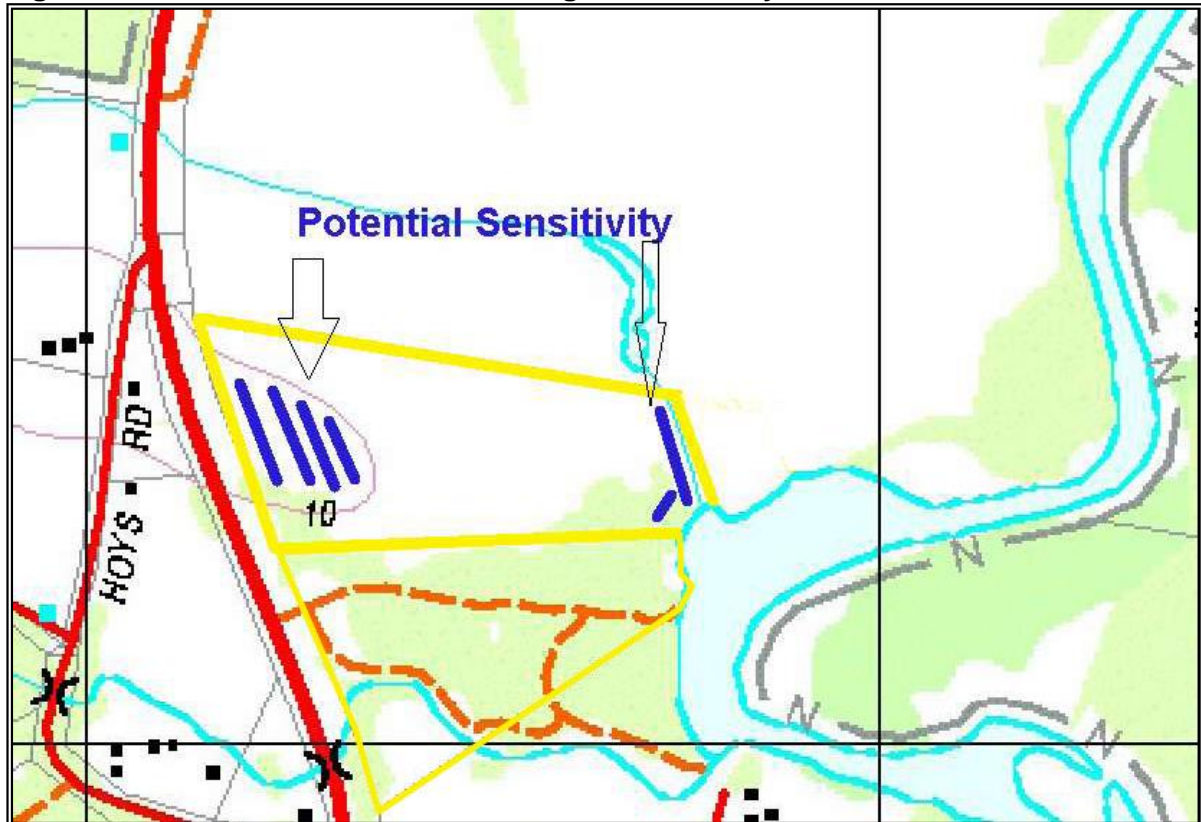
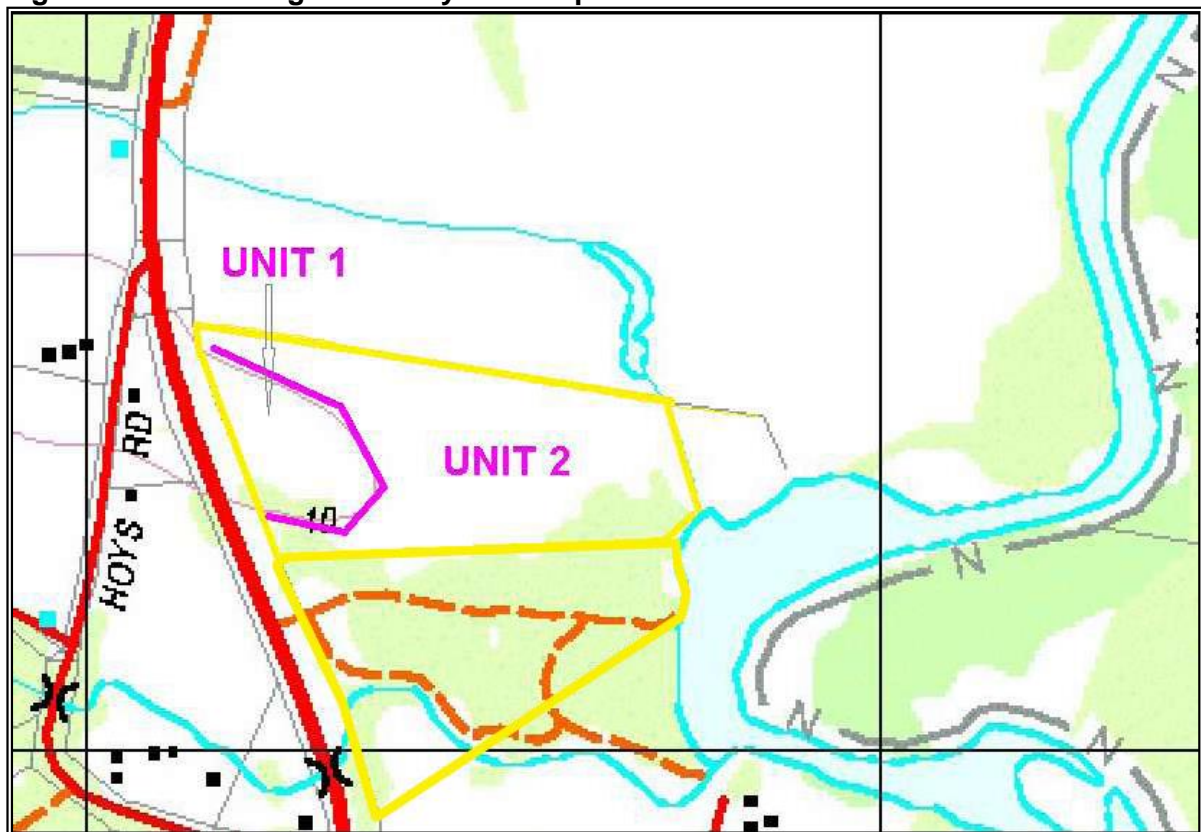


Figure 26 Archaeological survey landscape units



land has not changed since (See 2006 CHLALC report Appendix B). The landowner advises the road was re-sheeted with gravel a few years ago from a quarry on Bucca Road 2km west. An examination of that quarry indicates that it overlooks the headwaters of Skinners Creek and the landform indicates probable extensive Aboriginal Occupation.

Previous archaeological reports and the landform tend to indicate Aboriginal use of the area and it was expected that artefacts would be found. A very thorough search of the unit was undertaken and no other artefacts were identified. There is no evidence of any form of gravel or stones within the unit except for the driveway and immediate surrounds.

The knowledge holders present did not attribute any special significance to the artefacts as they were neither unusual nor rare. They were also poor examples of Aboriginal Objects.

Unit 2 consists of the area east of the driveway towards the river. Whilst not part of the proposal, it is considered a potential archaeological deposit. However, it was not inspected and could not be conclusively determined as such. The area is a conservation area not subject to development, and as such, investigation is neither warranted nor necessary.

#### **3.15.4 Aboriginal Community Consultation**

In accordance with OEH requirements, Aboriginal community consultation was undertaken to advise, consult and oversee the Aboriginal Cultural Heritage Assessment for the project.

- An advertisement was placed in the Coffs Coast Independent on 24/5/2012.
- Letters written to Aboriginal people and organisations identified through agency response seeking an expression of interest in the project.
- Coffs Harbour LALC responded and was registered as a stakeholder for the project.
- Several further attempts were made to obtain additional stakeholders but no response received. This was probably because the area in question was not necessarily an area of interest and perhaps more importantly, a good relationship exists between the various family groupings and LALC and the families are content for the LALC to manage the cultural heritage matters.
- Initial meeting held with LALC to explain the project and seek information about the area. It was revealed at that meeting that an inspection had been undertaken some years ago and it was considered disturbed land.
- Visual inspection of the study area was conducted with representatives of the land council and other community representatives Draft report forwarded to LALC for comment and feedback on 1/2/2013
- Cultural report received from stakeholders

The consultation process provided confirmation that the proposal, implemented in accordance with the recommendations, will not impact on the Aboriginal Cultural Heritage values of the area.

#### **3.15.5 Proposed Management of Artifacts**

There is no need for any offsets as the only Aboriginal Objects that will be impacted directly or indirectly by the proposal will be subject to a management plan that either leaves them in situ or relocates them to an area on site that will not be impacted by the proposal.

All known areas, objects and features of value to the Aboriginal community are outside footprint of the proposed development.

## 4.0 FINAL STATEMENT OF COMMITMENTS

A revised and final Statement of Commitments (SoC) is provided in **Table 14**. The revised SoC has been compiled based on the environmental assessment undertaken in the preparation of the EA and following review and consideration of issues raised in agency and community submissions following public exhibition of the Concept Plan and PPR (revised RTS). This includes:

- consultation with Council, OEH and MPA in February 2015 as part of the adequacy assessment of PPR by DPE in their letter to the applicant on 27<sup>th</sup> January 2015; and
- consultation during 2016 with OEH and DPI Fisheries concerning offsets and Aboriginal cultural heritage and buffer distances from the Highest Astronomical Tide.

In light of the issues raised in Section 1.8 above, OEH's comments to DPE on Aboriginal Cultural Heritage (made 1<sup>st</sup> August 2013) on the EA report, have been brought across into **Table 14**. These commitments must be undertaken prior to commencing any ground disturbance or development works subject to the development. This clearly indicates they are matters to be addressed prior to the issue of a construction certificate.

The Final Statement of Commitments has greater emphasis on implementation issues concerning the management and eventual dedication of the buffer to Council, and legal access over this land by the owner of existing Lot 2.

In its letter of advice of 15<sup>th</sup> December 2015, the Department requested clarification on the timing for the satisfaction/implementation of SOC 9 concerning *VMP - Revegetate buffer and transfer to Council*. The timing for the commencement and completion of the revegetation of the buffer is subject to the issue of the first construction certificate and prior to the dedication of Lot 104 to council. These matters are future issues that cannot be locked in but can only be subject to procedural requirements and hence SoC 9 is appropriate and effective.

**Table 14 Final Statement of Commitments**

Item	Commitment	Responsibility	Timing
<b>1. Scope of Development</b>	<p>Development will be carried out in accordance with plans and documentation mentioned below, except where amended by Dept. of Planning &amp; Environment's conditions of approval:</p> <ul style="list-style-type: none"> <li>• Environmental Assessment report prepared by JW Planning (July 2013); and</li> <li>• revised Response to Submissions prepared by JW Planning (May 2017) and Final Statement of Commitments.</li> <li>• Should Council plans and policies conflict or be inconsistent with the above mentioned plans and documentation, then the latter shall prevail to the extent of the inconsistency.</li> </ul>	Applicant	Ongoing.
<b>2. Purpose of development</b>	To create 103 lot residential subdivision under Torrens title and supporting public roads and buffer to Moonee Creek. Each lot has been designed to accommodate detached dwellings only.	Applicant	Ongoing
<b>3. Staging</b>	Indicative staging of proposed subdivision provided in <b>Figure 6A-C</b> . This does not prevent staging of the development to change subject to the performance requirements in this Statement.	Applicant	As required.
<b>4. Statutory Requirements</b>	<p>All necessary licences, permits and approvals will be obtained once project approval is granted and maintained for the development, including:</p> <ul style="list-style-type: none"> <li>• Construction Certificates for engineering works (including earth works, soil and water management, road works, drainage, landscaping) for each stage of the subdivision;</li> <li>• Subdivision Certificates for each stage of the subdivision;</li> <li>• Section 138 Consent for road works (Roads Act 1993);</li> <li>• Electricity Compliance certificate from Country Energy;</li> <li>• Telstra Compliance Certificate; and</li> <li>• Water Compliance Certificate from Coffs Harbour City Council.</li> </ul>	Applicant	For duration of construction of subdivision.
<b>5. Section 88B Restrictive Covenants – bushfire protection</b>	<p>Covenants under Section 88B of Conveyancing Act 1919 will be prepared and apply to:</p> <ul style="list-style-type: none"> <li>• Lots 800m or more in size to limit these lots to one detached dwelling only for the reasons being that the relevant lots are of sufficient width to accommodate only 1 detached dwelling.</li> <li>• Lots 1 to 19 and 86 to 103 (excluding Lot 102) for the purposes of creating a 10m APZ placed at the rear of these lots for the purposes of bushfire protection.</li> <li>• Lots 1, 75 to 82 &amp; Lot 86 and to Lot 104 for purposes of creating a 27m APZ for bush fire protection and within which the coastal walk in Lot 104 will be located.</li> </ul>	Applicant	Prior to subdivision certificates for each relevant stage.



Item	Commitment	Responsibility	Timing
<b>6. Section 88B Covenants – ecological impact mitigation</b>	Covenants under Section 88B of Conveyancing Act 1919 will be prepared and apply to all 103 lots prohibiting resident owners and occupiers of each lot from having dogs or cats and requiring all swimming pools to have koala rescue ropes installed.	Applicant	Linen plan
<b>7. Construction Certificate</b>	<p>The construction certificate is to address the following issues:</p> <ul style="list-style-type: none"> <li>• Clearing protocols etc. as detailed in <i>Section 7.2 Proposed General Management Recommendations of the Ecological Assessment Lot 1 DP 1097743 Pacific Highway Moonee Beach, NSW</i> August 2015 by PEA Consulting;</li> <li>• description of the work program outlining timeframes for relevant activities;</li> <li>• traffic management;</li> <li>• description of roles and responsibilities for relevant employees involved in construction;</li> <li>• minimisation of rubbish and debris at site from development activities during construction;</li> <li>• erosion and sediment control during construction;</li> <li>• details of environmental management procedures, monitoring and reporting requirements during construction and operation phase;</li> <li>• details of statutory and other obligations that must be met during construction and operation, including all approvals and agreements required from authorities and other stakeholders; and</li> <li>• an education strategy of construction contractors;</li> <li>• Vegetation management plan for Lot 104 – refer to SoC No. 9 and 10.</li> </ul>	Applicant	Prior to issue of CC
<b>8. Hours of construction</b>	Construction work will be between 7.00am to 6.00pm Monday to Fridays & 7.00am to 4.00pm on Saturdays. No construction to take place on Sundays or public holidays unless approval obtained from relevant authority.	Applicant & contractors	For duration of construction

Item	Commitment	Responsibility	Timing
9. VMP - Revegetate buffer and transfer to Council	<ul style="list-style-type: none"> <li>The approval of a Vegetation Management Plan to manage both the clearing of the site and the revegetation of the buffer will be in place prior to release of <u>the first</u> construction certificate.</li> <li>Applicant will revegetate Moonee Creek buffer (Lot 104) identified in <b>Figure 5</b> Proposed Plan of Subdivision and in <b>Figure 12</b> Landscape Plan via a Vegetation Management Plan.</li> <li>The Applicant will commence revegetating the buffer upon the issue of the first construction certificate and complete the revegetation works prior to dedication of the Lot 104;</li> <li>Dedication of Lot 104 to Council, at no cost to Council, as public land (as per Moonee Beach DCP 2004 - refer <b>Figure 27</b>) will take place upon registration of the subdivision plan for first stage or entire subdivision - whichever comes first. Lot 104 will be maintained by Applicant for five [5] years after dedication after which all maintenance will become Council responsibility.</li> </ul>	Applicant	Maintenance of Lot 104 will transfer to Council 2 years after dedication of Lot 104 to Council.
10. Ecological impact mitigation – Moonee Creek Buffer	<p><b>Proposed General Management Recommendations</b></p> <p>A Vegetation Management Plan will be developed by an experienced ecologist. The VMP will detail:</p> <ul style="list-style-type: none"> <li>how to remove remnant vegetation within the development footprint;</li> <li>All <i>Melaleuca styphelioides</i> trees to be checked for Spider orchid prior to clearing &amp; individuals transplanted as required.</li> <li>Removal (prior to clearing) and provision of hollow resources and their design, location, management, maintenance and monitoring</li> <li>Suitable tree hollows removed within development footprint will be re-erected within the buffer. Hollows which cannot be re-erected will be placed on ground within buffer</li> <li>Nest boxes will be installed in the buffer to mitigate loss of hollows at a ratio of 3 to 1;</li> <li>Felled trees will be placed in buffer to provide ground cover for dispersion of animals;</li> </ul>	Applicant	Prior to issue of CC
	<p>the rehabilitation of the buffer to Moonee Creek;</p> <ul style="list-style-type: none"> <li>the use endemic native plants sourced from local seed stock to maintain genetic viability.</li> <li>Regeneration of buffer to include habitats for koala, squirrel glider, glossy-Black Cockatoos;</li> <li>Glossy Black Cockatoo and Squirrel glider feed tree species will be planted within buffer and as street trees where indicated in landscape plan.</li> <li>installation of gates and fences &amp; bollards where access not desired e.g. along Lot 104 boundaries;</li> <li>installation of temporary fencing to minimise disturbance to this area during construction;</li> </ul>	Applicant	Prior to the release of construction certificate for Stage 1

Item	Commitment	Responsibility	Timing
	<ul style="list-style-type: none"> <li>• plant rehabilitation and weed suppression to begin as soon as fencing is in place;</li> <li>• removal of any unnecessary existing fencing that may hinder plant rehabilitation; and</li> <li>• Efficiency of bush regeneration to be monitored and if necessary, chicken wire to be placed on fencing to stop grazing by swamp wallabies.</li> <li>• Provide appropriate stormwater and nutrient control systems designed to reduce runoff effects and ensure water flowing from site does not directly enter Moonee Creek and when it does get there it is of a “best practice” quality.</li> <li>• Buffer will be temporarily fenced off and construction site will be managed to ensure no accidental incursions into buffer.</li> <li>• To provide habitat for terrestrial fauna.</li> </ul> <p>The approval and implementation of the VMP will be in place prior to release of CCs.</p> <p><b>Management recommendations specific to the Moonee Creek buffer as per the DCP:</b></p> <ul style="list-style-type: none"> <li>a) All physical structures that can be removed will be relocated from the buffer;</li> <li>b) Structures that are man-made “natural” structures, e.g. swales and detention basins must meet the like-for like test of the ecological communities being created;</li> </ul> <p><b>Management recommendations specific to the buffer</b></p> <ul style="list-style-type: none"> <li>a) Edge of buffer including coastal walk will be identified by post and rail fence that limits access into buffer;</li> <li>b) No storm water flow will pass into the buffer from the residential subdivision.</li> <li>c) There will be no “garden” edge to the boundary and this area can only be maintained by regenerators</li> <li>d) Maintenance by mowing and slashing can only occur beyond the edge.</li> <li>e) Design and regeneration of the buffer will include details of edge management and design, specifically targeting the minimization of movement across the barrier, including humans, nutrients, and water;</li> <li>f) Vegetation establishment within the reserve must focus on limiting human access and providing fauna habitat as a priority;</li> <li>g) Once rehabilitation is established it shall be managed by ongoing physical maintenance for a period of 2 years consistent with an approved Vegetation Management Plan.</li> </ul>		
<b>10. Water Mgmt. - impact on Bucca &amp;</b>	Applicant will implement the stormwater management plan including sediment and erosion control plan as per that prepared Martens and Associates in <b>Attachment D</b> .	Applicant	Prior to CC

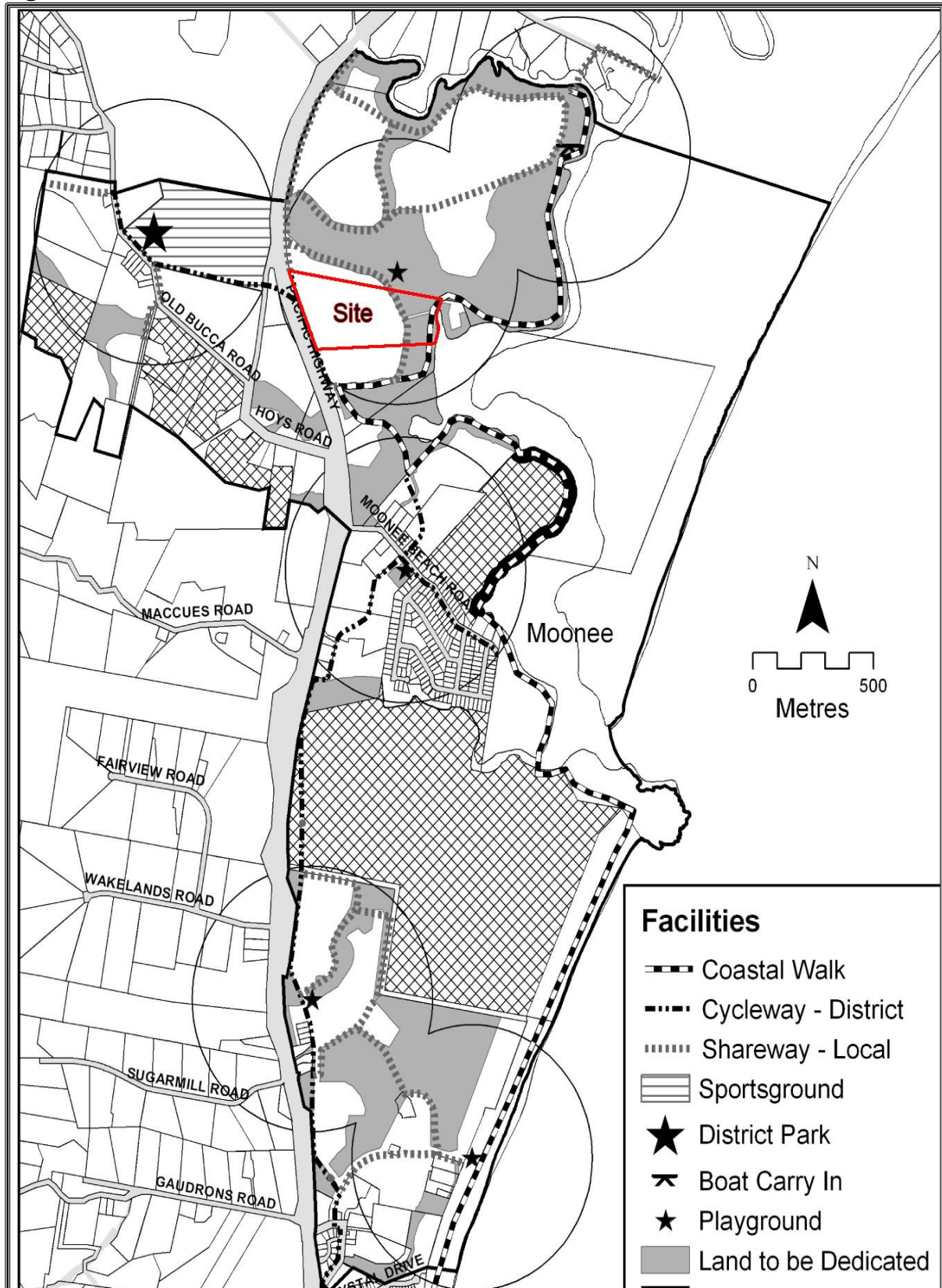
Item	Commitment	Responsibility	Timing
Moonee Creek	Applicant will line bioremediation basin to prevent exfiltration to and infiltration from ground water	Applicant	Construct basin
12. Erosion & Sediment Control	Erosion and sediment control measures shall be implemented in accordance with that prepared by Civiltech Sheet Drawing 1277 DR7 2014 and <i>Managing Urban Stormwater: Soils and Construction</i> (Landcom, 2004) (Blue Book).	Applicant	Prior to & ongoing during construction
13. Collector Road	Applicant will assist Rothwell Boys as per their deed of agreement to construct the collector road through the site prior to release of the construction certificate for Stage 1 of the development. The Applicant will facilitate the completion of the construction of the northern collector road	Applicant	Prior to release of CC Stage 1
14. Road construction design	The proposed internal streets shall be constructed and dedicated for the full frontage of all lots in the development. The construction details of the internal roads will generally be in accordance with the 'Road Design and Access Control' measures in the Coffs Harbour C Subdivision DCP.	Applicant	Prior to release of CC for each stage
	The redesign and reconstruction of driveway crossing of Bucca Creek shall be in accordance with Section 4.2 of Policy & Guide lines for Aquatic Habitat Mgmt. & Fish Conservation	Applicant	Detailed in CC
15. Noise	A restriction shall be placed on title of affected lots via an Section 88B instrument under the Conveyancing Act 1919 requiring the design of dwellings on these lots that the following LAeq levels are not exceeded: <ul style="list-style-type: none"> <li>in any bedroom in the building—35 dB(A) at any time between 10 pm and 7 am;</li> <li>anywhere else in the building (except garage, kitchen, bathroom, hallway) — 40 dB(A) at any time.</li> </ul>	Applicant	Subd. Certs. for each stage in "yellow mitigation zone.
16. Infrastructure Provision	Subject to approval of construction certificate and construction of collector road from Lot 1 DP 725785 through site and Lots 5 DP 252223 and Lot 6 DP 1140702 (DP 252223), the following will be provided: <ul style="list-style-type: none"> <li>underground electricity reticulation to each lot as per relevant standards of electricity authority;</li> <li>reticulated water supply to each residential lot in accordance with relevant Council standards;</li> <li>reticulated sewer system to each residential lot in accordance with relevant Council standards; and</li> <li>satisfactory arrangements will be made with the relevant telecommunications service provider for the provision of fibre optic cable to each residential lot.</li> </ul>	Applicant	Prior to release of Subdivision Certificates for the respective stages of the subdivision.
17. Aboriginal Cultural Heritage	<ul style="list-style-type: none"> <li>The Applicant will consult with and involve registered local Aboriginal representatives for the development, in the ongoing management of the site's Aboriginal cultural heritage values.</li> <li>A locked and secure temporary storage facility will be provided on site for the temporary storage of artefacts collected from the site. A timeframe for temporary storage of artefacts will be provided and a program developed in consultation with the local Aboriginal community for the long term care and control of all Aboriginal Cultural material collected.</li> <li>The applicant will prepare an Aboriginal Cultural Heritage Management Plan (ACHMP). The ACHMP will detail procedures for managing Aboriginal cultural heritage values associated with the site and be implemented in consultation with registered Aboriginal parties. It will detail:</li> </ul>		



Item	Commitment	Responsibility	Timing
	<ul style="list-style-type: none"> <li>the involvement and responsibilities of the Aboriginal stakeholders in the implementation of all cultural heritage management actions;</li> <li>the responsibilities of all other stakeholders;</li> <li>mitigation and management strategies (including monitoring program, further investigations, etc.);</li> <li>procedures for identification and management of previously unrecorded sites (including human remains);</li> <li>an appropriate keeping place agreement with local Aboriginal community representatives for any Aboriginal objects salvaged through the development process;</li> <li>details of an Aboriginal cultural heritage induction program for all contractors and personnel associated with construction activities; and</li> <li>compliance procedures in the unlikely event that non-compliance with the plan is identified.</li> </ul> <p>This process must be undertaken prior to commencing any ground disturbance or development works subject to the development.</p> <ul style="list-style-type: none"> <li>If ground disturbance identifies a new Aboriginal object/s within the site, all works will halt in the immediate area to prevent further impacts to the object(s). A suitably qualified cultural heritage specialist and representatives of the local Aboriginal community will be contacted to determine the nature, extent, scale and significance of the finds. The site will be registered in the Aboriginal Heritage Information Management System (AHIMS) and the management outcome for the site included in the information provided to AHIMS. The applicant must consult with representatives of the local Aboriginal community, and the cultural specialist to develop and implement and appropriate management strategies for all objects/sites. Any management strategy development must also comply with the appropriate legislative provisions.</li> <li>If human remains are located in the event that surface disturbance occurs, all works must halt in the immediate area to prevent any further impacts to the remains. The NSW Police are to be contacted immediately. No action is to be undertaken until the NSW Police provide written notification to the proponent. If the skeletal remains are identified as being of ancestral Aboriginal origin, the Applicant will contact OEH on 131 555 and representatives of the local Aboriginal community. No works are to continue until OEH provides written notification to the applicant.</li> <li>An Aboriginal Cultural Heritage Education Induction Program will be developed in the Land Disturbance Protocol for induction of personnel and contractors involved in construction activities. Records are to be kept of which staff/contractors were inducted and when for duration of project. The program will be developed/implemented in collaboration with registered Aboriginal parties</li> </ul>	Applicant and contractors	Ongoing throughout earthworks and excavation.
<b>18. Geotechnical</b>	If required, further detailed geotechnical investigations, including ASS assessment in accordance with the procedure established in the ASS and Groundwater Management Plan prepared by Martens & Associates (August 2013), will be carried out to confirm site stability prior to the commencement of construction of future stages of the development.	Proponent	Prior to release of Construction Certificates for each Stage

Item	Commitment	Responsibility	Timing																																				
19. Section 94 Local Infrastructure Contributions	<p>Section 94 contributions will be paid to Council, at the rate current at the time of payment, towards the provision of the following public services or facilities:</p> <table border="1"> <thead> <tr> <th colspan="4">Moonee Section 94 Developer Contributions Plan 2014</th></tr> <tr> <th>Service/Facility</th><th>Per lot/dwell</th><th>No. of lots</th><th>\$</th></tr> </thead> <tbody> <tr> <td>Moonee Precinct - transport and traffic</td><td>\$6413.00</td><td>103</td><td>660,539</td></tr> <tr> <td colspan="4"><b>All precincts</b></td></tr> <tr> <td>Transport and traffic</td><td>\$1,818.58</td><td>103</td><td>187,313.74</td></tr> <tr> <td>Community facilities</td><td>\$1,007.08</td><td>103</td><td>103,729.24</td></tr> <tr> <td>District open Open space</td><td>\$2,092.07</td><td>103</td><td>215,483.21</td></tr> <tr> <td>Local open space Development Studies</td><td>\$12.75</td><td>103</td><td>1,313.25</td></tr> <tr> <td><b>Total</b></td><td><b>\$11,343.48</b></td><td><b>103</b></td><td><b>\$1,168,378.44</b></td></tr> </tbody> </table> <p>Note 1 – Contributions to be paid prior to release of a Subdivision Certificate unless other arrangements acceptable to Council are made.</p> <p>Note 2 – Rates will be adjusted in accordance with procedures set out in S94 Plan.</p> <p>Note 3 – If development is staged, contributions to be paid on pro rata basis for each stage.</p>	Moonee Section 94 Developer Contributions Plan 2014				Service/Facility	Per lot/dwell	No. of lots	\$	Moonee Precinct - transport and traffic	\$6413.00	103	660,539	<b>All precincts</b>				Transport and traffic	\$1,818.58	103	187,313.74	Community facilities	\$1,007.08	103	103,729.24	District open Open space	\$2,092.07	103	215,483.21	Local open space Development Studies	\$12.75	103	1,313.25	<b>Total</b>	<b>\$11,343.48</b>	<b>103</b>	<b>\$1,168,378.44</b>	Proponent	Prior to release of Subdivision certificates for each stage
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20. Earthworks	<ul style="list-style-type: none"> <li>proposed earthworks will be carried out in accordance with the Bulk Earth Works Plan, VMP and Stormwater Management Plan;</li> <li>prior to commencement of construction, a detailed erosion and sediment control plan (ESCP) will be prepared and all management measures in ESCP will be implemented and maintained prior to and during construction;</li> <li>any material, other than topsoil, to be cut from the zone 2 alluvial material in lower lying parts of the site will be tested and if necessary treated, given its potential for sulphidic acidification;</li> <li>if ASS are encountered this material will be handled in accordance with the ASS management plan. ;</li> <li>earthworks carried out under control of suitably qualified geotechnical engineer and certified to Level 1 construction monitoring and testing as per "AS 3798-1996 Guidelines for Earthworks for Commercial and Residential Developments";</li> <li>all disturbed areas will be stabilised upon completion of earthworks.</li> </ul>	Proponent	Prior to release of construction certificate for each stage of subdivision.																																				
21. Biodiversity offsetting strategy	<p>The applicant voluntarily offers, under <i>Section 127ZO Effect of issue of bio banking statement—development requiring development consent</i> of the <i>Threatened Species Conservation Act</i> and in accordance with the Biodiversity Offsetting Strategy prepared by GHD (<b>Attachment J</b>) to secure and retire:</p> <ul style="list-style-type: none"> <li><b>291 Blackbutt - Pink Bloodwood shrubby open forest of coastal lowlands of NSW North Coast Bioregion</b> ecosystem credits and <b>170 Forest Red Gum - Swamp Box of Clarence Valley lowlands of NSW North Coast Bioregion</b> ecosystem credits; and</li> <li><b>170 Squirrel Glider (<i>Petaurus norfolcensis</i>)</b> species credits.</li> </ul>	Applicant and OEH	Credits secured and retired prior to release of construction certificate.																																				

**Figure 27** Moonee Beach DCP 22/9/04 and buffer to be dedicated to council.



## 5.0 CONCLUSION

The applicant, Moonee Parklands Trust and its consultants, have reviewed and considered the Department's comments and submissions received on the EA Report and Response to Submissions. This revised Response to Submissions makes a number of amendments to the exhibited Concept Plan to address the potential environmental impacts identified in submissions.

Key changes to the exhibited Concept Plan that forms the proposed development include:

- Removal of Lot 6 and necessary adjustments to the proposed street network in Lot 1;
- Removal of infrastructure from the buffer to Moonee creek;
- Reducing the two detention basins to one and adjusting the finished levels of the subdivision to direct stormwater to the enlarged detention basin on the northern boundary of the site;
- Adjustments to the eastern most street block to improve the relationship of the proposed lots and future dwellings to the buffer and increasing casual surveillance of the buffer;
- A Biodiversity Offset Strategy that requires the applicant to secure and retire 461 ecosystem credits and 170 species credits.

The revised RTS and accompanying documentation supplements the Environmental Assessment Report and provides further assessment of the potential environmental impacts of the proposed residential subdivision. The revised RTS includes further detailed assessment of the following issues:

- flooding;
- stormwater and water quality;
- ecology;
- traffic; and
- noise.

In light of the further environmental assessment provided within the revised RTS, it is considered that the environmental impacts of the proposed residential subdivision can be appropriately managed and are acceptable. This further assessment has informed the revised project mitigation measures which should be incorporated in the development consent through the Final Statement of Commitments at **Section 4.0**.

The proposed development has significant economic, social and environmental benefits and the potential impacts can be effectively mitigated and/or managed through the Final Statement of Commitments and the Conditions of Approval.