MARSIM

Environmental Assessment

Bevian Road Concept Application

Major Project Part 3A Environmental Planning and Assessment Act

November 2007

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DIRECTOR GENERAL'S REQUIREMENTS

1.1. EXECUTIVE SUMMARY

1.1.1. THE SITE

The subject site is a former dairy farm of approximately 174 ha. It is located on Bevian Road, Rosedale approximately 16 km to the South of Batemans Bay and18km to the North of Moruya. The site has been earmarked as land suitable for the expansion of the existing coastal settlements in the area since 1987 when the Eurobodalla Rural LEP was gazetted; identifying the majority of the subject site as an Urban Expansion zone.

1.1.2. THE DEVELOPMENT

Concept Approval is sought for the subdivision of the site into 806 residential lots under the Community Land Development Act.

1.1.3. SUITABILITY OF THE SITE FOR THE DEVELOPMENT

Since the late 1980's, the strategic planning of both the Department of Planning and the Eurobodalla Council have earmarked the subject site for future residential development.

In 2006, the report of the Expert Panel on the Sensitive Urban Lands on the South Coast identified the subject site, amongst others, as suitable for residential development.

In early 2007, the new South Coast Strategy was released and identified the subject site as suitable for development. It also identified the need for an additional 10,700 new dwellings within the Eurobodalla Shire. This is also identified in the Eurobodalla Shire Settlement Strategy. The subject site will be able to supply approximately 7.5% of the total housing requirements within the Eurobodalla Shire over the next 25years**.**

All environmental and ecological issues associated with the site have been resolved. The site has access to water, electricity and a sewerage system. It also has access to nearby community services and facilities and the proposed development has been designed to be public transport ready.

In consideration of all the above, the subject site is considered to be suitable for residential development.

1.1.4. KEY ISSUES

- **IMPACT OF DEVELOPMENT ON BEVIAN WETLAND**

A core riparian zone of 40 metres will be applied to the Bevian Wetland with a further riparian buffer of 10 metres applied to this zone. Regeneration/restoration works will be undertaken within the Swamp Oak Floodplain Forest and River Flat Eucalypt Forest to enhance these endangered ecological communities in this area.

In addition, the Water Sensitive Urban Design Strategy incorporated into the proposed development will ensure that the balance between surface and subsurface flows will closely mimic existing conditions in terms of flows entering the Bevian Wetland. As a consequence, the runoff water quality will have pollutant loads up to 25% lower than existing conditions. As a result, it is unlikely that the development will substantially and adversely modify the composition of surrounding endangered ecological communities.

- **BEVIAN ROAD UPGRADE – IMPACT ON WETLAND**

Bevian Road adjoins the western boundary of the Bevian Wetland and forms part of the central road through the site. The road is currently unsealed and provides a source of potential sediments to the wetland during rainfall events.

The impact of the construction of the road on the Freshwater Wetlands on Coastal Floodplains adjacent to the road will be minimised by careful alignment of the road; minimising the road width and controlling sediments, vegetation removal and the release of contaminants. In addition, the Water Sensitive Urban Design Strategy incorporated into the

proposed development will provide a significant contribution to the long term improvement in receiving water quality flowing into the Bevian Wetland.

It is therefore considered that the upgrading of the Bevian Rd will be satisfactory in terms of its effect on water quality entering the Wetland and will not substantially or adversely modify the composition or extent of the Freshwater Wetlands on Coastal Floodplains immediately adjacent to the road.

- **RIPARIAN MANAGEMENT**

The width of the Core Riparian Zone is the land between the "top of bank" on either side of the drainage line and has been established by an on-site assessment with officers of the Department of Water and Energy. The Riparian Buffer Zone throughout the subject site has been determined on a case by case basis, in consultation with officers of the Department of Primary Industries and the Department of Natural Resources (now Department of Water and Energy (DWE)), to ensure an adequate buffer is provided along the entirety of each significant drainage line. Subsequently, the Department of Water and Energy has formally agreed with:

  - The Riparian Constraint Analysis prepared by Conacher Travers; specifically the mapping of Category 3 Watercourses across the site; and
  - The extent of Riparian Buffers to satisfy the objectives of Category 3 Watercourses in relation to the protection of water quality and bank stability.

Drainage Lines will be revegetated in order to maintain or improve the water quality entering the drainage lines and areas further down stream, which include Salt Water Creek ICOLL, Bevian Wetland and eventually the Bateman's Bay Marine Park (South Pacific Ocean).

- **INTERMITTENT CLOSING AND OPENING LAKE OR LAGOON (ICOLL)**

The Saltwater Creek ICOLL will be protected from the potential increases in stormwater runoff from the development by the revegetation of the riparian buffer zones of the incoming drainage line.

In addition, water sensitive urban design principles will be applied incorporating best practice stormwater management measures across the site. These design principles will maintain the water flows and improve the water quality entering the ICOLL.

- **WATER MANAGEMENT**

The proposed development incorporates a Water Sensitive Urban Design Strategy which will significantly reduce runoff pollutant loads below existing levels thereby ensuring no net increase in nutrient/pollutant loads entering watercourses. The use of best practice soil and water management strategies, in accord with the Managing Urban Stormwater guidelines, will ensure no net increase in runoff pollutant loads during construction. **The proposed treatment measures comprise approximately 6.4% of the total area to be developed. This excludes the use of rainwater tanks which will provide significant further benefits; particularly in terms of the reduction of potable water use.**

- **WATER QUALITY**

Stormwater

The subject development will not discharge any stormwater directly into the sea. The northern half of the site drains to the east into Salt Water Creek which discharges to the ocean across a sandy beach. The southern half of the site drains to Bevian Wetland.

The rehabilitation of the riparian corridors on the site would result in improved conditions for Salt Water Creek. The past clearing of vegetation on the site creeks and destabilisation of the creek banks by grazing animals would have increased the sediment discharge into Salt Water Creek thereby contributing to destabilising the creek. The proposed rehabilitation of the riparian corridors therefore would enhance the stability of Salt Water Creek.
The proposed water management strategy represents industry best practice and in terms of runoff quality and it exceeds current best practice in terms of volume control.

Batemans Bay Marine Park
The Bateman's Bay Marine Park encompasses the majority of the Eurobodalla Shire coastal zone. The maintenance or improvement of water quality within the subject site through a sophisticated stormwater treatment train will ensure that the water quality further down stream from sources leaving the subject site will also be maintained or improved. Consequently the marine park will not be detrimentally affected by the subject development.

- **VISUAL IMPACT OF THE DEVELOPMENT**

Visual Impact from locations within the site
Visual amenity of the development from within the site will be of the highest order and determined by the quality of the design of the public and the private domains as detailed by Urban Design Guidelines.

Visual Impact of the development from locations external to the site
The existing site is generally screened from George Bass Drive by significant and dense vegetation. The subject site will only be visible from limited locations external to the site. In all instances the views to the development will be distant and, given that the scale of the development on the site will be limited to 2 storeys, the visual impact of the development on the scenic qualities of the area will be minimal.

- **LOT SIZES**

Lot Sizes in Urban Expansion Zone
Lot sizes have been proposed ranging from 450 sqm to 1,600 sqm in the southern precinct; 450 sqm to 1750sqm in the central portion of the site; and 750 sqm to 8,550 sqm in the northern portion of the site. Although some lot sizes are smaller than those nominated in DCP 160, they are consistent with the recommendations of the Sensitive Urban Lands Review, the South Coast Regional Strategy and the Eurobodalla Settlement Strategy. In addition, the smaller lot sizes within the subject development are supported in principle by Council.

Lot Sizes in Rural 1(c) Zone
Twenty six (26) residential lots of between 558 sqm and 3,665 sqm are proposed which is considered to be appropriate and consistent with the principles and recommendations of the Expert Panel on Sensitive Urban Land and the objectives of the South Coast Regional Strategy. Of these lots only 5 lots are less than 750 sqm. Lot sizes along the western and southern boundaries (adjacent to the neighbouring land Zoned 1(c)) range between 1524sqm and 3655sqm.

An additional 18 lots are partly within the 1(c) land and partly in land zoned Urban Expansion. The average size of lots either wholly or partially within Rural 1(c) land is 1,580sqm. The average lot size of lots totally within the 1(c) zoned land is 1,642 sqm

The lot sizes are smaller than nominated in DCP 156 but are considered to be consistent with the principles of the Sensitive Urban Lands Review, the objectives of the South Coast Regional Strategy and are supported in principle by Council.

- **PROTECTION OF FLORA AND FAUNA**

No threatened fauna or flora species were recorded, under the provisions of the Environmental Protection and Biodiversity Act, within the subject site. One (1) preliminary listed endangered ecological community, Dry Rainforest of South East Forests, was recorded within the subject site and will be protected as part of the development of the site. However, five threatened species were recorded under the Threatened Species Conservation Act.

An assessment under Section 5(A) of the Environmental Planning & Assessment Act concludes that the proposed development will not cause a significant impact on threatened species, populations and endangered ecological communities.

- **ABORIGINAL ARCHAEOLOGY**

The proposed development has been designed to avoid the areas within which sites of significant archaeological potential are located. The development therefore does not have any impact on these items. The construction of access roads will necessitate the removal of a single lithic artefact of no heritage significance and the excavation of a minor portion of an area of low to moderate archaeological significance. Both works are considered acceptable by the Heritage consultant.

- **EUROPEAN HERITAGE**

There are no items of heritage significance, within the subject site, identified in the Eurobodalla LEP. Notwithstanding this, the former Rosedale Cheese Factory has been assessed as having heritage value w ithin a local context and is to be retained as part of the redevelopment of the site.

- **FLOODING**

The subject development has been designed such that it would not be adversely affected by the present highest predicted sea level rise within the next 100 years combined with a highly unlikely worst case influence of flood levels.

- **BUSHFIRE**

The subject development has satisfactorily addressed the requirements for managing bushfires; in particular the provision of adequate access for fighting bushfires, adequate asset protection and an adequate water supply to fight bushfires.

- **CONTAMINATION/ ACID SULPHATE POTENTIAL SOIL**

Contamination

Based on the site history review and inspection/field mapping, the overall potential for contamination at the subject site is considered to be low. There are isolated areas of environmental concern which, when remediated, will render the site suitable for residential development.

Acid Sulphate Potential Soil

Council's Map of Acid Sulphate Soil potential in the area notes that the majority of the subject site has no known occurrences of Acid Sulphate soil. However, the south-western portion of the site has been identified as having "low" potential for acid sulphate soil. Testing was undertaken in this area and no evidence of potential sulphate oxidation exists within the test site zones.

- **INFRASTRUCTURE AND SERVICES**

The subject site has adequate access to Sewerage Treatment, Water and Electricity. It also has access to public transport, community services and facilities including shopping, entertainment, doctors, dentists, hospitals schools and aged care facilities.

The site has been designed to be "public transport ready" by providing a built-in catchment of people within walking distance to potential bus stops within the site.

- **ROAD ACCESS**

Access is provided to the site by 2 roads. The southern access to the site is a Crown road, under care control and management of Eurobodalla Council, and the northern access is owned by Rosedale Farm Pty Ltd, the owner of the adjoining land. Council has agreed to the use and upgrade of the southern access road and negotiations are well advanced with Rosedale Farm Pty Ltd in relation to the use and upgrade of the northern access road.

Existing roads within the site are owned by the Eurobodalla Council and the Crown. As part of the development it is proposed to reconfigure the main road through the site.
Both bodies have been consulted in relation to the proposed development and have given their approval for the lodgement of the application. They have also agreed in principle to

closure of those portions roads that are not required in the development and sell and transfer them to the owner of the subject site.

Concern has been raised by a local community group about the appropriateness of the southern Bevian Road access. An alternative route to the east of the Bevian Wetland is suggested. The proposed route, along the existing Bevian Road alignment, is considered to be the more environmentally sensitive option as the alternative route would require::

- The clearing of a total of 1.16ha of endangered ecological communities (0.2ha Bangalow Sand Forest (EEC), 0.1ha Swamp Oak Open Forest (EEC), 0.05ha Swamp paperback Forest (EEC), 0.48ha Disturbed Swamp Oak Forest (EEC), 0.22ha Disturbed Red Gum Open Forest (EEC) 0.11ha Disturbed Swamp Paperbark Heath (EEC)
- The traversing of the road through extensive areas of regenerating endangered ecological communities; and
- The creation of a barrier to fauna movements accessing the wetland for water, foraging and breeding opportunities

Ecologist, Conacher Travers, conclude that the proposed access route, as detailed in the subject application, provides the most ecologically sustainable access option due to the demonstrably reduced impact on endangered ecological communities (i.e. those in good condition and the regenerating disturbed habitats).

- **TRAFFIC**

The proposed development will not significantly impact on the operation of the surrounding road network

- **NOISE**

The impact of road noise on the residents of the subject development has been assessed and, subject to the introduction of noise amelioration devices, it is considered that there will be minimal acoustic impact and that the level of road noise is satisfactory in maintaining residential amenity for the residents of the site.

Construction noise will be managed by a Construction Noise Management Plan which will promote the maintenance of the amenity of surrounding residents during the development of the site and will be addressed in the subsequent DA phase.

- **CONSULTATION**

Eurobodalla Shire Council

Council has reviewed the latest version of the plans of the development, as submitted to the Department of Planning, and has supported in principle the following aspects of the proposal:

- Higher lot yield;
- Smaller lot sizes than in DCP 160 and Rural DCP;
- Future rezoning of the subject site to a mixture of R5 Large lot Residential,, R2 Low Density Residential and R1 General Residential together with an E2 Conservation zone over environmentally sensitive areas ; such as the Wetland;
- The construction of an access road along the existing Bevian Road to the west of the wetland; and
- The deferral of the determination of s94 contributions until a subsequent stage of the development.

Council has also requested the incorporation of Dual Occupancy lots within the development. These have now been introduced into the development proposal.

Government Agencies

Consultation has been undertaken with all relevant government agencies as identified in the Director General's Requirements. There are no significant or unresolved issues arising from any of these consultations.

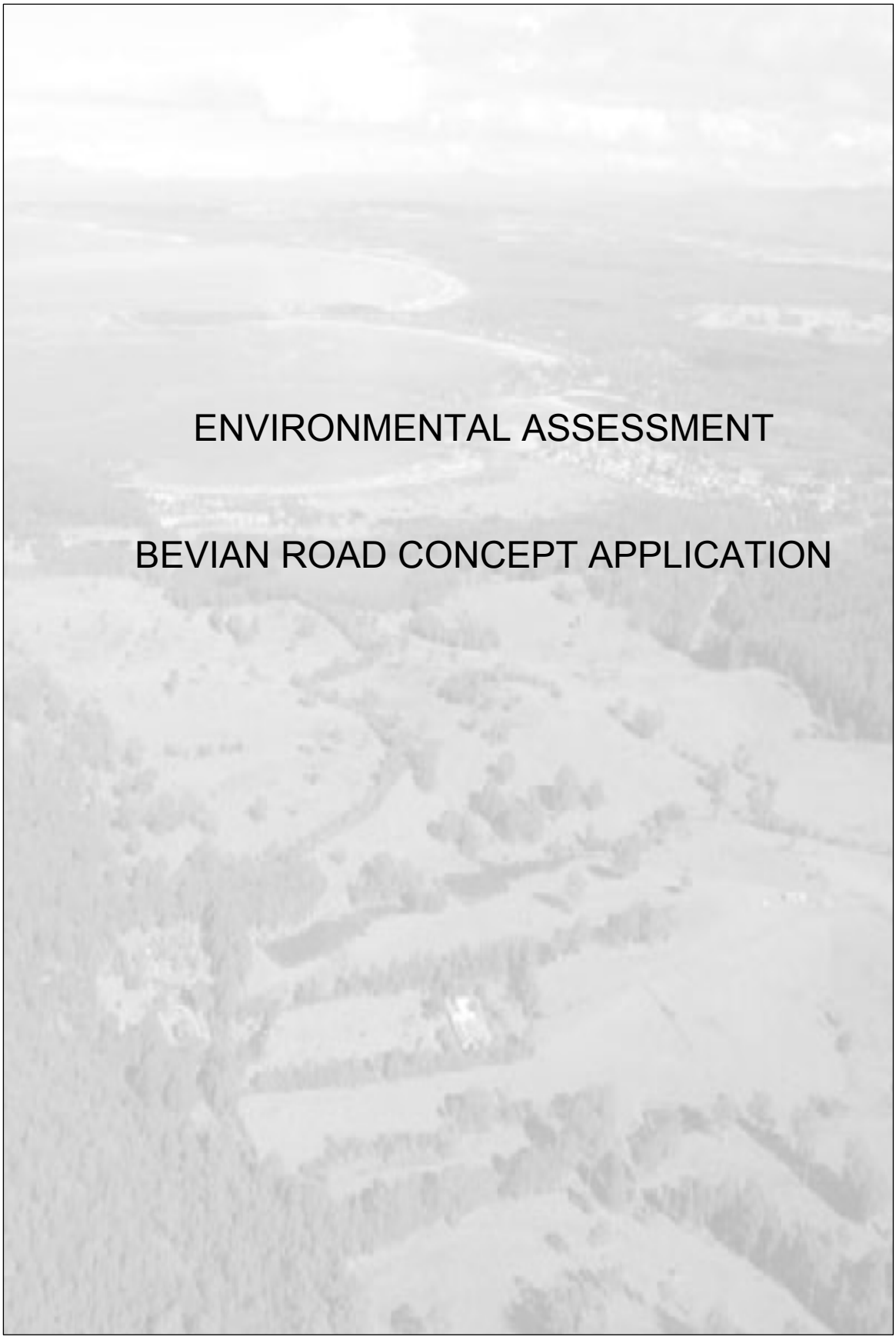
Aboriginal Community
The Mogo LALC, Yuin Elders Council and Djuwin Women's Lore Council – Cabowra LALC have been consulted in relation to the subject development. None have raised any objection

Local Community Consultation
Two Community Consultation meetings were convened on 30 March 2007 and 31 March 2007. The issues raised related to Traffic and Public Transport, Environmental and Social Aspects, Project Name, Sustainable Design & Hydrology. All these issues have been addressed as part of the Environmental Assessment. In relation to the opposition of the use of "Rosedale" as the project name, the owners of the site have agreed to find a suitable alternative project name. The current project name, for the purpose of this application is the "Bevian Road Concept Application".

1.1.5. CONCLUSION

The proposed subdivision of the subject site into 806 residential lots has comprehensively addressed all environmental and ecological issues, has the written support of Council and will provide approximately 7.5 % of the total demand for new housing over the next 25 years.

The development will set a high standard in terms of urban design, architecture and environmental sensitivity, is consistent with the State and Council Planning Instruments and will provide significant social and economic benefits. It is therefore considered that the proposed development is in the public interest and, as a consequence, should be approved



ENVIRONMENTAL ASSESSMENT

BEVIAN ROAD CONCEPT APPLICATION

1.2. Introduction

The subject site is 173.59ha in area and located at Rosedale in the Eurobodalla Shire. It is approximately 16km south of Bateman's Bay and 18km north of Moruya.

Marsim, trading as Nature Coast Developments Pty Ltd, is the owner of the site and wishes to subdivide the land for residential development.

The Director General of the Department of Planning, as delegate for the Minister, by letter dated 12 January 2006, formed a view that the proposed subdivision of Rosedale is a Project, as defined in s75A of the Environmental Planning and Assessment Act, and that Part 3A of the Act applies. As a consequence approval of the Minister has been sought for the development.

Under the provisions of Section 75E of the Act, an application for the project was lodged with the Director General. In November 2006 a Preliminary Assessment of the proposal for Concept Approval was submitted to the Department of Planning. Subsequently, on 28th December 2006, the Director General of the Department of Planning issued his Environmental Assessment requirements (**Attachment 17**).

This application provides an Environmental Assessment of the Concept Application for the residential subdivision of the site. It has been prepared by Kass-Hermes, planning consultants, on behalf of Marsim.

1.3. Background

The subject site is a former dairy farm of approximately 174 ha. It is largely cleared and has been earmarked as land suitable for the expansion of the existing coastal settlements in the area since 1987 when the Eurobodalla Rural LEP was gazetted; identifying the majority of the site at Rosedale as an urban expansion zone. At the same time Council resolved to prepare a site specific DCP for the Rosedale urban expansion areas; of which the Bevian Road site forms a part.

1.3.1. Previous Masterplan Application

In 2002, a Masterplan Application (MP 4-12-2002) was submitted to the Department of Planning for the subdivision of the site. In 2005, the Department raised a number of issues with the proposal and on that basis could not support its approval in its then current form. The key issues raised by the Department have now been resolved. These issues are reproduced below and the manner in which they have been resolved is summarised:

(i) Poor Integration with the Strategic Context;

"Development in the vicinity of the site is generally on the ocean side of George Bass Drive, apart from rural and small semi-rural holdings. The nearest hamlets of Rosedale and Guerilla Bay are east of George Bass Drive and the proposal does not represent a logical expansion of these hamlets nor does it connect well with either of them. With 850 dwellings and probably close to 2000 people, the proposal represents the development of a new coastal village, larger than any in the immediate vicinity, with resulting social infrastructure and other needs.

The NSW Coastal Design Guidelines state that a new settlement such as proposed, should not occur outside the strategic framework articulated by a broader settlement strategy."

Comment:

Since the assessment of the previous development proposal in 2005, the Minister for Planning established an Expert Panel to review Sensitive Urban Lands on the South Coast and their suitability for development. The panel recommended that the subject site is suitable for development (**Section 1.6.5.1**). Subsequently, the Department of Planning published a new Regional Strategy for the South Coast and the Eurobodalla Council adopted a Settlement Strategy for the Shire. Both of these documents acknowledged and adopted the recommendations of the Expert Panel in relation to the appropriateness of the subject site for urban development (**Sections 1.6.4.1 and 1.6.4.2**).

(ii) Non-Compliance with Coastal Design Guidelines;

"The Coastal Design Guidelines sets out a number of principles where the proposal falls short, these are outlined below:

- *New settlements are to be determined through the process of a settlement strategy and should be consistent with regional and state plans*
- *Provision of a range of open space areas, from playing fields to parks and walking connections;*
- *Settlement to be easily navigable and logical in terms of access; and,*
- *Edge streets fronting reserves to define boundary of settlement and also providing asset protection zones for bushfire protection."*

Comment:

The proposed development is now consistent with the Coastal Design Guidelines (**Section 1.6.4.3**) South Coast Regional Strategy (**Section 1.6.4.1**), and the Eurobodalla Settlement Strategy (**Section 1.6.4.2**). In addition, the proposal provides an open space network which is readily accessible to residents and visitors and is integrated with the pedestrian network through the site (see **Urban Design Guidelines Attachment 16**). Asset Protection Zones have been designed in accordance with the Bushfire Protection Assessment undertaken by Conacher Travers (**Section 8.1**)

(iii) Poor Structure and Urban Design

"The objectives of the Urban Expansion Zone (which the bulk of the site is zoned) states that urban development will not necessarily proceed over all of the land. Development outlined in

the draft Master Plan is virtually continuous over the entire site. Furthermore, Council's DCP for the site shows significant areas where no development should occur, such as through the centre of the site and in the north-west corner. The DCP would appear to be a more clear expression of the objectives of the Urban Expansion zone";

Comment:

The subject development differs significantly from the previous scheme particularly in terms of its distribution of housing densities (with low densities in the northern portion of the site increasing to higher densities in the south) and distribution & allocation of open space. In this regard, the issues raised with the previous proposal are considered to be satisfactorily addressed.

(iv) Inadequate arrangements for access given the scale of the development;

"The proposed southern access arrangement is unsatisfactory and has been put together as secondary solution due to the absence of owners consent to the access illustrated in the originally submitted draft Master Plan";

Comment:

The site has two access points to George Bass Drive from the Bevian Road which traverses the site. The southern portion of the Bevian Road accessing the site is a Crown road under the care control and management of the Eurobodalla Council, and the northern portion of the road is owned by Rosedale Farm Pty Ltd, the owners of the adjoining site. Council has agreed to the use and upgrade of its portion of the Bevian Road for access to the subject site. Negotiations are well advanced with Rosedale Farm Pty Ltd in terms of the use and upgrade of the northern portion of the Bevian Rd to access the subject site.

(v) Non-compliance with Fire Safety Requirements;

"The draft Master Plan proposes extensive use of dead end streets or cul de sacs, with many being in-excess of 200 metres in length. And at times, a convoluted road system with many loop roads, often off a loop road and a road hierarchy that is not readily identifiable or legible, apart from the main collector road running through the development. Large areas of open space to the rear of development, often vegetated gullies with poor road access. In combination, these factors result in a proposal that does not appear to satisfy the intent and often the specifics of fire safety requirements".

Comment:

The current proposal has deleted all the cul-de-sacs, rationalised the road network in a more legible manner and integrated it with the open space and pedestrian network. The road network has also been designed to be able to comply with Rural Fire Service Requirements (**Table 10**).

(vi) Loss of Spotted Gum Forest and Inadequate Assessment of Impacts;

"The loss and/or degradation of the area of Spotted Gum Forest in the north east corner of the site is not justified, with its resulting loss of habitat for two identified threatened species and resulting negative visual and aesthetic impacts";

Comment:

The spotted Gum Forest is to be retained.

(vii) Inadequate Setback from Sewerage Treatment Plant (STP)

"The proximity of proposed development to the STP is not justified and a more generous setback should be achieved in this vicinity. This would satisfy the DCP requirements, remove any need for remedial works to the STP and provide additional land for environmental management and conservation."

Comment:

The proposed development has been set back from the Sewerage Treatment Plant by 400m in accordance with the recommendations of Council and the Department of Planning.

(viii) Visual Impacts and Character of the Development;

"The visual impact assessment for the proposal acknowledges that the development will be visually in contrast to the surrounding character when viewed from a distance, from Broulee Headland specifically. However, this is considered an acceptable and short term impact by the assessment document. The impacts will be longer than 'short term' and the contrast will be marked. The loss of existing vegetation in the north eastern part of the site will also

contribute to this change in character. The presence of more than 30 lots with an area of 1000m2 or less (some with as little as 600m2) in the character zone known as "the farm" and having a 'rural' character is at odds with this theme and will be visually out of character (note: this is excluding the 'transition' area which also has small lots). The closeness of the development, the repetition of built forms, roads cutting across contours and the presence of an area of integrated housing will ensure that this area does not have a rural or semi-rural character."

Comment:

- Visual Impact

  The visual impact of the current development from sites external to the site will be minimal. There are 4 locations, external from the site, from which future built form is visible on the land within the site. These locations are:

  - George Bass Drive , adjacent to the Sewerage Treatment Plant at the south-eastern portion of the subject site;
  - From George Bass Drive looking across Wetland
  - Melville Point lookout at Tomakin
  - Barlings Beach, Redhill Parade Carpark

The scale of the proposed development will be low scale and restricted to 2 storeys and the no development will be placed on the Knoll, the most predominant visual element on the site . Consequently, as a general assessment of visual impact, it is considered that due to the visual separation of the development from these locations, the extent of visual presence will be small, if not imperceptible from Mossy Point and Melville Point in particular. Consequently, the visual impacts of the development are considered to be minimal and satisfactory.

- Lot Sizes

Larger lots are located in the northern precincts of the site

- Road Cutting

The road network has been redesigned to minimize cut and fill by following, where possible, the contours of the site.

(ix) Potential negative impacts on Bevian Swamp.

"The potential for negative impacts on the water quality and ecological values of the Bevian Wetland resulting from run-off and intended use of the wetland."

Comment:

A Water Sensitive Urban Design Strategy (**Attachment 24)** incorporated into the proposed development will ensure that the balance between surface and subsurface flows would closely mimic existing conditions for flows entering the Bevian Wetland and the runoff water quality would have pollutant loads up to 25% lower than existing conditions. This represents a significant contribution to the long term improvement in receiving water quality. As a consequence, there will be no significant change in the composition of vegetation with the Bevian Wetland such that its local occurrence would be placed at risk.

The impacts of the upgrade of the existing southern access road on water quality and the ecology are now considered to be satisfactory. The Bevian Road is currently unsealed and provides a source of potential sediments to the wetland during rainfall events.

The road upgrade will require the modification of the unformed road to a sealed carriage way. In order to ensure the protection of the wetland, the alignment of the road immediately adjacent to the western boundary of the wetland will be retained, preventing the need for further earthworks. The Road will be raised by approximately 1m to allow for installation of stormwater filtration devices at strategic points.

Conclusion - Previous Development Application

It is considered that the reasons for refusal of the previous Development Application have been satisfactorily addressed in the subject new Concept Application.

1.3.2. South Coast Regional Strategy and South Coast Sensitive Lands Review

In May 2006, the NSW Government exhibited the Draft South Coast Regional Strategy for public comment. The draft strategy, amongst other things, identified 16 areas zoned for urban expansion as being environmentally sensitive and warranted review by an expert panel to determine the suitability and scale of release of those sites.

Following the release of the draft Strategy the Minister for Planning appointed an independent Panel comprising Dr Andrew Refshauge (Chair), Dr David Robertson and Mr Vince Berkhout to investigate and report on the sensitive sites outlined in the strategy. The Independent Panel Report was released in October 2006.

In relation to the subject site, the Panel made a number of recommendations in relation to the subject site which can be summarized as follows:

1. The western portion of the Rosedale site is considered mostly suitable for urban development

2. Detailed site planning should place a high priority on protection of riparian zones and SEPP 14 wetlands through best practice storm water management and early revegetation of riparian areas for ecological and visual benefits.

3. Limited development could occur in the north-eastern portion of the site, outside the identified habitat corridor, provided there is early revegetation of generous corridors adjacent to previously cleared areas along creeks and other riparian areas.

4. Limited clearing of forest could be permitted provided early riparian revegetation and restoration occurs.
5. Residential development should aim to achieve a range of housing types to meet demographic change, with a higher overall yield than traditionally achieved in adjoining areas, to make better use of land resources and utility services.

6. Site planning should ensure visual separation between Barlings Beach and Rosedale, and along George Bass Drive between Tomakin and Rosedale North, in line with Council's objectives under the Eurobodalla Urban Settlement Strategy.

7. Development should be staged according to market conditions.

Subsequently in December 2006, the South Coast Regional Strategy was adopted.

Conclusion – South Coast Regional Strategy / Sensitive Urban Lands Review

The proposed development has been designed to have particular regard to the provisions of the South Coast Regional Strategy and the recommendations of the South Coast Sensitive Land Review. It is considered to be consistent with both documents.

A. GENERAL REQUIREMENTS

1.4. The Project

1.4.1.Proposed Development

DGR General Requirement 1: Outline of the Project

Concept Approval sought under section 75O of the Environmental Planning and Assessment Act for:

1. The extent of Environmental Constraints as shown on **Dwg No: CA-001-F** prepared by Roberts Day and Candalepas Assoc (**Attachment 5**);
2. The extent of Developable Area as shown on **Dwg No: CA-002-F** prepared by Roberts Day and Candalepas Assoc (**Attachment 6**);
3. The subdivision of the entire site, for residential development and ancillary commercial and community facilities, under the Community Land Development Act 1989, into six (6) Ecological Protection lots, one (1) Community lot and thirteen (13) Neighbourhood Precinct lots which incorporate 806 lots, **generally in accordance with the Concept Dwg No: CA-003-F** prepared by Roberts Day and Candalepas Assoc (**Attachment 7**);
4. Concept approval for Urban Design Guidelines for the proposed development dated prepared by Roberts Day (**Attachment 16**);
5. Road Hierarchy Plan; **generally in accordance with Concept Dwg No: CA-004-F** prepared by Candalepas Assoc and Roberts Day (**Attachment 8)**; and
6. Landscaping Concept Plan, **generally in accordance with Concept Dwg No: CA-005-F** prepared by Roberts Day (**Attachment 9**).

Note: It is the intention of this application that:
(i) the Environmental Constraints Plan, the Developable Area Plan and the description of the development, specifically in terms of the number of lots (806) and Community Lots (20), be approved such that the details contained therein are fixed;
(ii) the Urban Design Guidelines, Subdivision Plan, Road Hierarchy Plan and Concept Landscaping Plan are concept approvals only and will be further refined and revised as part of design development following the approval of the Concept Application. The revised documents will then be submitted for approval as part of the subsequent Development Application for project approval; and
(iii) the residential and commercial buildings and community facilities will be the subject of the subsequent and separate Development Application(s), as their precise form and design have not been finalised. However, the commercial development will be local in nature and the community facilities will likely comprise a Community /Recreation building and Tennis Court.

In respect of the subject application both Council and the Department of Lands, which own roads within the subject site, have given their written consent to the lodgement of the application (**Attachment 37**). The distribution of lot numbers and lot sizes within each stage of the development is summarised in the table below:

Table 1 - Summary of Lot Sizes

Lot Type/ Stage	Dwellings/ Lots	Mix (number)	Exact Area Range From	To	Av. Internal m2/ lot
STAGE 1 - NORTH					
Stg 1 - Small - 450 to 550	0	0%	0	0	0
Stg 1 - Standard - 551 to 650	0	0%	0	0	0
Stg 1 - Standard - 651 to 800	16	6%	751	799	772
Stg 1 - Standard - 801 to 1200	161	63%	801	1,198	968
Stg 1 - Rural - 1201 to 4000	74	29%	1,205	3,259	1,608
Stg 1 - Rural - 4000+	5	2%	4,490	13,321	8,157
Sub Total	***256***	***100%***			
STAGE 2 - CENTRAL					
Stg 2 - Small - 450 to 550	82	51%	450	549	491
Stg 2 - Standard - 551 to 650	20	13%	551	647	590
Stg 2 - Standard - 651 to 800	16	10%	662	776	721
Stg 2 - Standard - 801 to 1200	25	16%	809	1,164	991
Stg 2 - Rural - 1201 to 4000	17	11%	1,216	1,740	1,441
Stg 2 - Rural - 4000+	0	0%	0	0	0
Sub Total	***160***	***100%***			
STAGE 3 - SOUTH					
Stg 3 - Small - 450 to 550	189	48%	450	550	486
Stg 3 - Standard - 551 to 650	62	16%	552	650	598
Stg 3 - Standard - 651 to 800	61	16%	652	798	720
Stg 3 - Standard - 801 to 1200	46	12%	806	1,142	881
Stg 3 - Rural - 1201 to 4000	32	8%	1,410	3,656	2,014
Stg 3 - Rural - 4000+	0	0%	0	0	0
Sub Total	***390***	***100%***			
TOTAL	**806**				

1.4.2. Development Options

DGR: General Requirement 2: Any Development Options

Comment:
An alternative development option was proposed in a Development Application submitted to the Department of Planning in 2002. It differed from the subject application in a number of regards; primarily in relation to the density of development proposed in the northern portion of the site, the allocation and distribution of open space and the overall site coverage. In addition, the environmental and ecological issues were not sufficiently resolved. The Department of Planning subsequently could not support the application in its then current form for the following reasons:

(i) Poor Integration with the Strategic Context;

(ii) Non-Compliance with Coastal Design Guidelines;

(iii) Poor Structure and Urban Design

(iv) Inadequate arrangements for access given the scale of the development;

(v) Non-compliance with Fire Safety Requirements;

(vi) Loss of Spotted Gum Forest and Inadequate Assessment of Impacts;

(vii) Inadequate Setback from Sewerage Treatment Plant (STP)

(viii) Visual Impacts and Character of the Development;

(ix) Potential negative impacts on Bevian Swamp.

Conclusion - Development Options

Since the previous application, Marsim has engaged an entirely new consultancy team, lead by Candalepas Associates, Architects, which investigated numerous other design options; all of which addressed and resolved the issues raised above. In particular, a new and comprehensive assessment of all the environmental and ecological constraints was undertaken which facilitated a better understanding of the site, in terms of constraints and opportunities, and hence a more rational approach to the development of design options.

Numerous permutations and combinations of access routes, lot sizes, densities and their distributions throughout the site, were considered.

The subject design is the result of a rigorous analysis of various options in order to provide the optimal outcome in terms of lot yield whilst not impinging on, or compromising any of the environmental or ecological constraints in any significant manner.

1.4.3. Justification of the Project

DGR General Requirement 3: Justification of the Project taking into consideration any environmental impacts of the project, the suitability of the site and whether the project is in the public interest

Comment:
In 1987, the Department of Planning published The Lower South Coast Strategy. It identified the subject site, amongst others, as "Committed Urban" land; being "*land zoned for urban purposes such as residential and commercial development, and areas zoned for urban expansion".* Subsequently, the Eurobodalla Shire Rural LEP was made and gazetted in November 1987. This LEP zoned the majority of subject site as "Urban Expansion".

In December 1987, Council resolved to prepare a site specific a DCP for the Urban Expansion Area and adopted the DCP in November 1989.

Consequently, since the late 1980's, the strategic planning of both the Department of Planning and the Eurobodalla Council have earmarked the subject site for future residential development.

More recently in mid 2006, the Minster for Planning established an Expert Panel to review the development potential for Sensitive Urban Lands on the South Coast. The report of the Expert Panel was published in October 2006 and identified the subject site, amongst others, as suitable for residential development.

In early 2007, the Minster for Planning released the new South Coast Regional Strategy. It identified the need for approximately 45,000 new dwellings to accommodate the additional 60,000 residents anticipated by 2031. Within the Eurobodalla Shire, the strategy states that an additional 10,700 new dwellings will be required. This is supported by the Eurobodalla Shire Settlement Strategy.

The subject site, identified as suitable for residential development since the late 1980s, will be able to supply approximately 7.5% of the total housing requirements within the Eurobodalla Shire over the next 25years.

The subject development was designed by **first** undertaking a comprehensive analysis of all the environmental and ecological constraints on the site and then planning an environmentally sensitive residential subdivision within the residual portion of the site.

Conclusion - Justification of Project

It is considered that the subject development has, in a comprehensive manner, assessed and addressed all the environmental impacts of development on the site and devised a proposal which is appropriate and satisfactory and will assist in satisfying the housing demand within the South Coast over the next 25 years as identified by the Department of Planning and the Eurobodalla Shire Council.

As a consequence, the site is considered suitable for the development and the proposed development is considered to be in the public interest.

1.4.4.Staging of Development

DGR General Requirement 4: Outline of the staged implementation of the project

Comment:
The subdivision and development of the project will be carried out in stages over a period of approximately 10 to 15 years.

A draft staging proposal is outlined on the Precinct Plan **(Figure 4)**. The plan shows the site divided into the following 3 Stages:

- **Stage 1** – Land to the north of the main east west riparian zone predominated by the Country Zone or rural residential development.

- **Stage 2** – Land to the north of the knoll and south of the main east-west riparian zone comprising a mixture of character zones that acts as a transition between rural residential development that predominates in the north and urban development that predominates in the south.

- **Stage 3** – The southern portion of the site characterised by urban development.

The staging has been developed in response to the demand for housing at the time of lodgement of this application and after considering infrastructure and servicing delivery matters.

The staging plan is indicative and will be reconsidered in the DA phase when market forces and infrastructure / servicing issues can be more appropriately assessed.

1.5. Analysis and description of the existing environment

DGR General Requirement 5: A thorough site analysis and description of the existing Environment

1.5.1.General Description of the site

The site is located on the Bevian Road at Rosedale within the Eurobodalla Shire (**Figure 5, Figure 6**). It has an area of approximately 174 hectares and is approximately 16km south of Batemans Bay and 18km north of Moruya. It is 1.5 km to the west of the existing Rosedale settlement and 1.5 km to the north-east of Tomakin.

The site contains 10 lots comprised of Lots 11, 29, part 32, 72, 102, 118, 119, and part 213 in DP755902; Lot 2 DP627034 and Lot 2 DP623340 as indicated in **Figure 7**.

Table 2 – *Summary of Lot Description and Sizes*

Lot	DP	Size (ha)
Lot 119	DP755902	10.95
Lot 11	DP755902	16.19
Lot 118	DP755902	33.69
Lot 29	DP755902	16.19
Lot 2	DP627034	8.35
Lot 2	DP623340	13.54
Lot 72	DP755902	16.19
Lot 102	DP755902	16.19
Lot 32	DP755902	16.19
Lot 213	DP755902	32.37
Road Reserves		7.77 ha
Total Area		187.62 ha

The subject site does not incorporate the Rural 1(a) land in Marsim ownership. This has an area of 14.03 ha. Consequently **the subject site has a total area of 173.59 ha.**

1.5.2. Topography and Drainage

The majority of which varies in gradient between 0% and 15% (**Figure 8**). The gradient around the Bevian Wetland is approximately 5% or less. The gradient of land increases in the mid-portion of the site to between 16% and 25%, with small areas over 25% slope. The north-western portion the site is the steepest; ranging between 15% to 25 % and a relatively large portion in the north-westernmost corner of the site in excess of 25%. The approximate elevation ranges from 2m AHD within the Bevian Wetland to approximately 120 m (AHD) on the ridge at the north-western portion of the site.

The site contains a network of drainage lines. The northern section of the subject site contains the upper tributaries of Saltwater Creek which discharge over Barlings Beach into the South Pacific Ocean. The catchment drains from several small drainage lines which flows generally to the south east to Saltwater Creek. There are two farm dams located on this drainage line in the north of the subject site. To the south of the old nursery there is another tributary of Saltwater Creek which initially flows in a southerly direction and contains one farm dam in the upper reaches of this tributary. The creek then turns to the east in which two more farm dams have been constructed. To the south another tributary of Saltwater Creek flows in an easterly direction from Bevian Road into a small farm dam. From this farm dam two smaller drainage lines flow in different directions one to the north east and one to the south east into Saltwater Creek.

The catchment of the southern section of the subject site flows into the Bevian Wetland. One drainage corridor is located to the north west of the Bevian Swamp and contains a small farm dam after which the drainage line is not defined and the topography flattens out and becomes a floodplain. The south eastern section of the subject site contains a floodplain of the Bevian Swamp with no defined drainage corridor located in this area.

1.5.3.Vegetation

The majority of the subject site has been cleared for agricultural purposes. Native open forest forms the eastern, north eastern and north western sections of the property. Native vegetation is also present around the Bevian Wetland in the southern section of the subject site. Two areas of remanent Swamp Oak Open Forest exist within the floodplain to the north and north-west of the Bevian Wetland. A remnant patch of Banksia Scrub vegetation exists upon a hill known locally as “The Knoll”, located in the central section of the property.

Surrounding lands contain native vegetation, with the property adjoining Mogo State Forest along the north western boundary. Lands to the north, east and south west contain native vegetation and are currently used for rural residential purposes. To the south east there is cleared land on which is a sewage treatment plant. To the south across George Bass Drive is Barlings Beach Caravan Park which is cleared land and the subject of a recent development consent for residential and medium density development. Native vegetation adjoins the Caravan Park to the east.

1.5.4.Conservation Reserves

The nearest conservation reserves are Illawong and Broulee Island Nature Reserves located approximately 5 km to the south. Murramarang National Park is located approximately 15 km to the north of the subject site.

Mogo State Forest is located adjoining the subject site in the north-west and covers an area of approximately 15,500 ha.

1.5.5. Contextual Relationship to and Compatibility with Neighbouring Settlements
Neighbouring the subject site to the east are the existing settlements of Guerrilla Bay and Rosedale (Population: 197 (2001 census: ABS)). They are comprised primarily of single occupancy dwellings.

To the west of the site is State Forest area and adjacent to the south-eastern and south-western boundaries of the site are residential lots on small rural landholdings.
To the north is Malua Bay (Population: 1676).To the south is the existing caravan park at Barlings Beach and a site is which has recently been approved for subdivision of approximately 250 residential lots including integrated housing.

Further to the south along the coastline are Tomakin (Population: 761) and Broulee (Population: 1627).To the immediate east of the site is the north-easternmost portion of the Rosedale urban expansion area. It has recently been identified in the South Coast Sensitive Land Review as being able to accommodate limited development.

Contextually, the Rosedale expansion area is considered suitably located for urban development and a logical expansion of existing coastal settlements.

The adjacent land uses are compatible with residential development proposed on the subject site. The site is located in proximity to the coast and provides the potential for a high level of residential amenity. Adjacent settlements are able to provide all the necessary facilities and services for residents and their families. Roads and infrastructure have already been provided in anticipation of development in the area.

The manner in which the land it is proposed to be developed has taken into consideration the various physical and environmental constraints of the site together with appropriate distribution of development densities through the site in order to promote contextual compatibility with adjacent land uses.

In this regard it is considered that northern portion of the site is more suitable to larger lots because of its contextual relationship with the open space zone and State Forest areas adjacent to the site in that area. More dense development is considered appropriate in the mid to southern portions of the site.

1.5.6. Existing Land Use

• Structures:
Two existing residences are located in the north east of the subject site adjoining Bevian Road. A former nursery with associated glasshouse structures is located to the north west of the residences. Cattle yards and sheds have been erected to the south west of the nursery. A pump station is located in a drainage line to the south of the nursery.

• **Clearing:**
The subject site has been subjected to extensive clearing, as part of its previous use as a dairy, with most of the natural vegetation being removed. The majority of the subject site consists of pasture with fragmented areas of natural and disturbed vegetation throughout the subject site.

• Agriculture:
The cleared areas of the subject site are currently being used for cattle grazing. The remaining areas of natural vegetation within the subject site are also being used for cattle grazing.

• Earthworks:
Ten (10) dams have been constructed throughout the subject site. Four dams are located in the northern drainage line which flows to the east. Three dams are located in the drainage line to the south of the nursery. One dam is located to the east below the Banksia Scrub vegetation (“The Knoll”). One dam is located within the Swamp Oak Open

Forest to the west of Bevian Road. The remaining dam is located to the west of the Blackbutt Woodland vegetation community.

1.5.7. Existing Road network

An unsealed road, Bevian Rd, traverses the site from the south-west corner to the north east corner (**Figure 9**).

In the south-western corner of the site, the road on the site connects with the a section of a Crown road which is under the care, control and management of Council. This road connects to George Bass Drive. Council has given its written consent to use and upgrade this road in conjunction with the development of the site (**Attachment 37**)

In the north-eastern corner of the site, the road connects to a section of Bevian Rd owned by Rosedale Farm NSW Pty Ltd, the owner of the adjoining site. A right-of -way over this section of road to George Bass Drive exists benefiting lots in lots in north Rosedale. Heads of agreement have been drafted with the owner of the adjacent site to upgrade this section of road and are well advanced (**Attachment 42**).

1.5.8.Infrastructure

1.5.8.1. Water Supply

Council has confirmed that the site is within Council's water supply area and as such, is able to be supplied with potable water from Council's Burri Point reservoir. A reservoir located on a high part of the site would be required to provide adequate pressure for areas of the site higher than RL 40 m AHD. This reservoir, which would be provided as part of the subject development, would be required to provide two days storage capacity.

An existing 450 mm trunk main is located in the south-eastern section of the site. A pressure main would be required from the trunk main through the development to supply the reservoir. The reticulation network would be designed in future design phases of the development.

1.5.8.2. Sewerage

A sewerage system does not exist throughout the site. However, Eurobodalla Shire Council has confirmed that there is spare capacity on the adjacent sewage treatment plant which, in fact, was constructed in anticipation of the development of the subject site. The plan in **Figure 10** indicates consideration of the development area in the Council's *Sewerage Servicing Strategy* of 1992.

1.5.8.3. Power

Electricity supply is provided but not reticulated within the site. Discussions with Country Energy have indicated that the reticulation of the power supply through the site is available from the local infrastructure and ultimately upgrades to the system may be required.

1.5.8.4. Telecommunications

A Telecommunications system does not exist throughout the site. However, Telstra can service the entirety of the proposed development from existing optical fibre cable located on the northern side of George Bass Drive.

1.5.8.5. Gas

There is no gas reticulation along the south coast past Nowra. As such, reticulated gas would not form part of the servicing infrastructure for the proposed development.

1.5.8.6. Roads

There is an existing road, Bevian Rd which traverses the site from the south-western corner of the site to the north-eastern corner of the site as well as a number of other gazetted but unformed roads

1.5.9.Geomorphology

The site is approximately rectangular in shape and part of the immediate coastal hinterland northeast of Tomakin. The land includes Bevian Swamp, a wetland basin and surrounding flats, at the southern end, and extends northward for two kilometres to include a series of generally east-west orientated low to moderately graded interfluve spur lines and upper tributaries. The north-western boundary of the site forms the crest of the watershed ridgeline between the catchment of the Tomago River that drains to the west and Saltwater Creek which drains to the east. The highest point in the site is situated on the watershed at the north-western corner of the site, at an elevation of around 120 m AHD. The lowest point occurs within the Bevian Swamp basin, at less than 2 m AHD.

The northern half of the site falls within the upper catchment of Saltwater Creek, which drains eastward to Barlings Beach, some 1.5 km downstream. The southern half generally drains south into the Bevian Swamp basin. The swamp is a permanent source of freshwater except in extended dry periods. The basin is known to have dried up 10-15 years ago when it was used for grazing. The wetland is valued as a source of eels. In prehistory this zone would have been a rich source of fish, bird and plant resources for the local Aboriginal occupants.

The wetland basin has formed behind a major Holocene sand barrier that extends to the south of George Bass Drive. The current seaward edge of the barrier forms the bay of Barlings Beach – a sandy shoreline sheltered at either end by the rocky promontories of Barlings Island and Melville Point.

Heritage consultants, Navin Officer, provide a description of the geomorphology of the site. Below is a summary of their analysis of the site:

The ridges and slopes surrounding and extending north of Bevian Swamp have formed from Cambrian rocks belonging to the Wagonga Beds. These consist of cherts, conglomerate, agglomerate, slate, sandstone and phyllite (Ulladulla 1:250,000 Geological Series Sheet). These rocks are exposed in bedrock exposures along some of the creek beds, and rarely on ridgeline crests. Gravels and cobbles derived from these rocks occur frequently within the soils of the study area.

The Bevian Swamp basin and its fringing lowlands have formed on Quaternary sediments. Prior to the formation of the barrier, the Post Glacial Marine Transgression would have extended the former shoreline to the edge of the bedrock slopes which now form the northern, eastern and western margins of the swamp basin. As a consequence, a small coastal bay would have occupied the current Bevian Swamp basin, with small headlands at the ends of the descending spur lines. There is now, however, no obvious remnant fossil-shoreline morphology along this contour. The sea would have reached this area at around 6000 years ago when the sea level stabilised at approximately its current level. From 6000 years ago an off-shore coastal barrier is likely to have developed, probably extending from the bedrock slopes to the east, and consequently formed an estuary behind it. This developed, through infilling, into the freshwater basin present today. The shoreline would have prograded southward from the original barrier, through episodic depositional events, culminating at around 3000 years ago with a shoreline at approximately the current position.

Quaternary sediments also occur as narrow and linear valley floor deposits along most of the tributary streamlines in the study area. These have the appearance of alluvial and colluvial sediments deposited in terrace and fan formations.

1.5.10. Contamination

Douglas Partners, Geotechnical Engineers, have undertaken a Preliminary Contamination Assessment of the subject site. An analysis of their assessment is at **Section 1.6.2.4** of this report.

In summary, based on the site history review and inspection/field mapping, Douglas partners consider that the overall potential for contamination at the subject site is considered to be low and that the site can be made suitable for residential development subject to remediation of isolated areas of environmental concern.

Conclusion - Contamination

It is considered that isolated areas of the site, deemed to be of environmental concern, can be made suitable for residential development following remediation and validation of these areas. As a consequence, the entire site would be suitable for residential development.

1.5.11. Acid Sulphate Soil

James Olive, JCL Development Solutions, has undertaken field testing to determine the existence of Acid Sulphates on the subject site (**Attachment 30**). He has had regard to Council's Map of Acid Sulphate potential soils in the area (**Figure 11)** which notes that the majority of the site has no known occurrences of acid sulphate soils. However, the south-western portion of the site has been identified having low potential acid sulphate soils.

Testing was focused on this area, and in particular to future areas of road and on- site stormwater detention with the closest relationship to existing wetlands. The core hole testing logs confirm that no evidence of potential sulphate oxidation exist within the test site zones.

Conclusion – Acid Sulphate Soils

It is considered that the site is free from Acid Sulphate Potential soils

1.5.12. Flora and Fauna

Conacher Travers has undertaken a Flora and Fauna analysis of the site (**Attachment 18)**. A field survey was undertaken in March 2006, which is considered to be the optimum survey period for a number of threatened flora and fauna species. In conjunction with the winter surveys undertaken within the subject site by Gunninah Environmental Consultants (2002), the subject site is considered to have been adequately surveyed to best detect a range of threatened flora and fauna species.

In respect of matters required to be considered under the Environment Protection and Biodiversity Conservation (EPBC) Act (1999) **no threatened fauna or flora species were recorded within the subject site. One (1) preliminary listed endangered ecological community, Dry Rainforest of South East Forests, was recorded within the subject site and will be protected as part of the development of the site.**

Given that no threatened flora or fauna species listed under the EPBC Act were identified within the site and that the EEC is currently only a preliminary nomination, a referral to Department of the Environment & Heritage (DEH) is not required.

In respect of matters required to be considered under the Threatened Species Conservation (TSC) Act (1995), five (5) threatened fauna species were recorded by Conacher Travers, namely:

1. Powerful Owl (Ninox strenua),

2. Glossy Black-Cockatoo (Calyptorhynchus lathami),
3. Eastern Freetail-bat (Mormopterus norfolkensis),
4. Greater Broad-nosed Bat (Scoteanax rueppellii); and
5. Eastern Bentwing-bat (Miniopterus schreibersii oceanensis.

In addition, one (1) threatened fauna species, Yellow-bellied Squirrel Glider (Petaurus australis), was recorded within the subject site by Gunninah Environmental Consultants in 2002 but was not sighted by Conacher Travers as part of their 2006 survey.

Two (2) endangered ecological communities, Swamp Oak Floodplain Forest (SOFF) and Freshwater Wetlands on Coastal Floodplains (FWCF) were also recorded within the subject site.

Conclusion – Flora and Fauna

An assessment of the impact of the development on Flora and Fauna, under Section 5(A) of the Environmental Planning & Assessment Act, concludes that the proposed development will not cause a significant impact on threatened species, populations or endangered ecological communities.

Therefore a Species Impact Statement (SIS) should not be required for the proposed development. In respect of matters relative to the Fisheries Management Act 1994 there are no matters requiring further consideration.

1.5.13. Heritage and Archaeology

There are no Heritage items on the site listed in the Eurobodalla Council Rural LEP. Heritage Consultants, Navin Officer, have undertaken a cultural heritage assessment of the subject land and the impact of the development on items of heritage and archaeological significance (**Attachment 27**). The assessment included background research, comprehensive archaeological field survey, consultation with the Mogo Local Aboriginal Land Council (MLALC), participation of a MLALC representative in the field survey, and an assessment of cultural heritage significance values for all sites and features identified.

Aboriginal Archaeological Sites

Two Aboriginal archaeological sites (RUR1 and RUR2, both scatters of lithic artefacts) and one isolated find (RURIF1, a single lithic artefact) were identified in the course of field survey. Eight areas of archaeological potential (PAD1-8) were also identified in the study area. **Site RUR1 contains three recorded artefacts and has low potential for undisturbed archaeological deposit. Site RUR2 includes 22 recorded surface artefacts and has moderate potential to contain relatively undisturbed subsurface archaeological deposits. All of the PADs** are situated along alluvial flats and basal slopes adjacent to tributary streamlines and **have been assessed to be of low to moderate significance.**

European Historic Recordings

Seven European historic recordings were made as a result of archaeological survey within the study area. These consist of three prospectors pits (HS1-3), a series of agricultural ditches (HS4), a piece of disused farm machinery (HS7), the former Rosedale cheese factory building (HS5), and two unidentified circular pits (HS6).
Three sites (HS8, HS9 & HS10) have been identified based on documentary sources and are yet to be confirmed or assessed in the field. These consist of the locations of selectors' huts or houses dating from the late 1870s.

Site HS8 would be directly impacted by the construction of a road defined in the Bevian Road Concept Application Plan. Site HS9 falls within open space.

However, **the significance of these features (ie HS8 and HS9) is considered to fall below the threshold of the specified assessment criteria. The preservation or conservation management of these sites is therefore not warranted based on their level of significance.**

The Rosedale cheese factory was purpose built around 1934-35 by a Mr Aitkin, formerly of Moruya. Also known as Aitkin's Cheese Factory, it processed milk which was produced and delivered from the surrounding local dairy farms. The factory appears to have changed ownership in the late 1930s and was run by the Sebbens family, Joseph Sebbens being the cheese maker. The factory stopped production around 1940 when local dairy farm production became uneconomic. After a period of disuse the structure was converted first in 1958 into living quarters for share crop farmers, and subsequently as a family home by the Harrisons.

Aboriginal site RUR1 is considered to have low significance within a local context. Site RUR2 is considered to have moderate significance within a local context. Site RURIF1 is not considered to have scientific, representative or educational value.

European historic sites HS1, HS2 & HS3 (prospectors pits), and HS4 (agricultural drainage ditches), have low heritage significance within a local context. The former Rosedale Cheese Factory (Site HS5) has high heritage value within a local context. Sites HS6 , HS7 and HS8 fall below the significance threshold.

Impact of Development on Archaeological and Heritage items

Site RURIF1, a single lithic artefact of no heritage significance, will be removed as part of the access road works adjacent to the southern section of the site adjacent to the Bevian Wetland.

A minor portion of PDA 3 will be removed to facilitate the location of a road. PAD 3 is approximately 70m x 40m and has been classified as being of low to moderate significance. The impact of the extent of excavation within this area is not considered significant by Navin Officer.

Elsewhere on the site, items HS1 (an agricultural ditch of low heritage significance), HS6 (two identified pits of no heritage significance) and HS8 (the location of an early settler's hut considered to be of no heritage significance) are also to be removed as part of the development of the site.

The proposed development will therefore avoid all significant archaeological sites and heritage items including the former Cheese Factory.

Conclusion- Aboriginal Archaeology/European Heritage

It is considered than the subject development will have no detrimental impact of any significance on items of Aboriginal Archaeology or European Heritage

1.6. Relevant Statutory and Non-Statutory Requirements

DGR General Requirement 6: Consideration of Any Relevant Statutory and Non-Statutory Requirements, in particular relevant provisions of Environmental Planning Instruments, Draft South Coast Regional Strategy and Development Control Plans as well as Impacts, if any on matters of national environmental significance under the Commonwealth Environmental Protection and Biodiversity Conservation Act, 1999.

Summary of Key Issues /Non Compliance with Statutory and Non Statutory Controls

For ease of identification, below is a list of key issues and non-compliances associated with Statutory and Non-Statutory Controls:

1. Statutory Controls
   - Threatened Species Conservation (TSC) Act (1995) (**Section 1.6.1.2**)
     - Issue: Removal/ Modification of areas of Swamp Oak Forest, Swamp paperbark Scrub and Disturbed Redgum Woodland will be offset by an increased area of revegetation of these communities in cleared lands which will result in a in a net improvement from their current state.

   - SEPP – 14 Coastal Wetland
     - Issue: Impact of Bevian Rd upgrade on Wetland (**Section1.6.2.2 subsection (2) (iii) (b)**). The proposed upgrade will potentially result in the delivery of pollutants into the Wetland. However, the Water Sensitive Urban Design Strategy incorporated into the proposed development will result in the balance between surface and subsurface flows to closely mimic existing conditions for flows into the Bevian Wetland. The runoff water quality to the Bevian Wetland could have pollutant loads up to 25% lower than for existing conditions thereby contributing significantly to the long term improvement in receiving water quality.

       The impact of the construction of the road on the Freshwater Wetlands on Coastal Floodplains adjacent to the road will be further minimised by careful alignment of the road; minimising the road width and controlling sediments, vegetation removal and the release of contaminants. It is therefore considered that the upgrading of the Bevian Rd will be satisfactory in terms of its effect on water quality entering the Wetland and its effect on the extent and composition of the Freshwater Wetlands on Coastal Floodplains immediately adjacent to the road

2. Non- Statutory Controls

   - DCP 160 – Rosedale Expansion Zone (**Section 1.6.3.1**)
     - Non-Compliance with minimum lot size: The development proposes lot sizes ranging from 450 sqm to 1,600 sqm in the southern precinct; 450 sqm to 1750sqm in the central portion of the site; and 750 sqm to 8,550 sqm in the northern portion of the site. Although some lot sizes are smaller than those nominated in DCP 160 (i.e. lot sizes between 600sqm and 4000sqm), they are consistent with the recommendations of the Sensitive Urban Lands Review, the South Coast Regional Strategy and the Eurobodalla Settlement Strategy. In addition, the smaller lot sizes within the subject development are supported in principle by Council

   - DCP 156 – Rural Subdivision (**Section 1.6.3.2**) and Interim Policy on Minimum Lot Sizes (**1.6.4.6**)

     - Non-Compliance: The lot sizes in the 1(c) zone are smaller than nominated in DCP 156 and the Interim Policy (i.e. 5,000sqm) but are considered to be consistent with the principles of the Sensitive Urban

Lands Review, the objectives of the South Coast Regional Strategy and are supported in principle by Council.

The subject development proposes a total of twenty six (26) residential lots in the 1(c) zone; of between 558 sqm and 3,665 sqm. This is considered to be appropriate and consistent with the principles and recommendations of the Expert Panel on Sensitive Urban Land and the objectives of the South Coast Regional Strategy. Of these lots only 5 lots are less than 750 sqm. Lot sizes along the western and southern boundaries (adjacent to the neighbouring land Zoned 1(c)) range between 1524sqm and 3655sqm.

An additional 18 lots are partly within the 1(c) land and partly in land zoned Urban Expansion. The average size of lots either wholly or partially within Rural 1(c) land is 1,580sqm. The average lot size of lots totally within the 1(c) zoned land is 1,642 sqm

1.6.1. Statutory Controls

1.6.1.1. Commonwealth Environmental Protection and Biodiversity Conservation Act *(EPBC)*, 1999

A review of the schedules of the *EPBC Act* (1999) indicated the potential for four (4) threatened flora species and that no endangered ecological communities occur within a 10km radius of the subject site. The threatened flora species included;

- *Caladenia tessellata,*
- *Cryptostylis hunteriana,*
- *Genoplesium vernale* and
- *Thesium australe*

None of these species have been recorded or were considered likely to occur within the subject site and none were identified during the survey. As such a referral to Department of the Environment and Heritage is not required.

The Bevian Road Concept Application will retain, protect and enhance native vegetation and habitat within the site such that any threatened species with the potential to occur within the site will not be impacted by the proposed development.

Overall the Concept Application Plans are considered to adequately conserve and enhance the ecological features within the site such that the future development will result in an improvement in the ecological functioning of the landscape.

The Latham's Snipe, White Bellied Sea Eagle and White-throated Needletail are not listed as threatened species under the EPBC Act but rather are listed as migratory and marine species.

Migratory and marine listed species are matters of National Environmental Significance and the impact of the proposed action is required to be assessed in accordance with the EPBC Act Significant Impact Guidelines for NES matters.

In accordance with the requirements of Commonwealth EBPC legislation an assessment is required to be undertaken for 'actions' that have a significant impact on matters of national environmental significance (NES). These may include:

• Wetlands protected by international treaty (the Ramsar Convention)
• Nationally listed threatened species and ecological communities
• Nationally listed migratory species

"Actions" are projects, developments, undertakings, activities, series of activities or alteration of any of these. An action that needs Commonwealth approval then becomes a "controlled action" and this type of action requires a more detailed assessment to be considered by the Commonwealth when they determine if the proposed action would have a significant effect on a NES matter.

Where a proposed activity is located in an area identified to be of NES, or such that it is likely to significantly affect threatened species, ecological communities, migratory species or their habitats, the matter needs to be referred to *Department of Environment & Water Resources*.

The initial assessment by the Conacher Travers fauna ecologists has determined whether the proposed development and ecological restoration works would have a significant impact on Latham's Snipe, White Bellied Sea Eagle and White-throated Needletail. The assessment concluded that there was no possibility for the development to have any significant impact upon those species.

Indeed no habitat is being removed that could possibly be considered to impact upon these species. Conacher Travers concluded that all potential foraging and breeding habitat for these three species will be fully conserved as part of the restoration works.

A more comprehensive assessment of this matter is contained the Travers Environmental letter to the Department of Planning dated 25 January 2008 (**Attachment 47**).

1.6.1.2. Threatened Species Conservation (TSC) Act (1995)

The TSC Act requires the consideration of potential impacts on threatened species, populations and or ecological communities. The factors to be taken into account in deciding whether there is a significant effect are set out in Section 5A of the Environmental Planning and Assessment Act (1979) and are based on a 7 part test of significance. This has been undertaken by Conacher Travers and is documented, in full, in the Flora and Fauna Report at Addendum 1 of **Attachment 18**.
In summary, Conacher Travers considered that the subject site provides potential habitat for the following threatened species, which have been assessed in accordance with the seven-part test. The findings of the 7 part test are also summarised below:

Threatened flora species

• Aldrovanda vesiculosa

Despite the presence of potential habitat for Aldovanda vesiculosa within the subject site, Conacher Travers consider that **the proposal is unlikely to have an adverse effect on the life cycle of this species such that a viable local population of the species is likely to be placed at risk of extinction**.

Conacher Travers also undertook a search of the Atlas of NSW Wildlife (DEC 2006) database which indicated that **one (1) threatened flora species, *Aldrovanda vesiculosa,* has been recorded within a 10 km radius of the study area.**

• Correa baeuerlenii

It is considered that **the proposal is unlikely to have an adverse effect on the life cycle of this species such that a viable local population of the species is likely to be placed at risk of extinction.**

Endangered Ecological Communities

• Swamp Oak Floodplain Forest (SOFF)

The subject site contains Swamp Oak Open Forest and Swamp Paperbark Scrub (constituting the Swamp Oak Floodplain Forest endangered ecological community) occupying three separate stands totalling approximately 11.23 hectares. The proposed development will remove/modify approximately 1.78 ha of this community. However, 5.04ha of this community is proposed to be revegetated in cleared lands and improved from its current state.

This will result in a net improvement of 3.2 ha in the total extent (14.49ha) of the community within the subject site.

Within the locality, Gillie (2005) recorded 390ha of MU – 27 Ecotonal Coastal Swamp Forest, which constitutes SOFF. Seven percent (7%) of this area is secured in conservation reserves.

Conclusion – Swamp Oak Floodplain Forest

Given the conservation of approximately 7% of the Swamp Oak Floodplain Forest community within the locality and the proposal to retain, revegetate and rehabilitate the community within the subject site, it is considered that the proposed development is unlikely to have an adverse effect on the extent of this community such that its local occurrence is likely to be placed at risk of extinction

• Riverflat Eucalypt Forest on Coastal Floodplains
The subject site has an area of approx. 174 ha, of which, Disturbed Red Gum Open Woodland (constituting Riverflat Eucalypt Forest on Coastal Floodplains endangered ecological community) occupies approximately 2.05 hectares in fragmented stands. The proposed development will remove/modify approximately 0.36ha of this community. However, 0.74ha of this community is proposed to be revegetated in cleared lands and improved from its currently disturbed state. This will result in a net improvement (2.43ha) in the total extent of the community within the subject site.

Conclusion - Riverflat Eucalypt Forest on Coastal Floodplains

Given the proposal to retain, revegetate and rehabilitate the River Eucalypt Forest within the subject site, it is considered that the proposed development is unlikely to have an adverse effect on the extent of this community such that its local occurrence is likely to be placed at risk of extinction;

• Freshwater Wetlands on Coastal Floodplains
The subject site contains Freshwater Wetland vegetation (constituting Freshwater Wetlands on Coastal Floodplains); occupying approximately 5.94ha within the Bevian Wetland. The proposed development will retain this community in its entirety and protect the Bevian Wetland from any indirect impacts such as stormwater runoff.

Conclusion Freshwater Wetlands on Coastal Floodplains

The proposed development is unlikely to have an adverse effect on the extent of the Freshwater Wetland on Coastal Floodplains community such that its local occurrence is likely to be placed at risk of extinction;

Threatened Fauna Species

Conacher Travers have assessed the impact of the development on the following threatened Fauna species:

- Giant Burrowing Frog
- Green & Golden Bell Frog
- Square-tailed Kite
- Osprey
- Australasian Bittern
- Black Bittern
- Painted Snipe
- Superb Fruit-dove
- Glossy Black-Cockatoo
- Turquoise Parrot
- Gang-Gang Cockatoo
- Regent Honeyeater bat
- Swift Parrot
- Hooded Robin
- Olive Whistler
- Diamond Firetail
- Barking Owl
- Masked Owl
- Sooty Owl
- Brush-tailed Phascogale
- Spotted-tailed Quoll
- Long-nosed Potoroo
- Southern Brown Bandicoot
- Koala
- Squirrel Glider
- Yellow-bellied Glider
- Grey-headed Flying-fox
- Little Bentwing-bat
- Eastern Bentwing-
- Greater Broad-nosed Bat
- Large-footed Myotis
- Eastern Freetail-bat
- Eastern False Pipistrelle
- Powerful Owl

As a consequence of an assessment of the effect of the development on Fauna, Conacher Travers has made the following comments:

- ***As the majority of the native vegetation within the subject site is to be retained as part of the development and given the extensive revegetation and restoration works proposed it is considered that known habitat for a threatened species, population or ecological community within the local area and region is unlikely to become isolated or fragmented as a result of the proposal; and***

- ***it is also considered that the grassland with scattered trees vegetation to be removed from the site is insignificant to the long-term survival of threatened species and endangered ecological communities occurring or with the potential to occur within the site.***

- ***The subject site has not been identified as critical habitat within the provisions of the TSC Act (1995);***

Conclusion - Fauna

It is considered that the proposal:

- **is unlikely to have an adverse effect on the life cycle of any of the nominated threatened fauna species such that a viable local population of the species is likely to be placed at risk of extinction; and**
- **is likely to retain and improve all areas of potential habitat for the aforementioned species. Revegetation works creating ecological corridors will improve vegetation connectivity between native remnants retained within the site and to vegetation off site.**

1.6.1.3. Fisheries Management Act (1994)

The *Fisheries Management Act* (1994) provides a list of threatened aquatic species which require consideration when addressing the potential impacts of a proposed development.

Conacher Travers has surveyed and assessed the site and considers that the subject site does not provide any potential habitat for threatened aquatic species listed under the *Fisheries Management Act* (1994)

Conclusion - Fisheries Management Act

It is considered that the subject site does not provide any potential habitat for threatened aquatic species listed under the Fisheries Management Act (1994)

1.6.1.4. Native Vegetation Act (2003) and Regulations

Under the Native Vegetation Act (2003) and Regulation, native vegetation that is protected under the Act and is likely to be impacted by a development, may require a referral to the relevant Catchment Management Authority. However, given that the subject development is being assessed under Part 3A of the Environmental Planning and Assessment Act (1979), Section 75U(e) of the Act states that approval under section 12 of the Native Vegetation Act (2003) is not required for clearing of native vegetation. Section s75U(e) is reproduced below:

"75U Approvals etc legislation that does not apply
(1) The following authorisations ***are not required for an approved project*** *(and accordingly the provisions of any Act that prohibit an activity without such an authority do not apply):*

> ***(e) an authorisation referred to in section 12 of the Native Vegetation Act 2003 (or under any Act to be repealed by that Act) to clear native vegetation or State protected land, ….."***

In addition, the **Native Vegetation Act does not apply to Urban Areas**. In this regard, the Eurobodalla Shire Council is preparing a new Shire-wide LEP in which the subject site zoning has been reviewed. By letter dated 9th October 2007 (**Attachment 43**), the General Manager of Council has advised that:

"*…….Council, in conjunction with the regional DOP officers, has proposed the rezoning of the Rosedale land to a mixture of R5 Large lot Residential, R2 Low*

Density Residential and R1 General Residential over the area to be developed, whist zoning environmentally sensitive areas, such as the wetland, E2 Environmental Conservation."

The proposed R1, R2 and R5 zones are clearly urban in nature. Consequently, having regard to the imminent rezoning of the site by Council, it is considered that the Native Vegetation Act should not apply and therefore referral to the Catchment management Authority would not be required over the developable land.

Notwithstanding this, the impact of removal of native vegetation has been addressed under the provisions Threatened Species Conservation Act at **Section 1.6.1.2** of this report and under Part 3A of the Environmental Planing and Assessment Act (Section 5 of the Flora & Fauna Report; **Attachment 18**) In this regard, a "maintain or improve" outcome has been achieved.

1.6.2. Environmental Planning Instruments

1.6.2.1. SEPP 11 – Traffic Generating Development

The proposed development involves the subdivision of the site for the creation of 806 residential lots.

Under the provisions of SEPP - 11, development involving " subdivision of land into 200 or more allotments where the subdivision includes the opening of a public road", must be referred to the Roads and Traffic Authority for its consideration.

As the development involves the subdivision of more than 200 lots, the application is required to be forwarded to the RTA.

1.6.2.2. SEPP 14 – Coastal Wetlands

The assessment of the proposed development against the provisions of SEPP 14 is presented below in Tabular form:

Provisions of SEPP - 14	Comment
Aims, objectives etc *The aim of this policy is to ensure that the coastal wetlands are preserved and protected in the environmental and economic interests of the State.*	**Development Complies.** The proposed development has specifically been designed to ensure that the wetland will be preserved and that the ecological and environmental impacts on the wetland will not detrimentally affect the wetland area.
Restriction on development of certain land *(1) In respect of land to which this policy applies, a person shall not:* *(a) clear that land,* *(b) construct a levee on that land,* *(c) drain that land, or* *(d) fill that land,* *except with the consent of the council and the concurrence of the Director.* *(2) In considering whether to grant concurrence under subclause (1), the Director shall take into consideration:* *(a)* ***the environmental effects of the proposed development, including the effect of the proposed development on****:* *(i) the growth of native plant communities,*	**Development Complies.** Concept approval for the proposed development has been sought from the Minister as part of the subject application. At this stage no consent is sought for earthworks. This will be the subject of a further application. Notwithstanding no earthworks are proposed , the environmental effects of the development on flora, fauna and water management have been addressed as follows: **(i) growth of native plant communities,** **Comment:** The two (2) endangered ecological communities identified within the subject site, Swamp Oak Floodplain Forest and Freshwater Wetlands on Coastal Floodplains, comprise the vegetation surrounding and within the Bevian Swamp. **These communities are to be retained by the proposed development**. Associated with their retention the stormwater management measures proposed by Patterson Britton in their Water Management report (**Attachment 24)** will address the potential ingress of urban pollutants into these sensitive areas by means of • implementation of rainwater re-use tanks to reduce runoff volume; • incorporation of bio-retention systems and or rain gardens on selected lots and in road reserves to remove fine sediment, nutrients, and oils and greases; • upgrade of farm dams to wetlands to improve runoff quality and provide more diverse aquatic habitat (in northern catchment);

(ii) the survival of native wildlife populations,	• Provision of storage and promote infiltration of runoff to balance the surface/subsurface flows and slow down flows to mimic closely existing conditions; • Rehabilitation of wide riparian corridors and wetland buffers with native vegetation to stabilise banks and provide significantly improved habitat value; and • Installation of gross pollutant traps prior to discharge to bio-retention systems to capture litter, debris, coarse sediment, oils and greases. **As a result the run-off water quality entering the proposed wetland will be enhanced from agricultural to rural quality.** As a consequence, Conacher Travers in its Flora and Fauna Report (**Attachment 18**) consider that it is unlikely that there would be any significant changes in the composition and extent of the endangered ecological communities or water quality within the Bevian Swamp. **(ii) survival of native wildlife populations,** **Comment:** In respect of matters required to be considered under the Environment Protection and Biodiversity Conservation (EPBC) Act (1999) no threatened fauna or flora species were recorded within the subject site. In respect of matters required to be considered under the Threatened Species Conservation (TSC) Act (1995), five (5) threatened fauna species were recorded by Conacher Travers, Powerful Owl (Ninox strenua), Glossy Black-Cockatoo (Calyptorhynchus lathami), Eastern Freetail-bat (Mormopterus norfolkensis), Greater Broad-nosed Bat (Scoteanax rueppellii) and Eastern Bentwing-bat (Miniopterus schreibersii oceanensis. In addition, one (1) threatened fauna species, Yellow-bellied Glider (Petaurus australis), was recorded within the subject site by Gunninah Environmental Consultants (2002). **Conacher Travers have undertaken an assessment under Section 5(A) of the *Environmental Planning & Assessment (EP&A) Act* (1979) and concluded that the proposed development will not cause a significant impact on threatened species or populations. (see Flora and Fauna Report Attachment 18).**

(iii) the provision and quality of habitats for both indigenous and migratory species,	**(iii) provision and quality of habitats for both indigenous and migratory species,** **Comment:** Conacher Travers, as part of their Flora and Fauna report, conclude that the site provides known or potential habitat for *Aldrovanda vesiculosa, Correa baeuerlenii,* Swamp Oak Floodplain Forest, Freshwater Wetlands on Coastal Floodplains, Giant Burrowing Frog, Green and Golden Bell Frog, Square-tailed Kite, Osprey, Australasian Bittern, Black Bittern, Painted Snipe, Superb Fruit-dove, Gang-Gang Cockatoo, Swift Parrot, Turquoise Parrot, Swift Parrot, Regent Honeyeater, Olive Whistler, Diamond Firetail, Hooded Robin, Barking Owl, Powerful Owl, Masked Owl, Sooty Owl, Koala, Brush-tailed Phascogale, Spotted-tailed Quoll, Southern Brown Bandicoot, Long-nosed Potoroo, Yellow-bellied Glider, Squirrel Glider, Grey-headed Flying-fox, Large-footed Myotis, Little Bentwing-bat, Eastern Bentwing-bat, Greater Broad-nosed Bat, Eastern Freetail-bat and Eastern False Pipistrelle. The majority of the site has for many years been cleared with only a small portion of native vegetation. **The proposed development is to retain all areas of potential habitat for the aforementioned species.** The development is likely to remove or modify a small portion of native vegetation. The portions likely to be removed are highly disturbed Swamp Oak Open Forest to the north of the Bevian Swamp. This area is already fragmented and isolated from other areas of existing native vegetation. However, regeneration is proposed through the creek and drainage lines. As a consequence, **connectivity through the subject site to surrounding areas will improve and therefore it is considered that known habitat for threatened species, population or ecological community within the local area and region is unlikely to become isolated or fragmented as a result of the proposal.**
(iv) the surface and groundwater characteristics of the site on which the development is proposed to be carried out and of the surrounding area, including salinity and water quality,	**(iv) surface and groundwater characteristics** **Comment:** Patterson Britton have undertaken a baseline water quality monitoring process to assess the quality of surface waters within and around the Rosedale Urban Expansion Site prior to development (**Attachment 24)**.

	Baseline water quality monitoring was undertaken at ten locations around the site and sediment sampling and analysis was undertaken at four locations. It was noticeable that the creeks immediately downstream of the site only flow in wet weather and do not have standing water in dry weather. No water or sediment samples were obtained from these sites. Analysis of the samples has revealed that water bodies within and around the site contain elevated levels of ammonia and total nitrogen, well above ANZECC (*2000*) guidelines for freshwater lowland river system in south-eastern New South Wales. Similarly there are elevated levels of chlorophyll-a in and around the site, highlighting the potential for algal blooms to occur. Analysis of the bed sediment samples taken revealed that only one site recorded a marginally elevated level of copper. Comparison of the collected TSS, TN and TP data with widely accepted published values applicable to a range of differing land use settings in Australia has indicated that the Rosedale Urban Expansion Site closely approximates an agricultural landscape. **Adoption, therefore, of a rural land use category as a target for runoff water quality for the proposed development would result in a significant improvement in receiving water quality.**
(b) whether adequate safeguards and rehabilitation measures have been, or will be, made to protect the environment,	**(b) Safeguards and rehabilitation measures Comment:** As part of the proposed development : • endangered ecological communities will be retained; • water quality is to be enhanced from agricultural to rural classification by a suite of water sensitive design strategies • riparian corridors will be rehabilitated; and • ecological connectivity through the subject site to surrounding areas will be enhanced; Also as part of the development, a section of the Bevian Road will be upgraded adjacent to the wetland. Bevian Road adjoins the western boundary of the Wetland and forms the central road through the site. The road is currently unsealed and provides a source of potential sediments to the wetland during rainfall events. The proposed development will potentially result in the delivery of pollutants into the Wetland. However, the Water Sensitive Urban Design Strategy incorporated into the proposed development will provide a significant contribution

	to the long term improvement in receiving water quality. The impact of the construction of the road on the Freshwater Wetlands on Coastal Floodplains adjacent to the road will be minimised by careful alignment of the road ; minimising the road width and controlling sediments, vegetation removal and the release of contaminants. **It is therefore considered that the upgrading of the Bevian Rd will be satisfactory in terms of its effect on water quality entering the Wetland and its effect on the extent and composition of the Freshwater Wetlands on Coastal Floodplains immediately adjacent to the road**
(c) whether carrying out the development would be consistent with the aim of this policy,	**(c) Consistency of development with aims of policy** **Comment:** As mentioned above in (i) above, the proposed development has specifically been designed to comply with the Aims of the policy in that it will ensure that the wetland will be preserved and that **the ecological and environmental impacts on the wetland will not detrimentally affect the wetland area.**
(d) the objectives and major goals of the "National Conservation Strategy for Australia" (as set forth in the second edition of a paper prepared by the Commonwealth Department of Home Affairs and Environment for comment at the National Conference on Conservation held in June, 1983, and published in 1984 by the Australian Government Publishing Service) in so far as they relate to wetlands and the conservation of "living resources" generally, copies of which are deposited in the office of the Department,	**(d) Objectives and Goals of "National Conservation Strategy for Australia"** **Comment:** The three main objectives in conserving living resources as outlined in the *National Conservation Strategy for Australia* are: 1. To maintain essential ecological processes and life support systems 2. To preserve genetic diversity 3. To ensure the sustainable utilisation of species and ecosystems The Bevian Road Concept Application incorporates the following ecological protection and enhancement measures across the site, which adequately meets the objectives outlined above: • Retention, protection and restoration of existing remnants within the site; • Revegetation of drainage lines creating connectivity between existing remnants and vegetation offsite and as a consequence improving the viability of habitat; • The integration of conservation precincts, open space precincts and development

	precincts such that the ecological functioning of the landscape is improved whilst also improving the social, visual and recreational values and opportunities of the site.
(e) whether consideration has been given to establish whether any feasible alternatives exist to the carrying out of the proposed development (either on other land or by other methods) and if so, the reasons given for choosing the proposed development,	**(e) Feasible Alternatives** **Comment:** A previous scheme was proposed for the subject site comprising 445 lots and 850 dwellings. A Masterplan Application was submitted to the Department of Planning in December 2002. The proposal was not supported by the Department in its then current form, for the following reasons: (i) Poor integration with the strategic context, (ii) Non-compliance with Coastal Design Guidelines, (iii) Poor structure and urban design, (iv) Inadequate arrangements for access given the scale of the development, (v) Non-compliance with fire safety requirements, (vi) Loss of Spotted Gum Ironbark Forest and inadequate assessment of impacts, (vii) Inadequate setback from sewage treatment plant, (viii) Visual impacts and character of the development, and (ix) Potential negative impacts on Bevian Wetland. The current development proposal has had regard to the previous application and the issues raised by the Department of Planning. In developing the current proposal, a number of design options were considered in terms of location and distribution of housing densities, open space and infrastructure requirements. Each option was assessed against the impact it would have on the environment. In addition, consideration was given to the more recent report of the Minister's Expert Panel on the Review of Sensitive ands on the South Coast. In relation to the subject site , the Panel made the following comment in terms of its suitability for development : *"The Rosedale site is considered mostly suitable for urban development in view of the past land clearing and farming activities. Detailed site planning should place a high priority on protection of riparian zones and SEPP 14 wetlands through best practice storm water management, and early revegetation of riparian areas for ecological and visual benefits".*

	It further recommended, in part that: *"Residential development should aim to achieve a range of housing types to meet demographic change, with a higher overall yield than traditionally achieved in adjoining areas, to make better use of land resources and utility services*". As a consequence, the current scheme seeks concept approval for 806 residential lots and a single occupancy dwelling on each lot. The development also incorporates • A range of housing types and sizes ; ranging from large rural type dwellings to dual occupancies, to cater for a changing demographic market; • Retention and protection of significant ecological features and threatened species habitat such as EEC's, Spotted Gum Ironbark Open Forest, Banksia Scrub and Bevian Wetland within designated conservation precincts; • Creation of ecological linkages between remnants within the subject site and enhancement of vegetation linkages to bushland offsite through the revegetation of riparian corridors, • The adoption and implementation of water sensitive urban design principles through the design of a stormwater treatment train, which will ensure water quality is maintained or improved and that water flows are maintained, and • Native landscaping and revegetation works to maintain the visual character of the Rosedale area. • Access from George Bass Drive is located to minimise impacts on wetlands. This location represents the optimal ecological solution after considering a number of alternatives. • Exclusion of development in riparian areas, land with slope greater than 33%, as well as within 400m of the sewage treatment plant. **The current scheme has been devised by providing the most appropriate balance between the maximisation of lot yield, as encouraged by the Minister's Expert Panel on the South Coast Sensitive Lands Review, and the minimisation of environmental impacts on the site.**

(f) any representations made by the Director of National Parks and Wildlife in relation to the development application, and	**(f) Representations made by Department of National Parks and Wildlife** **Comment:** This is a matter for the Department of Planning
(g) any wetlands surrounding the land to which the development application relates and appropriateness of imposing conditions requiring the carrying out of works to preserve or enhance the value of those surrounding wetlands.	**(g) Wetlands** As discussed in earlier sections of this report, the proposed development has been designed to minimise impacts on the Wetland; in particular the Water Management Plan proposed by Patterson Britton will include the following elements: • rainwater tanks to reuse runoff which reduces the runoff volume and slows down the flow; • bio-retention rain gardens on selected lots to infiltrate, treat and slowdown runoff from paved areas on the lots; • bio-retention swales along the roads to treat and slow down runoff from lots and roads, and to promote subsurface flows; • gross pollutant traps to remove sediment, debris, organic matter and litter; • rehabilitate wide riparian corridors and wetland buffers with native vegetation to stabilise banks and provide significantly improved habitat value; • upgrade farm dams to wetlands to improve runoff quality and provide more diverse aquatic habitat; and • provide storage and promote infiltration of runoff to balance the surface/subsurface flows and slow down flows to mimic closely existing conditions. In addition, Patterson Britton have undertaken hydrological and water quality simulations over a number of years which have verified that the balance between surface and subsurface flows would closely mimic existing conditions for flows into the Bevian Wetland. The runoff water quality to the Bevian Wetland could have pollutant loads up to 25% lower than for existing conditions thereby contributing significantly to the long term improvement in receiving water quality.

(3) Pursuant to section 29 of the Act, development for which consent is required by subclause (1) is declared to be designated development for the purposes of the Act.	**(3) Designated Development** **Comment:** The subject development is not designated development
7A Restriction on carrying out of restoration works *(1) In respect of land to which this policy applies, a person must not carry out restoration works except with the consent of the council and the concurrence of the Director.* *(2) An applicant for consent to carry out restoration works must lodge with the council a restoration plan prepared in accordance with the guidelines issued by the Department of Urban Affairs and Planning.* *(3) In considering whether to grant concurrence under subclause (1), the Director must take into consideration the adequacy of the restoration plan lodged by the applicant with the council.*	**Development Complies.** ***restoration works*** means works: (a) that are carried out to restore or enhance the natural values of coastal wetlands in order to rectify a breach of this Policy (including works to restore or enhance plant communities, water levels, water flow and soil composition), and (b) that are not carried out in association with other development, and (c) that do not have a significant impact on the environment beyond the site of the works. **Comment:** The proposed development does not involve restoration works.

1.6.2.3. State Environmental Planning Policy 44 – Koala Habitat

Conacher Travers, in their assessment of the site, undertook a survey for the presence of Koalas using the following methods:

i. A search of the Atlas of NSW Wildlife (DEC 2006) database;

ii. The subject site was surveyed on foot, with Koala food trees being inspected for signs of Koala usage. Trees were inspected and identified for the presence of Koalas, characteristic scratch and claw marks on the trunk and scats around the base of each tree. The proportion of trees showing signs of Koala use was calculated. Additionally the location and density of droppings if found were documented;

iii. Koalas were also targeted during spotlight surveys; and

iv. Identification and an assessment of the density of tree species listed as Koala feed trees in State Environmental Planning Policy No. 44 - Koala Habitat Protection was undertaken across the site.

v. An estimate of the percentage density of each tree species across the site was determined by averaging the percentage of stems counted.

The trees on the subject site were also searched for koalas and any sightings of koalas were noted. One (1) Koala food tree species (Eucalyptus tereticornis) listed on Schedule 2 of State Environmental Planning Policy No. 44 - Koala Habitat Protection (SEPP 44), was observed within the study area.

This species made up <10% of trees within the site. This is less than the 15% required by SEPP 44 for classification as Potential Koala Habitat. A search of the Atlas of NSW Wildlife (DEC 2006) database found no records of Koala habitation within a 10 km radius from the study area.

Comment:
No Koalas or secondary evidence of habitation were observed during the fauna survey. Therefore the subject site is not considered to contain 'Potential Koala Habitat' as defined by SEPP 44.

Consequently, no further consideration of matters relevant to SEPP 44 has been undertaken.

Conclusion – Koala Habitat

As no Koalas or secondary evidence of habitation were observed during the fauna survey, the subject site is not considered to contain 'Potential Koala Habitat'.

1.6.2.4. SEPP- 55 Remediation of Land

Douglas Partners, Geotechnical Engineers, have undertaken a Preliminary Contamination Assessment of the subject site (**Attachment 29**). In summary, based on the site history as a Dairy Farm, a review and inspection/field mapping, the overall potential for contamination at the subject site is considered to be low and that isolated areas of environmental concern can be remediated; rendering the site suitable for residential development.

Investigations

The investigation comprised a review of site history information including a review of previous investigations, a groundwater bore search, a review of historical titles, council records and historical aerial photographs, a search of regulatory Notices or Orders, an interview with a former site owner, a site inspection and the identification of areas of environmental concern.

A site history investigation was undertaken for the site. Issues pertinent to contamination were logged as a Potential Area of Environmental Concern (PAEC). These PAEC Identification & Inspection Logs described site observations and the potential for contamination and further classified each individual area as an Area of Environmental Concern (AEC), where required.

A review of the available previously conducted investigations was conducted. These investigations included:

- Douglas Partners Pty Ltd Report on *Geotechnical Investigation, Rosedale Urban Release Area, Rosedale*, Project Number 38045, dated 18 September 2002.

- Douglas Partners Pty Ltd Report on *Stage 1 Environmental Site Assessment, Lot 11 DP 755902, Bevian Road, Rosedale,* Project Number 38045A, dated 29 April 2003.

- Douglas Partners Pty Ltd Report on *Supplementary Geotechnical Investigation, Rosedale Urban Release Area, Rosedale*, Project Number 38045B, dated 18 July 2005.

The review identified one PAEC reported in the Stage 1 Environmental Site Assessment with limited sampling. This report investigated the contamination status of the former nursery area, which was located on Lot 11 in the north eastern portion of the site. Above-ground storage tanks and a pump were identified in the nursery compound of Lot 11 DP 755902. **No elevated contaminant levels were identified during the assessment of the former Nursery area.**

DNR Groundwater Bore Search
A registered groundwater bore search was conducted by the Department of Water and Energy (DWE) on the 2nd of July 2007. None of the registered groundwater bores were found to occur within the Rosedale Urban Release Area boundaries.

Three bores are located down gradient of the site, all are used for domestic purposes. All up-gradient bores are registered for domestic or stock use. **No industrial uses were recorded this is consistent with the non industrial surroundings of the site. No PAEC were recorded.**

Part 2 of the Section 149 certificate
A review of the Part 2 of the Section 149 planning certificates were reviewed for each parcel of land within the release area. It is understood that currently no Part 5 of the Section 149 certificates are available for part of the site. **No potential contamination issues were identified in the certificates.**

Historical Aerial Photography
Historical aerial photographs from five periods of photography, archived by the Land Information Section of the Department of Land, were inspected and indicated that the site has undergone changes in layout since the earliest available aerial photograph dated January 1961. Aerial photographs examined included:
• August 1961 (Run 2, Prints 1066-5102)
• January 1969 (Run 2, Prints 1588-5184)
• September 1975 (Run 6, Prints 105-2333)
• November 1991 (Run 9, Print 54)
• January 2006 (Run 9, Prints 246-258)
All photographs were scanned at high resolution and geocoded for use in a GIS database for review and logging. Photos were examined for signs of structures, which may have been deleted, stripped soil or areas of fill. **All unexplained surface features were logged a Potential Areas of Environmental Concern.**

Regulatory Notices Search
A search was conducted through the NSW EPA web site for any Regulatory Notices that may be current on the site under the *Contaminated Land Management Act,* 1997. **No Notices or Orders to investigate or remediate have been issued for the site under this legislation.**

Interview with a former site owner
An interview with a former site owner, Mr Robert Mann, was conducted. **All PAECs resulting from the interview process were logged.**

Site inspection
A site inspection on 26th and 27th July 2007 was undertaken with the intent of visiting all logged areas of PAEC as well as undertaking field mapping of PAEC not identified as part of the Site History Investigation. **During this visit all PAEC were visited, photos were taken and site inspection logs recorded.**

Potential Areas of Environmental Concern (PAEC)
Twenty eight areas were identified in the course of site history investigations as Potential Areas of Environmental Concern (PAEC); (**Attachment 29**)

Areas of Environmental Concern (AEC)
The site history and inspection indicated that the site had mainly been used for agricultural, horticultural and rural residential purposes. Following investigation of each of the 28 PAEC sites were classified as either AEC or not AEC. The investigation identified six (6) areas of environmental concern (AEC) which are summarised in **Table 4** together with an assessment of the potential contamination associated with each AEC.

Table 4 – Areas of Environmental Concern

AEC #	PAEC #	Description	Grid Ref	Contaminants	Level of Assessment
1	1	Areas surrounding ASTs (Lot 11 DP 7555902)	C5	TRH BTEX, PAH, Phenols	Petroleum
2	3	Old Cheese Factory (Lot 11 DP 755902)	D6	Asbestos Lead in paint, lead in soil, OC, OP	Structure
3	6	Disturbed Area (Lot 32 DP 755902)	E4	Heavy Metals, TRH/BTEX, PAH, OC, O,P PCB, Asb	Full
4	13	Disused Dairy (Lot 213 DP 755902)	D4	Heavy Metals, TRH/BTEX, PAH, OC, OP, PCB, Asb	Full
5	22	Possible Filling of gully (Lot 118 DP 755902)	F2	Heavy Metals, TRH/BTEX, PAH, OC, OP, PCB, Asb	Full
6	28	Asbestos Scatter (Lot 11 DP 755902)	C5	Asbestos	Clearance

Notes: Heavy metals = As, Cd, Cr, Cu, Pb, Hg, Ni, Zn
BTEX = Benzene, Toluene, Ethylbenzene, Xylene
OC = Organochlorine pesticides
PCB = Polycyclic Biphenyls
TRH = Total Recoverable Hydrocarbons
PAH = Polycyclic aromatic hydrocarbons
OP = Organophosphorus pesticides
Asb = Asbestos
Level of assessment – see Section 10

The following table is a guide to the type of additional investigations that may be required:

Table 5 – Additional Investigations

AEC1 Above Ground Storage Tanks	Associated with hydrocarbon contamination. Above-ground storage tanks noted on site will require pumping out and removal, soil from beneath the tank and the heaters will require sampling to assess the extent of hydrocarbon contamination. It is expected that a minor quantity of soil will require waste classification and off-site disposal.
AEC2 Old Cheese Factory	Some asbestos sheeting was noted in the external walls of the building. Due to the buildings age lead in paint is also possible. A hazardous building material assessment should be undertaken prior to refurbishment. At the same time assessment of the soils directly surrounding the structure should be made for lead, asbestos and pesticides. Care should be taken if HBMs are removed to prevent cross contamination of the area A Clearance Certificate by an Occupational Hygienist should be provided post refurbishment
AEC 3 and 5 Possible Filling	These AEC may have been subject to filling. As a result contaminants may have been introduced to the site. Sample densities of the Stage 2 investigation should meet EPA requirements.
AEC4 Derelict Dairy	Some asbestos sheeting was noted in the external walls of the building. Due to the buildings age lead in paint is also possible. A hazardous building material assessment should be undertaken prior to demolition. Care should be taken if HBMs are removed to prevent cross contamination of the area A clearance Certificate by an Occupational Hygienist should be provided In addition a Stage 2 contamination assessment should be undertaken on the surrounding area (including the cattle yards).
AEC6 Asbestos Scatter	The area of asbestos requires delineation followed by preparation of a Remediation action plan, remediation and then provision of a clearance Certificate by an Occupational Hygienist.
Remaining Areas Outside of identified AEC	Low density sampling on an appropriate grid to determine background levels combined with detailed walkover inspection to minimise the likelihood that any AECs remain unidentified.
Whole Site	A plan management plan for unexpected finds will be required, to address any contamination uncovered during site earthworks not detected as part of the contamination assessment.

Based on the site history review and inspection/field mapping, the overall potential for contamination at the subject site is considered to be low.

Conclusion – Contamination

It is considered that isolated areas of the site, deemed to be of environmental concern, can be made suitable for residential development following remediation and validation of these areas. As a consequence, the entire site would be suitable for residential development.

1.6.2.5. SEPP 71 - Coastal Protection

The subject development is within 1km of the coast and consequently SEEP 71 applies. The proposal is assessed against the Aims of SEPP 71 as follows:

Aims of Policy	Comment
This Policy aims: (a) to protect and manage the natural, cultural, recreational and economic attributes of the New South Wales coast, and	**Development complies** a) The proposed development protects the all endangered ecological communities on the subject site; namely the Swamp Oak Forest and the Freshwater Wetland Coastal Floodplains;
(b) to protect and improve existing public access to and along coastal foreshores to the extent that this is compatible with the natural attributes of the coastal foreshore, and	b) the subject site does not have a foreshore location but provides a series of vehicular , cycleway and pedestrian networks through the subject site leading to the southern portion of the site from which access to the nearby coast is possible;
(c) to ensure that new opportunities for public access to and along coastal foreshores are identified and realised to the extent that this is compatible with the natural attributes of the coastal foreshore, and	c) As noted above, the subject site does not have a coastal foreshore location but facilitates access to the foreshore;
(d) to protect and preserve Aboriginal cultural heritage, and Aboriginal places, values, customs, beliefs and traditional knowledge, and	d) A number of Potential Aboriginal Deposits have been identified by heritage consultants, Navin Office, in their report at **Attachment 27**. The heritage consultant considers that the subject subdivision proposal is satisfactory in minimising impact to known significant Aboriginal and European site heritage recordings, and establishes more effective management regimes for their conservation management. The potential for better management of heritage values is provided by more inclusive conservation of sites and deposits, and the presence of larger and more contiguous open space and ecological open-space zones. The current subdivision proposal provides greater scope for the conservation of sites with

	moderate or lower values, therefore allowing for a more representative conservation strategy and complimenting individual values with site/complex and contextual values.
(e) to ensure that the visual amenity of the coast is protected, and	e) Particular attention has been given to the issue of visual impact of the subject development when viewed from the coastline. This issue has been dealt with in **Section 2.2.1** of this report
(f) to protect and preserve beach environments and beach amenity, and	f) The subject site does not have a beachside location. Notwithstanding this, the subsurface and run-off water quality from the site will be equal to or better than that the existing environment
(g) to protect and preserve native coastal vegetation, and	g) The subject development protects all native vegetation. However, the upgrade on the existing, unsealed road along the western boundary of the Bevian Swamp will potentially impact on the extent and composition of the Fresh Water Coastal Wetland immediately adjacent to the road. The impact on Bevian Wetland will be minimised by careful alignment of the proposed road, minimising its overall width and installing protective measures to contain sedimentation, vegetation removal and the release of contaminants. Therefore it is considered unlikely that the proposal will substantially and adversely modify the composition of this community such that its local occurrence is likely to be placed at risk of extinction.
(h) to protect and preserve the marine environment of New South Wales, and	h) Notwithstanding that the site has no coastal frontage, the marine environment will be protected from impact associated with subsurface and or run-off water by virtue of the water sensitive urban design of the project which will maintain or enhance the

	quality of water reaching the Bevian Wetland and hence, through infiltration, the marine environment.
(i) to protect and preserve rock platforms, and	i) Not applicable;
(j) to manage the coastal zone in accordance with the principles of ecologically sustainable development (within the meaning of section 6 (2) of the *Protection of the Environment Administration Act 1991*), and	j) The principles of ecologically sustainable development require the effective integration of economic and environmental considerations in decision-making processes. Ecologically sustainable development can be achieved through the implementation of the following principles and programs: (a) the precautionary principle, (b) inter-generational equity (c) conservation of biological diversity and ecological integrity (d) improved valuation, pricing and incentive mechanisms In relation to the proposed development, it is considered that it has been designed to minimise its impacts on the environment and maximise its ecological sustainability by virtue of the following design features : • Protection of all ecologically endangered communities; • Enhancing the water quality entering the Bevian Wetland and Saltwater Creek ; • Reducing potable water consumption; • Utilisation of rainwater; • Minimisation of flow impacts on downstream receiving waters (Bevian Wetland and Saltwater Creek); • Protection of items of heritage and archaeological significance; • Minimisation of non-renewable energy usage
(k) to ensure that the type, bulk, scale and size of development is appropriate for the location and protects and improves the natural scenic quality of the surrounding area, and	k) As noted previously, a comprehensive suite of Urban Design Guidelines have been prepared for the project (**Attachment 16)** which have been formulated to facilitate the design of dwellings to a South

	Coast style; compatible with the location, setting and scenic qualities of the area.
(l) to encourage a strategic approach to coastal management.	l) The subject site has no coastal frontage and is a minimum distance of approx 450m from the coast. As such the proposed development will have minimal impact on Coastal development but will maintain or enhance the quality of water reaching the coast and facilitate access to the coast for its residents and visitors.
Matters for consideration under SEPP - 71 The matters for consideration are the following: (a) the aims of this Policy set out in clause 2,	a) Compliance with objectives of SEPP71 addressed above;
(b) existing public access to and along the coastal foreshore for pedestrians or persons with a disability should be retained and, where possible, public access to and along the coastal foreshore for pedestrians or persons with a disability should be improved,	b) The subject site does not have a coastal frontage. However, as noted elsewhere in this report, the proposed development provides a pedestrian and cycle network the site from its northern most precinct to the southern boundary. From this location access to the coast is readily available across George Bass Drive.
(c) opportunities to provide new public access to and along the coastal foreshore for pedestrians or persons with a disability,	c) Not applicable to the development as it does not have a foreshore location.
(d) the suitability of development given its type, location and design and its relationship with the surrounding area,	d) The issue of the suitability of the site is discussed at length at S**ection 1.4.3** of this report and its contextual compatibility is discussed at **Section 1.5.5.**
(e) any detrimental impact that development may have on the amenity of the coastal foreshore, including any significant overshadowing of the coastal foreshore and any significant loss of views from a public place to the coastal foreshore,	e) The proposed development does not have a costal frontage. It is approximately 350m from the beach at is nearest point. The development is low scale (maximum 2 storeys) and therefore there will be no overshadowing effects on the foreshore.

	The issue of Visual Impact is dealt with at **Section 2.2.1** of this report
(f) the scenic qualities of the New South Wales coast, and means to protect and improve these qualities,	f) The subject site is currently largely cleared as a consequence of its previous agricultural use. The proposed development will create ecological corridors through the site as well as landscaping the public domain over the rest of the site. As a consequence, the scenic qualities from both within the site and external to the site will be maintained; if not enhanced.
(g) measures to conserve animals (within the meaning of the *Threatened Species Conservation Act 1995*) and plants (within the meaning of that Act), and their habitats,	g) This is discussed at **Section 1.6.1.2**.
(h) measures to conserve fish (within the meaning of Part 7A of the *Fisheries Management Act 1994*) and marine vegetation (within the meaning of that Part), and their habitats	h) This is discussed at **Section 1.6.3**
(i) existing wildlife corridors and the impact of development on these corridors,	i) The existing site is currently predominantly cleared as a consequence of its previous agricultural use as a dairy farm. However, the proposed development will introduce ecological and wildlife corridors as part of the reintroduction of habitat through the site. Two vegetation corridors within the development will provide vegetation connectivity between protected remnants within the site and to vegetation off site. These corridors will improve the movement of fauna and genetic transfer of plant materials across the site and improve the habitat viability of protected remnants within the site. Further improvements proposed for vegetation connectivity are further described in the Ecological Assessment report (**Attachment 19**).

(j) the likely impact of coastal processes and coastal hazards on development and any likely impacts of development on coastal processes and coastal hazards,	j) As the subject site is a minimum of approximately 350m from the beach and 380m to the coast, it is considered that there will be minimal, if any, effects of the coastal process or coastal hazards on the development or effects of the development on the coastal processes and coastal hazards.
(k) measures to reduce the potential for conflict between land-based and water-based coastal activities,	k) As the site is some distance from the coast (approx 350m minimum) and has no direct interface with it, it is considered that there is little potential for conflict between the subject land-based development and water-based coastal activities.
(l) measures to protect the cultural places, values, customs, beliefs and traditional knowledge of Aboriginals,	l) This matter is dealt with at **Section 1.5.13** of this report.
(m) likely impacts of development on the water quality of coastal water-bodies,	m) Patterson Britton as part of their Water Management report (**Attachment 24**) state that hydrological and water simulations over a number of years have verified that the balance between surface and subsurface flows would closely mimic existing conditions for flows into the Bevian Wetland. The runoff water quality to Salt Water Creek and Bevian Wetland could have pollutant loads up to 25% lower than for existing conditions thereby contributing significantly to the long term improvement in receiving water quality. Consequently, it is considered the subject development will not have any detrimental impacts on coastal water-bodies. Indeed the run-off water entering the water-bodies may be up to 25% cleaner than currently is the case.
(n) the conservation and preservation of items of heritage, archaeological or historic significance,	n) This is dealt with at **Section 1.5.13** of this report.

(o) only in cases in which a council prepares a draft local environmental plan that applies to land to which this Policy applies, the means to encourage compact towns and cities,	o) Not applicable to this development.
(p) only in cases in which a development application in relation to proposed development is determined:	p) In the determination of the subject application by the Minister, it is considered that :
(i) the cumulative impacts of the proposed development on the environment**,**	(i) The cumulative impacts of the development are considered to be satisfactory as the Bevian Road subdivision layout has been primarily designed in response to the environmental constraints identified within the site. The development has then been designed to acknowledge and comply with those constraints. As a result, areas of conservation and open space have been integrated with development. Through this integrated design process existing ecological features of the site have been protected and enhanced. The protection of ecological features has further assisted in improving the overall visual amenity of the site. Key ecological protection and enhancement measures within the site include: • The retention and fencing of existing native vegetation remnants and hence protection of habitat • Buffering of Bevian wetland and restoration of associated vegetation • Revegetation of significant drainage lines to provide bank stability, create vegetation connectivity and improve habitat • Control of erosion through the upgrade of Bevian Road to a sealed surface • Bio-retention swales along roads to treat and slow down runoff from lots and roads – promoting subsurface flows • Bio-retention rain gardens on selected lots to infiltrate, treat and slow down runoff from paved areas on the lots

	• Gross pollutant traps to remove sediment, debris, organic matter and litter • Upgrade farm dams to improve runoff quality and provide more diverse aquatic habitat • Retention basins to collect sediments and control runoff flows • Storage and infiltration promotion within bio-retention systems to balance surface and subsurface flows and slow down flows to maintain existing conditions
(ii) measures to ensure that water and energy usage (by the proposed development) is efficient.	(ii) The proposed development incorporates a Water Sensitive Urban Design Strategy, representing best practice measures to meet the following objectives : • Reduction in potable water consumption; • Utilisation of available rainwater; • Minimisation of impacts on downstream receiving waters; • Safe conveyance of stormwater; and • Integration of water management measures with landscape design into the proposed development. The elements to meet these objectives will be : • rainwater tanks to reuse runoff which reduces the runoff volume and pollutant loads and slows down the flow; • bio-retention rain gardens on selected lots to infiltrate, treat and slowdown runoff from paved areas on the lots; • bio-retention swales along the roads to treat and slow down runoff from lots and roads, and to promote subsurface flows; • gross pollutant traps to remove sediment, debris, organic matter and litter; • rehabilitate wide riparian corridors and wetland buffers with native vegetation to stabilise banks and provide significantly improved habitat value;

	• upgrade farm dams to improve runoff quality and provide more diverse aquatic habitat; and • provide storage and promote infiltration of runoff in bio-retention systems to balance the surface /subsurface flows and slow down flows to mimic closely existing conditions. • Minimisation of non-renewable energy usage by maximising the use of solar heating, natural cross ventilation, building insulation and the use of high efficiency electrical goods and plumbing fittings.
Public access A consent authority must not consent to an application to carry out development on land to which this Policy applies if, in the opinion of the consent authority, the development will, or is likely to, result in the impeding or diminishing, to any extent, of the physical, land-based right of access of the public to or along the coastal foreshore.	**Public Access** The proposed development does not have a foreshore location and will not impede or diminish land-based right of access to the coastal foreshore.
Effluent disposal The consent authority must not consent to a development application to carry out development on land to which this Policy applies in which effluent is proposed to be disposed of by means of a non-reticulated system if the consent authority is satisfied the proposal will, or is likely to, have a negative effect on the water quality of the sea or any nearby beach, or an estuary, a coastal lake, a coastal creek or other similar body of water, or a rock platform.	**Effluent Disposal** The subject development will be connected to the Sewerage Treatment Plan adjacent to the site.
Stormwater The consent authority must not grant consent to a development application to carry out development on land to which this Policy applies if the consent authority is of the opinion that the development will, or is likely to, discharge untreated stormwater into the sea, a beach, or an estuary, a coastal lake, a coastal creek or other similar body of water, or onto a rock platform	**Stormwater** The subject development will not discharge any stormwater directly into the sea. The northern half of the site drains to the east into Salt Water Creek which discharges to the ocean across a sandy beach. The southern half of the site drains to Bevian Wetland. The water sensitive stormwater urban design approach mimics the existing

	hydrology. This provides a balance between surface and subsurface infiltration (groundwater) such that both the surface runoff peak flow rates and volumes closely match the existing conditions. This will also result in no significant adverse impacts on shallow subsurface throughflows or groundwater. The matching of the existing hydrology would allow the Bevian Wetland to dry in extended periods of no rainfall and would ensure no change in the bank stability for the riparian corridors and Salt Water Creek. In fact, with the rehabilitation of the riparian corridors on the site, there would be improved conditions for Salt Water Creek. The past clearing of vegetation on the site creeks and destabilisation of the creek banks by grazing animals would have increased the sediment supply to Salt Water Creek thereby contributing to destabilising the creek. The proposed rehabilitation of the riparian corridors therefore would enhance the stability of Salt Water Creek. The proposed water management strategy represents industry best practice and in terms of runoff quality and it exceeds current best practice in terms of volume control.

1.6.2.6. Eurobodalla Rural LEP – 1987.

The zoning map for the subject site is reproduced in **Figure 14.**

1.6.2.6.1. Aims and Objectives of LEP

The Aims and Objectives of the LEP are reproduced below:

"(1) The overall aim of this plan is to further the objects of the Environmental Planning and Assessment Act 1979, that is -

(a) to encourage -

(i) the proper management, development and conservation of natural and man-made resources, including agricultural land, natural areas, forests, minerals, water, cities, towns, and villages, for the purpose of promoting the social and economic welfare of the community and a better environment;

(ii) the promotion and co-ordination of the orderly and economic use and development of land;

(iii) the protection, provision and co-ordination of communication and utility services;

(iv) the provision of land for public purposes;

(v) the provision and co-ordination of community services and facilities; and

(vi) the protection of the environment;

(b) to promote the sharing of the responsibility for environmental planning between the different levels of government in the State; and

(c) to provide increased opportunity for public involvement and participation in environmental planning and assessment.

Comment:

It is considered that the subject development is consistent with the Aims of the LEP in that:

- It represents the culmination of many years of strategic planning by the Eurobodalla Shire Council in promoting the subject site for urban expansion as part of its vision for an orderly expansion of residential areas to cater for the demand of housing within the Shire;
- The proposed development represents an appropriate economic use for the land consistent with Council's strategic planning for the Shire;
- Council has already constructed infrastructure, in the form of a sewerage treatment plant, adjacent to the site to cater for the anticipated increase in the resident population in the area;
- The proposed development will protect the environmental quality of the area; in particular in relation to flora and fauna and the water quality of the SEPP 14 Wetland on the site.

Objectives

3. (1) The general objectives of this plan are -

(a) to encourage orderly and proper development within the Shire of Eurobodalla;

(b) to identify zones where particular classes of development are most likely to be appropriate, having regard to the environmental characteristics of the area, servicing and access requirements and constraints, and the characteristics of the development;

(c) to optimise the use of existing services and infrastructure and promote the efficient provision of any services and infrastructure in

future in accordance with the intensity and type of development proposed for the area;
(d) to ensure that provision is made for public amenities, public services and community facilities early in the process of development;
(e) to ensure that no development on any land is likely to jeopardise the future orderly and economical development of the land or land in its vicinity;
(f) to provide a broad, long-term framework of planning controls based on a strong emphasis on general, particular and zone specific statements of objectives and strategies in concert with development control plans giving expression to detailed planning provisions.

(2) The particular objectives of this plan are –

(a) in relation to environmental protection -
(i) to protect coastal areas, estuaries, wetlands, rainforests and other environmentally sensitive areas from the effects of inappropriate use or development;
(ii) to promote the retention of trees and tree cover and to conserve as far as practicable the existing pattern of vegetation to maintain landscape quality and remaining natural ecosystems;
(iii) to conserve soil, flora and fauna and significant natural features;
(iv) to provide for the existing and potential functions of water courses and floodways for domestic water supply, drainage, aquaculture, recreation and ecological purposes;
(v) to control development to the catchment areas of the Buckenbowra, Deua and Tuross Rivers and Deep and Dromedary Creeks to protect water quality for domestic purposes;
(vi) to maintain the overall scenic beauty of the rural areas of the Shire of Eurobodalla and protect significant views from public roads, reserves and waterways;
(vii) to maintain air quality and avoid noise pollution, having regard to the nature and extent of the effects and the sensitivity of affected people or things;
(viii) to ensure that development or activity in one zone does not adversely
affect environmentally sensitive land in adjacent zones;
(b) in relation to rural land management -
(i) to minimise risks to life and property from flooding, bushfires or geological hazard;
(ii) to protect and conserve agricultural land and to encourage continuing agricultural land use;
(iii) to provide for use and management of the Shire of Eurobodalla's extractive and forestry resources to meet community needs while minimising adverse environmental and social impacts;
(iv) to minimise the need for urban services and works in the non-urban area, including road works;
(v) to encourage community services and facilities for residents of non-urban areas to be located in existing villages and towns;

(c) in relation to heritage conservation - to conserve and enhance items, structures, and places of natural, historic, scientific or cultural significance, including Aboriginal relics and places;

(d) in relation to transport -

(i) to encourage the provision of a balanced transport system including safe and convenient facilities for pedestrians, cyclists, public transport users and road users generally;
(ii) to encourage the development of transportation networks and systems in a manner integrated with land use, including a hierarchy of roads to service varying transport functions;
(iii) to promote provision of roads in non-urban areas that are compatible with the nature and intensity of development and the character of the area;
(iv) to ensure that provision of roads supports and facilitates the desired pattern of development as indicated on the map;
(v) to ensure adequate reservation of land for roads and access in new developments;
(vi) to minimise conflicts between the transport function of roads and the access needs of adjoining land;
(vii) to protect visual amenity for road users; and
(viii) to require adequate off-street parking to meet demand generated by redevelopment or new development;

(e) in relation to recreation and tourism -

(i) to promote the development of a range of recreational opportunities and facilities to meet the needs of various ages and interests at the neighbourhood, local and regional levels;
(ii) to provide for multiple use of public buildings and facilities;
(iii) to promote the provision of land for neighbourhood recreational use in or adjacent to residential areas and for local recreational use in reasonable proximity to residential areas;
(iv) to encourage tourist accommodation primarily in urban areas;
(v) to provide for tourist-related facilities and associated accommodation in non-urban areas where such facilities are related to and in harmony with the character of the area;
(vi) to protect the quality, accessibility and attractiveness of the Shire's natural recreational resources consistent with their environmental characteristics and sensitivity;

(f) in relation to housing - to encourage a range of housing opportunities to meet the needs of the community for a choice of dwelling size, type, tenure, cost and location, where essential public services are available or can be provided efficiently and economically to the standard required by the nature of the development;
(g) in relation to industry and commerce -

(i) to encourage and facilitate commercial and industrial development primarily in urban areas; and
(ii) to accommodate in rural areas hazardous or offensive industries that cannot be accommodated in urban areas;

(h) in relation to villages and towns - to encourage the development of existing towns and villages as centres of commercial activity, public facilities and indoor recreation and entertainment; and

(i) generally -

(i) to expand opportunities for public involvement and participation in environmental planning and assessment; and
(ii) to minimise the need for amendments to planning controls.

Comment:
It is considered that the proposed development is consistent with the general objectives of the Rural LEP in that:

- The proposed subdivision of the subject site for residential use represents the orderly and appropriate development of the land in accordance with the State and Eurobodalla Council's strategic planning of the site as articulated in :
  - the Eurobodalla LEP 1987 by virtue of zoning the majority of the subject site as Urban Expansion;
  - The site specific Eurobodalla DCP 160 – Rosedale
  - The South Coast Regional Strategy which supports the development of the subject site; and
  - The recommendations of the Expert Panel established by the Minister for Planning to review Sensitive Urban lands (2006) which made specific recommendations on the subject site (see **section 1.6.5.1**);
- The site has been specifically identified for residential development in all the various planning documents above;
- The development will optimise the use of existing infrastructure ; particularly the sewerage treatment plant adjacent to the site which was constructed in anticipation of the development of the subject site for residential use;
- As part of the development approval process s94 contributions will be levied on the development for the provision of public infrastructure;
- The development of the site for residential use will not jeopardise the future orderly and economical development of the land or land in its vicinity as the proposed development is part of the planned strategic framework for the Shire and the South Coast;
- The development will protect the environmentally sensitive attributes of the site. In particular, the proposed development has been designed in response to the environmental and ecological constraints identified within the site. As a result areas of conservation and open space have been integrated with development.

  Key ecological protection and enhancement measures within the site include:

  • Protection of habitat by the retention and fencing of existing native vegetation remnants;
  • Buffering of Bevian wetland and restoration of associated vegetation
  • Revegetation of significant drainage lines to provide bank stability, create vegetation connectivity and improve habitat
  • Control of erosion through the upgrade of Bevian Road to a sealed surface
  • Provision of Bio-retention swales along roads to treat and slow down runoff from lots and roads thus promoting subsurface flows
  • Provision of bio-retention rain gardens on selected lots to infiltrate, treat and slow down runoff from paved areas on the lots
  • Provision of gross pollutant traps to remove sediment, debris, organic matter and litter
  • Upgrade farm dams to improve runoff quality and provide more diverse aquatic habitat
  • Retention basins to collect sediments and control runoff flows

• Storage and infiltration promotion within bio-retention systems to balance surface and subsurface flows and slow down flows to maintain existing conditions;
• Creation of vegetation corridors to improve vegetation connectivity between native remnants and vegetation offsite
• Maintain water flows and maintain or improve water quality within the site to protect downstream water bodies including Saltwater Creek ICOLL and Bateman's Bay Marine Park; and
• Protection and conservation of items of environmental and archaeological and Aboriginal significance.

- The development will also minimise risks to life and property from flooding, bushfires and geological hazard.

Conclusion - Rural LEP Objectives
The proposed development has been designed to accommodate all the environmental and ecological constraints on the site. As a consequence it is considered that the development is consistent with and satisfies the objectives of the Eurobodalla Rural LEP

1.6.2.6.2. Zoning

The subject site is primarily zoned 10 Urban Expansion (**Figure 14)**. In addition, the south-western portion of the site is zoned 1c and at the south-western-most corner of the site the land is zoned 7a Protected Wetlands

1.6.2.6.3. Objectives of Zone and Permissibility of Use

(i) ZONE NO. 10 (URBAN EXPANSION ZONE)

The objectives of the zone are reproduced below:

"1. Objective of zone

The objectives of this zone are -

(a) to identify areas within which urban development may be accommodated;

(b) to ensure that consideration is given by the Council to -

(i) the impact of urban development on the physical environment;
(ii) the social and economic impact of urban development;
(iii) the range and pattern of land uses appropriate to the land;
(iv) the limits of urban development within the urban expansion zone in view of the fact that urban development will not necessarily proceed over all of the land within this zone; and
(v) the extent, range and capacity of services to be provided to the land and the economic, social and environmental cost of providing those services;

(c) to ensure that adequate services and community facilities are provided with development especially but not exclusively within residential areas within this zone;

(d) to ensure that no development is permitted within this zone which would, in the view of Council, jeopardise the future use of any of the land within this zone for urban purposes; and

(e) to ensure that sensitive environmental features, including wetlands, archaeological sites and areas of high scenic or scientific value, are identified and permanently conserved."

Comment:
The proposed development within the Urban Expansion Zone is consistent with the Zone objectives in that:

- It is within the area identified for urban expansion;
- The subject Environmental Assessment of the proposed development provides extensive and comprehensive consideration to:
  (i) the impact of urban development on the physical environment;
  (ii) the social and economic impact of urban development;
  (iii) the range and pattern of land uses appropriate to the land;
  (iv) the limits of urban development within the urban expansion zone in view of the fact that urban development will not necessarily proceed over all of the land within this zone; and
  (v) the extent, range and capacity of services to be provided to the land and the economic, social and environmental cost of providing those services;
- Adequate services and facilities are provided with the development for the residents of the site and the surrounding community as part of the development proposal and by way of s94 contributions;
- The development proposal for residential use within this zone will not jeopardise the future use of the land for urban purposes as residential use is an urban purpose;
- The design of the proposed subdivision, as documented in this report, ensures that sensitive environmental features, including the SEPP 14 wetland in the southern portion of the site, archaeological sites and areas of high scenic or scientific value, are permanently conserved.

Conclusion - Urban Expansion Zone Objectives

It is considered that the subject development is consistent with and satisfies the objectives of the Urban Expansion Zone

Permissibly of Land Use
In terms of permissibility of the subject development, the relevant clauses of the LEP are reproduced below:

"2. Without development consent
Agriculture (other than animal boarding, breeding or training establishments, building structures ancillary to agriculture, feed lot establishments, activities involving land clearing, pig keeping establishments and poultry farming establishments).

3. Only with development consent
Any purpose other than a purpose permitted without development consent.

4. Prohibited
Nil."

Comment:
As nothing is prohibited within this zone, residential use, including dual occupancies, and the subdivision of the site are permissible with consent.

Conclusion - Permissibility of Proposal

It is considered that residential, commercial and community facility uses, the erection of residential, commercial, mixed use and community buildings and the subdivision of the site, on land zoned Urban Expansion 10, are permissible with consent.

Subdivision of Land in Zone 10 - Urban Expansion
The relevant section dealing with subdivision of land zoned Urban Expansion - 10 is reproduced below:

"Development within Zone No. 10
23. (1) This clause applies to land within Zone No. 10.
(2) Before determining an application for development on land to which this clause applies, the ***Council shall consider the consequences of carrying out that development on the pattern of land use within the zone.***

(3) Any development application for consent to subdivision of land to which this clause applies shall be accompanied by a statement relating to the likely ***impact of that development on the environment and any steps proposed to be taken to mitigate any likely adverse environmental impac****t, with particular emphasis on the following matters -*
(a) the relationship of the development to the pattern of land use of the surrounding land;
(b) proposed arrangements for the provision of sewerage and water supply to the land;
(c) the nature and topography of the land;
(d) the social and economic effects of the development, particularly with regard to the cost of the provision of services;
(e) the likely impact on local and major roads of traffic likely to be generated by the development;
(f) an assessment of the likely bushfire and flooding risks and any other risk likely to be encountered on the land.

Comment:

Effect of The Development on the Environment and Mitigation of Impacts
The subdivision of land zoned Urban Expansion has been the subject of a comprehensive analysis of the impacts of the development on the ecology and environment as well as the preparation of Urban Design Guidelines in order to ensure:

a) protection of flora and fauna (**Sections 1.9.1.1, 1.9.1.2, 2.4.1, 2.4.2**);
b) the appropriateness of the built form in terms of siting and massing (**Attachment 16**);
c) the maintenance of water quality entering the wetland **(section 2.5.2, 2.6 and 2.6.2**);
d) mitigation against flooding (**Section 2.8.5)** and bushfires (**Section 1.9.1.4, 2.8.1, 2.8.2 and 2.8.3**);

e) the adequacy of services and facilities (**Section 2.9)**;
f) the satisfactory nature and appropriateness of
    - impact of traffic (**section 2.7**);
    - impact of noise(**section 2.11.1 and 2.11.2**); as well as
    - social and economic impacts and services (**section 2.3.1 and 2.3.2**) and commentary on social and economic impacts in subsection (d) immediately below.

Issues raised under s23(3) (a) to (f):

a) the pattern of land uses is considered compatible with surrounding land (**Section 1.5.6**) ;
b) adequate provision has been made in terms of water and sewerage systems (**Section 2.9.1**);

c) the development will cause minimal impact on the existing topography in terms particularly of cut and fill (Refer to **Urban Design Guidelines Attachment 16** which identify the manner in which the road network was devised to follow the contours of the land hence minimising cut and fill of the existing topography) ;
d) the development will have beneficial **social and economic impacts** in terms of :
    - providing funds, by way of s96 contributions, which will be used to provide public infrastructure in the area;
    - providing housing to assist in meeting the anticipated housing demand of 10,700 new dwellings in the area over the next 25 years as identified in the Department of Planning's South Coast Regional Strategy and the Eurobodalla Shire Council's Settlement Strategy;
    - providing employment during the construction of the development (which will be phased over the next 10 years) as well as permanent employment on the site for the maintenance of site facilities;
    - generating secondary employment opportunities for goods and services demanded by residents of the development;

e) that the impacts on the road network in the area are satisfactory (**Section 2.7**) ;
f) The design has adequately accommodated the impacts of bushfire (**Section 1.9.1.4, 2.8.1, ,2.8.2, and 2.8.3**) and flood (**Section 2.8.5**)

Conclusion – Subdivision

It is considered that the subdivision of land zoned Urban Expansion Zone as indicated on the subdivision drawing attached to this report is permissible, appropriate and satisfactory.

(ii) ZONE NO. 1(c) (RURAL SMALL HOLDINGS ZONE)

The objectives of the zone are reproduced below:
"1. Objectives of zone
The objectives of this zone are -
(a) to provide opportunities for small scale agricultural activity;
(b) to provide residential opportunities while retaining the scenic quality and overall character of the land and the environmental quality of any adjoining waterways, wetlands, rainforest or other environmentally sensitive areas;
(c) to ensure that environmental impacts of development and the impact of development on land or activity in surrounding zones are fully considered in advance of any significant development;
(d) to ensure that development is compatible in scale and density with the level of essential public services and facilities to be provided;
(e) to permit a variety of uses where these are compatible with small scale rural activity or require a location outside urban areas or villages; and
(f) to permit the provision, expansion or maintenance of utility services within this zone.

Comment:
The proposed development within the 1(c) zone involves the subdivision of the site into 26 lots ranging in size from 558 sqm to 3,665 sqm and the erection of a dwelling on each lot. Of these 26 lots only 5 lots are less than 750 sqm. Lot sizes along the

western and southern boundaries (adjacent to the neighbouring land Zoned 1(c)) range between 1524sqm and 3655sqm (**Attachment 12**).

An additional 18 lots are partly within the 1(c) land and partly in land zoned Urban Expansion. The average size of lots either wholly or partially within Rural 1(c) land is 1,580sqm. The average lot size of lots totally within the 1(c) zoned land is 1,642 sqm

It is considered that the proposed development is consistent with the zone objectives in that:

- The development proposal provides residential opportunities while retaining the scenic quality and overall character of the land and the environmental quality of the area. This has been accomplished by the establishment of a combination of urban design, ecological and environmental constraints on development; such that the areas of visual, ecological and environmental significance were protected and the residual areas only were deemed suitable for development (Constraints and Developable Area Drawings; **Figures 1 and 2**) ;
- The environmental impacts of the development have been comprehensively addressed throughout this report; including issue of Contamination **(Section 1.5.10** of this report), flora and fauna (**Sections 1.9.1, 1.9.2, 2.4.1, and 2.4.2**), water quality (see **Section 2.6**) , bushfire (**Section 1.9.4, 2.8.2, 2.8.3**) , flood (see **Section 2.8.5**), and heritage (see **Section 1.5.13),** Visual Impact of development **(Section 2.2)** and **traffic (Section 2.7)**;
- The development is compatible in scale and density with the level of essential public services and facilities to be provided (see **Section 2.9** of the report regarding infrastructure and services)*;*

In terms of permissibility of use and subdivision, the following extracts from the LEP are reproduced:

"2. Without development consent

Agriculture (other than animal boarding, breeding or training establishments, building structures ancillary to agriculture, feed lot establishments, activities involving land clearing, pig keeping establishments or poultry farming establishments); forestry (only on Crown timber land as defined in the Forestry Act, 1916).

3. Only with development consent

Any purpose other than a purpose permitted without development consent or a purpose which is prohibited.

4. Prohibited

Boarding-houses; bulk stores; car repair stations; commercial premises; hotels; industries (other than extractive industries, or rural industries); junk yards; liquid fuel depots; motor showrooms; residential flat buildings; service stations; shops (other than general stores); tourist accommodation (other than in conjunction with a recreation establishment or tourist recreation facilities); warehouses; waste management facilities."

Comment:

It is considered that the subdivision of the land and the erection of dwellings on each lot within land Zoned 1 (c) is permissible as any use within that zone is permissible, other than those prohibited; and neither subdivision nor dwellings are prohibited.

Conclusion – Erection of Dwellings in 1(c) Zone

It is considered that residential use, the erection of dwellings and the subdivision of land on land zoned Rural 1 (c) is permissible with consent.

1.6.2.6.4. Subdivision Provisions of in LEP

Clause 17 of the Eurobodalla Rural LEP provides controls for subdivision within land zoned 1c. This section is reproduced below:

"Subdivision of land within Zone No. 1(c)

17. (1) This clause applies to land within Zone No. 1(c).

(2) Before determining a development application for the subdivision of land to which this clause applies, the Council shall examine -

(a) the consequences of carrying out that development on the pattern of land use within the zone;

(b) the topography of the land with regard to -

(i) the siting of dwelling-houses; and

(ii) the relationship of those dwelling-houses to one another and the topography of the land;

(c) the risk of bushfires;

(d) the risk of flooding; and

(e) the likely impact of the proposed development on any wetland, waterway, forest or significant natural or cultural environmental feature or values.

(3) The Council shall not consent to the subdivision of land to which this clause applies unless it is satisfied that each lot to be created by the subdivision will have an adequate area, having regard to -

(a) the means available to provide water reticulation, and if unavailable, the capacity of the land to provide an adequate domestic water supply, including a fire fighting capacity;

(b) the ability of the land to accommodate septic disposal of household waste;

(c) the standard and capacity of public roads serving the land relative to the likely volume of traffic to be generated as a consequence of development within the subdivision, and the means available to improve roads to a standard appropriate to the level of traffic likely to be generated;

(d) the availability of other utility services and social services relative to the likely demand for those services and the cost of their provision;

(e) the nature and topography of the land as related to the density of subdivision;

(f) the desirability of maintaining a low density of development in the primary catchments of wetlands or other areas where intensive subdivision may create a significant risk of soil erosion or pollution of the environment;

(g) the desirability of providing a range and mix of allotment sizes;

(h) the need to maintain a semi-rural character in the area;

(i) the purpose for which the land is proposed to be used after subdivision;

(j) any other matter identified by the Council consistent with the objectives of this plan.

Comment:

The site has been the subject of comprehensive studies and analysis in terms of its suitability for residential subdivision (refer to **Section 1.4.3** of this report). Particular regard has been given to recommendations of the recently published South Coast Strategy and the recommendations of the Independent Panel on Sensitive Urban Lands in the South Coast.

In particular one of the recommendations of the Independent Panel in relation to the scale and type of land release of Urban Expansion Land states *"Residential development should aim to achieve a range of housing types to meet demographic change, with a higher overall yield than traditionally achieved in adjoining areas, to make better use of land resources and utility services*". In this regard, the principles espoused by the panel in relation to Urban Expansion land are also considered relevant and appropriate for the 1 (c) land in order to make better use of land resources and utility services. Consequently, residential lots of between 558 sqm and

3,665 sqm are proposed which is considered to be appropriate and consistent with the principles of the Panel recommendations on Sensitive Urban Land and the South Coast Strategy released in December 2006. In this regard, Council has supported in principle the smaller lot sizes in the Rural 1(c) zone (**Attachment 43**).

Land Pattern in 1(c) Zone
As a consequence of the principle of encouraging higher densities, in order to make better use of land resources and infrastructure, the land pattern within the 1c zone have been designed to accommodate smaller lots than traditionally achieved in the area. As described above, these lots will range in area between 558 sqm and 3,665 sqm. The larger lots are located adjacent to the neighbouring site, which is also zoned 1(c), in order to promote a compatible and integrated land pattern .

Topography
The topography of the land has been taken into consideration in the design of the subdivision in order to maintain the topographic attributes of the site and minimise earthworks. The detailed analysis of the topography, siting of dwellings and the relationship of dwellings to one and other and the topography will be undertaken as part of a subsequent application. This application is for concept approval of the subdivision only.

Bushfire and Flooding and Impact of Development on the Wetland
Issues of bushfires have been dealt with in **Section 1.9.1.4, 2.8.1, 2.8.2, and 2.8.3**; flooding in **section 2.8.5** and the impact of the development on the wetland in **section 2.5.2**

Water and Sewerage
These issues have been dealt with in **section 2.9.1.**

Capacity of Public Roads
Colston Budd Hunt and Kafes, Consulting Traffic and Transport Engineers have assessed the proposed development and consider that it will have no significant detrimental effect on the operation of the surrounding road network **(see section 2.7**). Although intersection upgrades will be required as part of the development at the northern and southern access points of the Bevian Road with George Bass Drive.

Utility Services and Social Services
This issue is dealt with in **sections 2.3.2 and 2.9.** The consent authority is also required to consider the cost of provision of services as a consequence of the demand created by the subject development. It is considered that this is appropriated addressed by the imposition of development levies in accordance with Council's s94 Contributions Plan.

Conclusion – Subdivision in 1(c) Zone

It considered that the subdivision of land in the 1(c) zone, as proposed, satisfactorily addresses the heads of consideration of s17 of the Eurobodalla LEP and is therefore satisfactory and appropriate.

Dwelling houses in 1(c) Zone
The relevant section of the Eurobodalla Rural LEP is reproduced below:

"Dwelling-houses within Zone No. 1(c)
18. (1) This clause applies to land within Zone No. 1(c).
(2) A dwelling-house shall not be erected on land to which this clause applies, except with the consent of the Council given in accordance with this clause.
(3) The Council may consent to the erection of one or more dwelling-houses on land to which this clause applies which comprises an allotment or portion.

(4) When considering any application for the erection of a dwelling-house on land to which this clause applies, the Council shall consider the consequences of carrying out that development on the pattern of land use within the zone.
(5) The Council shall not consent to the erection of more than one dwelling-house on an allotment or portion pursuant to subclause (3) unless it has examined the matters set out in clause 17(2)".

Comment:
The current application does not seek consent for the erection of dwelling houses. It seeks Concept Approval for the subdivision of the site. A subsequent application will be submitted for the development of dwellings.

Notwithstanding this, Urban Design Guidelines (**Attachment 16**) have been prepared which will determine the manner in which future development is to be undertaken, in a manner consistent with the heads of consideration of section 17(2) of the Rural LEP.

(iv) ZONE NO. 7(a) (ENVIRONMENT PROTECTION (WETLANDS) ZONE)

The objectives of the Environmental Protection (Wetland) zone are reproduced below:
"1. Objectives of zone
The objectives of this zone are -
(a) to protect freshwater and estuarine wetlands and enable them to continue to function as breeding and feeding areas for birdlife, fish and shellfish;
(b) to ensure the ecological, scenic and environmental attributes of functioning wetlands are not altered;
(c) to encourage and promote rehabilitation of previously disturbed wetlands; and
(d) to contribute to the implementation of State Environmental Planning Policy No. 14 - Coastal Wetlands."

Comment:
The nature of development proposed in this zone is restricted to the upgrade of the existing access road, Bevian Rd. It is considered that the proposed development is consistent with the zone objectives in that:

- The water quality of the wetland will be protected (**Section 2.5.2**) ;
- The ecological, scenic and environmental qualities of the Bevian Wetland will be enhanced by improving water quality (**Section 2.6.2 and Section 1.6.2.2**) ;
- The proposed development contribute to the implementation of SEPP 14 (**Section 1.6.2.2**)

In terms of permissibility for the proposed upgrade of the existing access road, the relevant extract from the LEP is reproduced below:

"2. Without consent
Nil.
3. Only with consent
Agriculture; public utility undertakings; recreation areas; ***roads;***
telecommunications facilities; utility installations.
4. Prohibited
Any purpose other than a purpose permitted without development consent or a purpose which is permitted only with development consent.

Comment:
As the provision of roads is a permissible use, with consent, the proposed upgrade of the Bevian Rd access is permissible.

Conclusion – Upgrade of Bevian Road in Environmental Protection 7(a) Zone

It is considered that the upgrade of the Bevian Road on land zoned 7(a) Environmental Protection Wetlands is permissible with consent.

1.6.2.6.5. Environmental Heritage

The Heritage provisions of the Rural LEP are reproduced below:

"Conservation of items of the environmental heritage

25. ***Objectives***

The objectives of this plan in relation to heritage are:

(a) to conserve the environmental heritage of Eurobodalla Shire, and

(b) to conserve the heritage significance of existing significant fabric, relics, settings and views associated with the heritage significance of heritage items and heritage conservation areas, and

(c) to ensure that archaeological sites and places of Aboriginal heritage significance are conserved, and

(d) to ensure that the heritage conservation areas throughout Eurobodalla Shire retain their heritage significance.

26. ***Protection of heritage items and heritage conservation areas***

(1) ***When is consent required****?*

The following development may be carried out only with development consent:

(a) demolishing or moving a heritage item or a building, work, relic, tree or place within a heritage conservation area,

(b) altering a heritage item or a building, work, relic, tree or place within a heritage conservation area by making structural or non-structural changes to its exterior, such as to its detail, fabric, finish or appearance,

(c) altering a heritage item by making structural changes to its interior,

(d) disturbing or excavating a place of Aboriginal heritage significance or an archaeological site while knowing, or having reasonable cause to suspect, that the disturbance or excavation will or is likely to result in a relic being discovered, exposed, moved, damaged or destroyed,

(e) moving the whole or a part of a heritage item,

(f) erecting a building on, or subdividing, land on which a heritage item is located or which is within a heritage conservation area.

Comment:

The Eurobodalla Rural LEP does not identify any Heritage items on the subject site. Notwithstanding this, it is not proposed to demolish move or alter any items of heritage significance on the site, as identified by Heritage Consultants, Navin Officer, in their report at **Attachment 27.**

(2) ***What exceptions are there?***

Development consent is not required by this clause if:

(a) in the opinion of the consent authority:

(i) the proposed development is of a minor nature or consists of maintenance of the heritage item or of a building, work, archaeological site, tree or place within a heritage conservation area, and

(ii) the proposed development would not adversely affect the significance of the heritage item or heritage conservation area, and

(b) the proponent has notified the consent authority in writing of the proposed development and the consent authority has advised the applicant in writing before any work is carried out that it is satisfied that the proposed development will comply

with this subclause and that development consent is not otherwise required by this plan.
(3) Development consent is not required by this clause for the following development in a cemetery or burial ground if there will be no disturbance to human remains, to relics in the form of grave goods or to a place of Aboriginal heritage significance:
(a) the creation of a new grave or monument, or
(b) an excavation or disturbance of land for the purpose of carrying out conservation or repair of monuments or grave markers.

(4) ***What must be included in assessing a development application?***
Before granting a consent required by this clause, the consent authority must assess the extent to which the carrying out of the proposed development would affect the heritage significance of the heritage item or heritage conservation area concerned.

Comment:
An assessment of the heritage significance of items on the subject site was undertaken by heritage Consultants, Navin Officer (**Attachment 27**) who conclude that no items of significance will be affected by the proposed development (see **section 1.5.13)**.

1.6.2.6.6. Places or Sites of Potential Aboriginal and Non-Aboriginal Heritage / Potential Archaeological Significance

The relevant LEP provisions dealing with places or sites of potential Aboriginal or non-Aboriginal Heritage Items / Archaeological Significance are reproduced below:

*"28A. **Development affecting places or sites of known or potential Aboriginal heritage significance***

Before granting consent for development that is likely to have an impact on a place of Aboriginal heritage significance or a potential place of Aboriginal heritage significance, or that will be carried out on an archaeological site of a relic that has Aboriginal heritage significance, the consent authority must:

(a) consider a heritage impact statement explaining how the proposed development would affect the conservation of the place or site and any relic known or reasonably likely to be located at the place or site, and

(b) except where the proposed development is integrated development, notify the local Aboriginal communities (in such way as it thinks appropriate) and the Director-General of National Parks and Wildlife of its intention to do so and take into consideration any comments received in response within 28 days after the relevant notice is sent.

Comment:

The proposed development has been designed to avoid areas of significant heritage/archaeological importance (**Section 1.5.13)**. However, Site **RURIF1, a single lithic artefact of no heritage significance, will be removed as part of the access road works** adjacent to the southern section of the site adjacent to the Bevian Wetland. In addition, a **minor portion of PAD 3 will be removed to facilitate the location of a road. PAD 3 is approximately 70m x 40m and has been classified as being of low to moderate significance. The extent of excavation within this area is not considered significant by Navin Officer.**

The local Aboriginal Communities have been consulted on the proposed development and have raised no objection to the development (see **Attachment 36** which contains letters from Aboriginal community representatives). Those consulted were the Mogo Land Council, Yuin Elders Council and the Djuwin Women's Lore Council.

*28B **Development affecting known or potential archaeological sites of relics of non-Aboriginal heritage significance***

(1) Before granting consent for development that will be carried out on an archaeological site or a potential archaeological site of a relic that has non-Aboriginal heritage significance (whether or not it is, or has the potential to be, also the site of a relic of Aboriginal heritage significance), the consent authority must:

(a) consider a heritage impact statement explaining how the proposed development will affect the conservation of the site and any relic known or reasonably likely to be located at the site, and

(b) notify the Heritage Council of its intention to do so and take into consideration any comments received in response within 28 days after the notice is sent.

(2) This clause does not apply if the proposed development:

(a) does not involve disturbance of below-ground deposits and the consent authority is of the opinion that the heritage significance of any above-ground relics would not be adversely affected by the proposed development, or

(b) is integrated development.

Comment:

An archaeological assessment of the site has been undertaken by Navin Officer (**Attachment 27**).

A heritage impact assessment has been undertaken as part of the Cultural Heritage Assessment report of Navin Officer (**Attachment 27)**.The report concludes that the proposed subdivision proposal successfully avoids any significant archaeological locations and that the proposed development will not have any significant impacts on

the heritage significance of the site in terms of known relics or those areas of potential archaeological deposits.

Conclusion - Archaeological Deposits

It is considered that the proposed development will not have any significant impact on the heritage significance of the site in terms of known relics or areas of archaeological deposits.

1.6.2.6.7. Development in the Vicinity of a Heritage Item

The relevant LEP provisions dealing with development in the vicinity of a heritage item are reproduced below:

*"28C **Development in the vicinity of a heritage item***
(1) Before granting consent to development in the vicinity of a heritage item, the consent authority must assess the impact of the proposed development on the heritage significance of the heritage item and of any heritage conservation area within which it is situated.
(2) This clause extends to development:
(a) that may have an impact on the setting of a heritage item, for example, by affecting a significant view to or from the item or by overshadowing, or
(b) that may undermine or otherwise cause physical damage to a heritage item, or
(c) that will otherwise have any adverse impact on the heritage significance of a heritage item or of any heritage conservation area within which it is situated.
(3) The consent authority may refuse to grant any such consent unless it has considered a heritage impact statement that will help it assess the impact of the proposed development on the heritage significance, visual curtilage and setting of the heritage item.
(4) The heritage impact statement should include details of the size, shape and scale of, setbacks for, and the materials to be used in, any proposed buildings or works and details of any modification that would reduce the impact of the proposed development on the heritage significance of the heritage item."

Comment:

The subject site does not contain any heritage items as identified in the Eurobodalla Rural LEP. Notwithstanding this, the existing Cheese factory on the site has been identified as being representative of small scale, pre Second World War cheese factories which served the local community prior to the development of larger cheese factories and markets. The production of as such cheese was an important stage in the evolution of the NSW dairy industry. As such the site has high local heritage value within the local context particularly in terms of its cultural significance.

The proposed subdivision does not impact on or diminish the heritage significance of the former cheese factory. It is retained intact as part of the redevelopment of the site.

Conclusion – Heritage items in the vicinity of development

It is considered that the proposed development will not have any detrimental effect on heritage items in the vicinity of the subject site

1.6.3. Non-Statutory Controls

1.6.3.1. Eurobodalla DCP No 160 – Rosedale Urban Expansion Zone

The Rosedale DCP was adopted by Council on 13 November 1989 and operated from 22 November 1989. It has remained the DCP for the Urban Expansion and surrounding Rural 1(c) and SEPP-14 Wetland areas in Rosedale to the present day. The DCP area is illustrated in **Figure 15**

The DCP area is divided into 6 Precincts as illustrated in **Figure 16** which also shows the extent of the subject site within the DCP area. .

The proposed development has been designed having regard to the objectives of the DCP 160 1989. However, the subdivision departs from strict compliance with the 18 year old DCP provisions, particularly in terms of lot sizes, but has been developed having regard to more recent analysis of the site, planning documents and Strategies namely:

- a thorough urban design analysis of the site as documented in the Urban Design Guidelines for the development **(Attachment 16)** ;
- the recommendations of the Minister's Expert Panel on the Sensitive Urban Coastal Land **(Section 1.6.5.1)**
- the recently adopted South Coast Strategy**(Section 1.6.4.1)**
- the recently adopted Eurobodalla Settlement Strategy **(Section 1.6.4.2)**

In this regard the subdivision pattern is consistent with the overall DCP objectives in that the more dense subdivision areas are concentrated at the southern portion of the site with medium densities being located in the mid portion of the site and less dense development being provided within the northern portion of the site.

The DCP Objectives are reproduced below and an assessment of consistency with those objectives is provided:

General Objectives
(i) To encourage the orderly and economic development of the land, taking into account all relevant physical, social, and economic considerations.
(ii) To provide the basis for integrated land use patterns, both between individual precincts of the site and adjoining lands.
(iii) To provide guidelines to developers as to the features to be embodied in any development of the site.

Comment:
The proposed development is considered to represent the orderly development of land as it will provide 806 residential lots over a period of approximately 10 to 15 years which assist in the provision of housing for the anticipated for 10,700 new dwellings required over the next 25 years.

The land use patterns reflect a variation in densities such that the more dense housing is located in the southern portion of the site, graduating a medium density precinct in the central portion of the site and a more rural type density within the northern portion of the site and adjacent to the western boundary. These have been formulated to provide a rational internal integration of land patterns as well as an appropriate integration with the adjacent communities.

Urban Design Guidelines have been developed for the site (**Attachment 16)** which provide guiding principles for the development of the site both in the private and the public domain.

Urban Capability - Development Density
(i) To ensure that development is cognisant of the urban capability constraints inherent in the site.
(ii) To prevent development in areas required for drainage purposes and other hazardous areas.
(iii) to allocate densities of development that recognise the abovementioned urban capability constraints.

Comment:
A comprehensive analysis of the site has been undertaken to identify the physical, environmental and physical constraints on the site. The result of this analysis has produced a Constraints Map **(Figure 1**) which has been the primary guiding document for the development of the site.

The proposed development has been designed to avoid areas required for drainage purposes (see Water Management Report prepared by Patterson Britton at **Attachment 24**). Drainage corridors and riparian zones have been mapped and incorporated into the Constraints Map mentioned above.

Densities within the proposed subdivision have been developed within the site to be compatible with the site constraints as well as urban design and contextual considerations.

A variety of lot sizes will be provided ranging from 450 sqm to 1,600 sqm in the southern precinct; 450 sqm to 1750sqm in the central portion of the site; and 750 sqm to 8,550 sqm in the northern portion of the site (**Attachment 12**).

The Rosedale DCP 160 generally nominates a minimum lot size of 4,000 sqm for large sites and a minimum of 600sqm for the remainder.

In May 2006, the Minister for Planning established an Expert Panel to review the development potential for Sensitive Urban Lands on the South Coast. The report of the Expert Panel was published in October 2006 and identified the subject site, amongst others, as suitable for residential development.

One of the key recommendations of the Independent Panel in relation to the scale and type of land release of Urban Expansion Land states *"Residential development should aim to achieve a range of housing types to meet demographic change,* ***with a higher overall yield than traditionally achieved in adjoining areas, to make better use of land resources and utility services*****".**

It is also noted that in the Panel report, there is an expectation that the subject site together with the adjacent site to the north-east, owned by Rosedale Farm NSW Pty Ltd will achieve a yield of approximately 1,100 lots. The adjacent site has significant ecological and environmental constraints. In terms of its suitability for development the Review panel were of a view that " *limited development could occur in the north-eastern portion of the site, outside the habitat corridor identified there, provided there is early revegetation of generous corridors adjacent to previously cleared areas along creeks and other riparian areas. Limited clearing of forest could be permitted provided early riparian revegetation and restoration occurs."*

The Marsim site in comparison has far less constraints. However, the cumulative environmental, physical and ecological constraints on the site are such that only 806 lots can be achieved. Given the ecological and environmental constraints on the site the 806 lots can only be achieved if lot sizes on the Urban Expansion Zone 10 (and the Rural 1c zoned land) are less than historically have been achieved in adjoining areas.
In this regard, Council, by letter dated 9th October 2007 (**Attachment 43**) states that it has an expectation of higher lot yields on the subject site, in order to make better

use of infrastructure, and that it supports in principle smaller lot sizes than specified in Council's DCPs.

Environmental Protection
(1) To ensure the recognition and protection of significant environmental features, primarily those related to the landscape, vegetation and wetland areas.
(ii) To ensure that development strategies consider the landscape impact of development both from external and internal viewpoints.
(iii) To retain prominent landscape features in as near as possible to their natural state, and where appropriate to encourage natural regeneration of indigenous species.
(iv) To create visually "self-contained" precincts with a tangible identity imparted by the undeveloped ridgelines surrounding each.

Comment:
The development has protected all endangered ecological communities and significant environmental features (eg no development within the central knoll area).

In terms of minimising landscape impacts of the development from internal and external views, the Urban Design Guidelines have specified a maximum 2 storey building height. This together with restrictions on areas within which buildings can or can not be located, together with the minimisation of cut and fill should ensure retention of the internal and external scenic qualities of the area.

Prominent features, particularly the Bevian Wetland and central knoll, are retained and made scenic features of the development. In addition, areas of open space within the development, which have been substantially cleared as part of the previous agricultural use, will be revegetated and will provide valuable ecological corridors through the site.

The design of the development has been consciously developed to create self contained but integrated precincts within the site ranging from the southern higher density precinct containing local shops and community facilities to the central areas of the site where medium density lots will be provided followed by the lower, rural type densities in the northern and western precincts.

Housing
(i) In the context of identified urban capability constraints and environmental protection considerations, to provide for a variety of housing choice (generally via allotment size, orientation and location) whilst retaining the overall flexibility of the development plan.

Comment:
A variety of lot sizes will be provided ranging from 450 sqm to 1,600 sqm in the southern precinct; 450 sqm to 1750sqm in the central portion of the site; and 750 sqm to 8,550 sqm in the northern portion of the site. Housing types will vary from a component of attached housing and dual occupancies in the more densely developed southern precinct to medium sized detached houses in the southern and central precincts and larger houses in the central and northern precincts of the site.

Access
(i) To ensure that safe and convenient vehicular access is provided to the site from the adjoining road hierarchy.
(ii) To encourage internal traffic circulation that will discourage through traffic, minimise vehicle speeds within the estate, and provide for safe and convenient movement throughout by residents and visitors.
(iii) To minimise the impact of roads upon significant landscape features throughout the site, and avoid any hazardous (e.g. steep/erodible) areas.
(iv) To integrate minor roads in the estate with the proposed pedestrian network

and to encourage provision of cycleways within the development.
(v) to consider improvements to the existing road hierarchy that can be facilitated as a result of development of the subject land.

Comment:
(i) The proposed development provides a road network comprised of a main spine road that traverses the site from the south-western corner to the north-eastern corner of the site, secondary internal circulation roads and a tertiary lane network for vehicular and pedestrian access (**Figure 17**).

Vehicular access to the adjoining road hierarchy is provided by the continuation of the Bevian Road to 2 access points, at the northern and southern extremities of the site, to George Bass Drive. “Seagull” access points have been designed at these locations to provide for safe access.

(ii) The internal road network discourages through traffic by virtue of its configuration which is less direct and consequently slower than the primary through-road (George Bass Drive).The road network forms the major part of the public domain as well as the moving lanes for vehicles. The proposed roads have two attributes: Capacity and Character.

“Capacity” refers to the number of vehicles that can move safely along a thoroughfare within a given time frame. It is primarily determined by the number of vehicle lanes and lane width, as well as curb radius. Whilst adequately accommodating the requirements of drivers, because the Concept Plan is designed to encourage pedestrian use, traffic movement is carefully controlled through the use of narrower lane widths, shorter intersection spacing, smaller curb radii, and on-street parking. Traffic calming is inbuilt into the design and consequently, posted speed limits, speed bumps and chicanes are not necessary.

“Character” refers to aesthetic function of a thoroughfare as a setting for a variety of building types and pedestrian activity. Character is determined by the systematic controlling of thoroughfare width, curb, footpath, planters, street lights and other furnishing which constitute the public streetscape. All of these elements have been controlled to generate a character ranging from urban to rural. The majority of thoroughfares are characterized by swale or informal curbs, and naturalistic planting which will generate a character appropriate to the South Coast.

(iii) Minor roads have been designed to accommodate and encourage cycling. The roads will have low traffic volumes and a shared vehicular and cycle way is considered satisfactory.

(iv) The road network has been designed to follow, where possible, contour features in order minimise cut and fill of the topography and hence the impact of roads on the landscape qualities of the site.
The existing road network on the site has been considerably modified to better serve the subject development

Open Space - Pedestrian Networks
(i) To provide for the permanent protection of significant landscape features by the designation and dedication of such areas as public open space.
(ii) To provide opportunities for public and private active recreation within the subject land, and to ensure that such areas are readily accessible to the community.
(iii) To ensure that major open space areas are interconnected with a system of pedestrian routes along drainage reserves, minor roads and other areas of open space, to provide safe and contiguous access to ridgelines, active open space areas, beach areas (via the existing settlement) and recreational facilities.

Comment:
(i) Significant landscaped features are not impacted on by the proposed development. They will remain as open space, under community title, as part of the development.

(ii) The proposed subdivision design has provided two large areas of open space which are readily accessible to the local community as well as surrounding residents and visitors. In addition10 smaller local community open spaces have been located within the central portions of residential precincts in order to provide more intimate recreation spaces which act as focal points for local communities.

(iii) All open spaces are linked with a series of pedestrian connections comprised of the road/ footpath network supported by dedicated pedestrian thoroughfares (**Figures 17 & 22**).

Buffer Areas
(i) To protect visual amenity for the users of George Bass Drive,
(ii) To provide visual screening from George Bass Drive for residents.
(iii) To minimise the effect of road noise on residents.

Comment:
The subject development will generally be visually separated from the users of George Bass Drive by existing dense vegetation. Indeed the only four areas, external to the site, from which the development will be visible are at :

1. George Bass Drive , adjacent to the Sewerage Treatment Plant at the south-eastern portion of the subject site;
2. From George Bass Drive looking across Wetland
3. Melville Point lookout at Tomakin
4. Barlings Beach, Redhill Parade Carpark

In each instance, the development, which will be of low scale, will be sufficiently distance to be visually insignificant and have minimal, if any visual impact on the environmental quality of the area.

The Acoustic consultants, Heggies, have assessed the impact of road noise on the residents of the subject development. In the report (Attachment 22) Heggies consider that, subject to the introduction of noise amelioration devices recommended in the consultant's report, there will be minimal acoustic impact arising from vehicular traffic and that the level of road noise is satisfactory in maintaining residential amenity for the residents of the site.

Assessment of Impacts on Existing Neighbouring Residences
There are several existing residences on or near George Bass Drive and Bevian Drive in the vicinity of the George Bass Drive and Bevian Road intersection. These receivers experience traffic noise as a result of existing movements on these two roads, and there will potentially be a change to these existing traffic noise levels as a result of the development.

The appropriate ECRTN criteria for assessment are presented in Table 1 of the Heggie report entitled Road Traffic Noise Criteria for Residential Land Uses. For residences fronting George Bass Drive the appropriate criteria is that for Sub-arterial Roads and for Bevian Road that for Collector Roads. In instance where residences are relatively close to the George Bass Alignment, (such that the noise environment is dominated by George Bass Drive traffic) then the Sub-arterial Road criteria would apply.

In accordance with the ECRTN and the Sub-arterial road category applicable to the George Bass Drive residences, and also the near Bevian Road residence(s), the prediction of existing and future (with development) noise levels is required. The predicted noise levels are then assessed against the ECRTN baseline criteria and 2 dBA allowance goal.

The prediction of these noise levels requires classified traffic counts on George Bass Drive (which provide inter alia 15 hour day and 9 hour night-time flows) to calculate existing noise levels, and future noise levels. The classified counts are proposed in the future and it is anticipated this report will be updated with a traffic noise assessment at the existing residences when this data is available.

A more comprehensive assessment of acoustic issues, including effects on neighbouring residents, is to be presented as part of the subsequent development applications for earthworks and the construction of dwellings on the site.

Drainage
(i) To encourage the recognition that drainage lines are potentially hazardous from an erosion and flooding point of view and that development must be carefully controlled in such areas.
(ii) To ensure that as a result of development, there is minimal adverse impact in terms of the water volume, velocity and quality down-stream.
(iii) to give particular emphasis to consideration of the potential impact on Salt Water Creek and Bevian Swamp, for reasons of the protection of the recreational and ecological resources respectively.
(iv) To encourage the joint use of drainage reserves as integral parts of the open space and pedestrian network within the estate.
(v) To cater for runoff from private and public land efficiently and economically in terms of both construction and maintenance.

Comment:
Engineering consultants Patterson Britton have prepared a report on Water Management for the site (**Attachment 24).** The report provides an integrated water management strategy proposed for the development which is based on a water sensitive urban design approach would include:

- rainwater tanks to reuse runoff which reduces the runoff volume and pollutant loads and slows down the flow;
- bio-retention rain-gardens on selected lots to infiltrate, treat and slowdown runoff from paved areas on the lots;
- bio-retention swales along the roads to treat and slow down runoff from lots and roads, and to promote subsurface flows;
- gross pollutant traps to remove sediment, debris, organic matter and litter;
- rehabilitate wide riparian corridors and wetland buffers with native vegetation to stabilise banks and provide significantly improved habitat value;
- upgrade farm dams to improve runoff quality and provide more diverse aquatic habitat; and
- provide storage and promote infiltration in bio-retention systems of runoff to balance the surface/subsurface flows and slow down flows to mimic closely existing conditions.

The strategy would significantly improve the stability, natural function and water quality of Salt Water Creek and Bevian Wetland. This would contribute to the long term improvement in these receiving waters as well as the Bateman Marine Park.

Public Utilities and Amenities
(i) To encourage the economic and efficient use of available public utilities.
(ii) To recognise the limits imposed by the existing water supply system.
(iii) To consider and provide for the needs of the community in terms of the commercial and community facilities and amenities that may be required in the future. It should be noted that such needs will change over time and need to be continually monitored.

Comment:
The proposed development will make economic and efficient use of existing infrastructure and facilities ; in particular the existing sewerage treatment plant adjacent to the site which was specifically designed and constructed in anticipation of the development of the subject site.

In recognition of the limitations of the existing water supply, the water sensitive design of the project incorporates:

- rainwater tanks for water reuse;
- bio-retention rain-gardens on selected lots where appropriate;

Conclusion – DCP 160

It is considered that the subject development satisfies the objectives of DCP 160.

However, some lot sizes proposed are smaller than those specified in the DCP. This is considered to be satisfactory given the age of the DCP and the more recent planning studies and strategies applicable to the site, in particular the report of the Expert Panel on Sensitive Urban Lands Review and the South Coast Regional Strategy . These identify the need for higher lot yield in order to make better use of land and infrastructure resources and to satisfy the anticipated demand for 10,700 new dwellings in the Eurobodalla Shire over the next 25 years.

Moreover, Council itself seeks a higher yield on the subject site and supports smaller lot sizes than stipulated in its DCPs in relation to the subject development.

1.6.3.2. Eurobodalla Rural Subdivision DCP No 156

This Development Control Plan applies primarily to those areas of land zoned 1(c) Rural Smallholdings under Eurobodalla Rural Local Environmental Plan 1987 (Rural LEP) which are not affected by another specific DCP. The Plan also applies to land within the Shire zoned 1(a), 7(a), 7(ft) and 7(f2) under the Rural LEP.

(i) Aims of DCP

The primary Aims of the DCP are to:

(a) maximise retention of native vegetation;
Comment:
Conacher Travers has undertaken a survey of the subject site. A total of 271 flora species were observed within the subject site. Of these, two hundred and nine (209) species were native and sixty two (62) species were exotic.

The native species observed consisted of twenty nine (29) trees, forty two (42) shrubs, eighty nine (89) Groundcovers, twenty five (25) vines, twenty two (22) water-plants and two (2) epiphytes.

The following seven (7) vegetation communities and one (1) vegetation community variation were identified within the subject site using aerial photographic interpretation and extensive ground truthing.

Table 6 – Vegetation Communities within the Site

Vegetation Community No	Vegetation Community	Area (ha)
1.	Spotted Gum/Ironbark Open Forest	15.76
2.	Blackbutt Woodland	2.92
3.	Dry Gully Rainforest (Preliminary EEC under the *EPBC Act* 1999)	0.52
4.	Banksia Scrub	1.28
5.	Swamp Oak Open Forest (EEC under the *TSC Act* 1995)	4.48
6.	Aquatic Herbfield	1.62
*6a	Natural Freshwater Wetland (EEC under the *TSC Act* 1995)	5.94
7.	Grassland with Scattered Trees	146.68
8.	Disturbed Redgum Open Woodland (Low Quality Riverflat Eucalypt Forest on Coastal Floodplains EEC - *TSC Act* 1995)	2.05
9.	Closed Swamp Paperbark Scrub (Core Quality Swamp Oak Floodplain Forest EEC - *TSC Act* 1995)	0.09
*9a	Disturbed Swamp Paperbark Open Heath (Low Quality Swamp Oak Floodplain Forest EEC - *TSC Act* 1995)	5.04

** Denotes vegetation community variation*

The two (2) endangered ecological communities identified within the subject site, Swamp Oak Floodplain Forest and Freshwater Wetlands on Coastal Floodplains, comprise the vegetation surrounding and within the Bevian Swamp. These communities are to be retained by the proposed development.

- The majority of the 174 ha site is already cleared with only a small portion of the site containing the native vegetation. The subject development will retain the vast majority of native vegetation. The proposal will remove a small portion of highly disturbed Swamp Oak Forest and Riverflat Eucalypt Forest on Coastal Floodplains. However, given the proposal to retain, revegetate and rehabilitate the communities within the subject site, it is considered that the proposed development is unlikely to have an adverse effect on the extent of these communities such that their local occurrence is likely to be placed at risk of extinction

(b) minimise potential for erosion, sedimentation and contamination of water courses;

Comment:
No earthworks are proposed as part of this application. This will be the subject of a subsequent application which will address the issues of erosion, sedimentation and contamination. However, the road network and subdivision pattern has been designed to follow the topography of the site, thus minimising cut and fill together with the minimisation of potential for erosion.

(c) avoid intrusion of development on visually significant ridges, hill slopes, drainage lines and other environmentally sensitive areas;

Comment:
The proposed development has been designed to specifically avoid development on visually prominent ridges in order to minimise its visual impact when viewed from locations external to the site.

The project also avoids locating development on riparian zones or sensitive land; particularly the SEPP14 Bevian Wetland on the southern portion of the site.

(d) provide opportunity for the location of dwelling houses in sympathy with the capability of the land;

Comment:
Dwellings been located such that they are sensitive to the capabilities of the land; particularly in terms of slope stability and other geotechnical considerations together with environmental and physical constraints

(e) provide a mix of lot sizes;

Comment:
The development provides a range of lot sizes from 450 sqm to 1600 sqm in the southern precinct of the site to between 450 sqm and 1,750 sqm in the central portion and between 750 sqm to 8,550 sqm in the northern precinct.

(f) provide safe, practical and environmentally compatible vehicular access;

Comment:
The road network has been designed to provide a hierarchy of access ways; each compatible to its primary use and surrounding environment. The prime spine road is a four lane, two way road. It is appropriately landscaped to enhance its visual amenity whilst maintaining its visual identity as the main thoroughfare through the site. Secondary feeder roads and tertiary local roads have been designed to provide appropriate access throughout the site. All have been designed to be compatible with their local area character by way of the design of their public domain treatment (refer to Urban Design Guidelines at **Attachment 16**).

(g) ensure compatibility with existing and future surrounding development.
Comment:
The aforementioned Urban Design Guidelines have also established design criteria for dwellings in each precinct within the site; consistent with the character of that precinct and that of the overall South Coast style.

(ii) Lot Sizes and Subdivision Density

The DCP specifies that *"For areas where specific constraints maps are yet to be determined, lots created should have an average area of 2 hectares or more in order to maintain the "semi-rural character" of land zoned Rural Small Holdings".*

The DCP also states that *"The average lot size principle is used to protect environmentally sensitive areas from the effects of development without unduly restricting the overall development potential of the land" and "*The concept of clustering of proposed allotments will only be permitted where it is clearly demonstrated by the applicant that such a subdivision design will protect sensitive land. Lots less than 5000 square metres or the re-subdivision of environmentally sensitive land will not be permitted".

Comment:
Twenty six (26) residential lots of between 558 sqm and 3,665 sqm are proposed which is considered to be appropriate and consistent with the principles and recommendations of the Expert Panel on Sensitive Urban Land and the objectives of the South Coast Regional Strategy. Of these lots only 5 lots are less than 750 sqm. Lot sizes along the western and southern boundaries (adjacent to the neighbouring land Zoned 1(c)) range between 1524sqm and 3655sqm.

An additional 18 lots are partly within the 1(c) land and partly in land zoned Urban Expansion. The average size of lots either wholly or partially within Rural 1(c) land is 1,580sqm. The average lot size of lots totally within the 1(c) zoned land is 1,642 sqm

The lot sizes are smaller than nominated in DCP 156 but are considered to be consistent with the principles of the Sensitive Urban Lands Review, the objectives of the South Coast Regional Strategy and are supported in principle by Council.

The subject DCP was prepared in the 1980's. Since that time significant changes have occurred in terms of housing demand and land-use planning within the Eurobodalla Shire and the State in general. In particular within the last year, the Minster for Planning commissioned an Expert Panel to undertake a Review of Sensitive Urban Lands for their suitability for development, the Department of Planning has produced the South Coast Regional Strategy, and the Eurobodalla Shire Council has adopted a revised Settlement Strategy. Comments on theses more recent documents are provided below:

(a) Sensitive Land Review Panel Report
In terms of the Review of Sensitive Lands within the Eurobodalla Shire, and in particular the subject site at Rosedale, the panel made the following recommendations:

(i) Suitability of site

"The Rosedale site is considered mostly suitable for urban development in view of the past land clearing and farming activities. Detailed site planning should place a high priority on protection of riparian zones and SEPP 14 wetlands through best practice storm water management, and early revegetation of riparian areas for ecological and visual benefits;"

(ii) Scale and type of land release
"Residential development should aim to achieve a range of housing types to meet demographic change, with a higher overall yield than traditionally achieved in adjoining areas, to make better use of land resources and utility services.

Site planning should ensure visual separation between Barlings Beach and Rosedale, and along George Bass Drive between Tomakin and Rosedale North, in line with Council's objectives under the Eurobodalla Urban Settlement Strategy."

(b) South Coast Regional Strategy
The South Coast Regional Strategy has planned for an anticipated population growth of approximately 60,000 people and up to 45,600 new dwellings within the region by 2031.

In relation to the Eurobodalla Shire, and the subject site in particular, the Strategy:

- use the recommendations of the Sensitive lands Panel to guide the finalisation of the development form and the environmental management of the 17 sensitive urban land (of which the Rosedale site was one);
- identifies the requirement for an additional 10,700 dwellings in the Eurobodalla Shire within the next 25 years;
- adopts the specific recommendations of the Sensitive Lands Review Panel for the subject site (in Appendix 2 of the Strategy document)

(c) Eurobodalla Settlement Strategy
The Settlement Strategy implements Council's Sustainable Living Policy by providing guidance in planning for and maintaining a sustainable and healthy economy, community and environment. It also assists in the decision making process as part of the preparation of the forthcoming Shire-wide LEP and DCP.

The Strategy has had regard to and is consistent with the recently released South Coast Regional Strategy and the recommendations of the Minister's Expert Panel on Sensitive Urban Land Review.

The proposed development is consistent with the relevant strategies identified in the Settlement Strategy and the recommendations of the South Coast Sensitive Urban Land Review.

In addition to the above, Council, by letter dated 9 October 2007 (**Attachment 43**), has indicated its expectation of a higher lot yield on the subject site and has supported, in principle, the development of lot sizes smaller than stipulated in its DCPs.

Conclusion – DCP 156
In consideration of the principles and recommendations of the Sensitive Urban Lands Review Panel which, amongst other things stated *"Residential development should aim to achieve a range of housing types to meet demographic change, with a higher overall yield than traditionally achieved in adjoining areas, to make better use of land resources and utility services.",* and the written support of Council for smaller lot sizes, it is considered that strict compliance with the DCP lot size controls are is not necessary; particularly as the objectives of the DCP are satisfied.

It is also relevant to note that the recommendations of the Sensitive Urban Lands Review were also adopted by the Department of Planning in the South Coast Strategy and by the Eurobodalla Council in its Settlement Strategy.

1.6.3.3. Eurobodalla Residential Design Code

The subject application does not propose the erection of any dwellings, community facilities, commercial buildings or any other structure as part of this Concept Application. Nor have the designs of such buildings been developed. Consequently, it is considered that the assessment of the proposal against the provisions of the Residential Design Code is premature. This will be undertaken as part of the subsequent application(s). Moreover, the subject application has developed site specific Urban Design Guidelines (**Attachment 16**) which are intended to form the development controls fort the site.

The Urban Design Guidelines for the site are considered to be consistent with the aims and objectives of the Residential Design Code as well as satisfying the requirement of Section 2.1 of the Code to prepare a Masterplan for the site.

1.6.4. Strategies/Policies

1.6.4.1. South Coast Regional Strategy

Comment:
The proposed development is considered to be consistent with the South Coast Strategy. The Strategy has planned for an anticipated population growth of approximately 60,000 people and up to 45,600 new dwellings within the region by 2031. In relation to the Eurobodalla Shire, and the subject site in particular, the Strategy:

- use the recommendations of the Sensitive Urban Lands Panel to guide the finalisation of the development form and the environmental management of the 17 sensitive urban land (of which the Rosedale site was one);
- identifies the requirement for an additional 10,700 dwellings in the Eurobodalla Shire within the next 25 years;
- adopts the specific recommendations of the Sensitive Lands Review Panel including those for higher densities in general and for the subject site (in Appendix 2 of the Strategy document)

In this regard, the subject site will provide 806 dwellings which will significantly assist realising the objective of the Strategy by delivering approximately 7.5% of the overall anticipated housing requirements within the Eurobodalla Shire.

1.6.4.2. Eurobodalla Settlement Strategy

Comment:
The proposed development is consistent with the relevant provisions of the Settlement Strategy. The aims of the Eurobodalla Settlement Strategy are to conserve biodiversity, respect the Shire's diverse cultural background, stimulate economic and community development, and provide efficient public services. The approach takes into account land capability and the carrying capacity of the land to determine appropriate land uses.
The strategy reinforces and makes explicit the policy positioning of Council and the NSW Government which in turn are a response to contemporary local and wider community expectations. The Eurobodalla Settlement Strategy is aligned with the South Coast Regional Strategy, prepared by the Department of Planning, Illawarra and South Coast Regional Office.

The Strategy implements Council's Sustainable Living Policy by providing guidance in planning for and maintaining a sustainable and healthy economy, community and environment. **The Eurobodalla Settlement Strategy is the fundamental strategic document which provides the basis of the decision making process in the preparation of the forthcoming Shire-wide LEP, Structure Plans, DCPs and place Statements.**

The Settlement Strategy therefore has no statutory authority in itself but provides guidance for future planning instruments and policies and is appropriately a matter for consideration in the assessment of development applications within the Shire.

The Bevian Road site is located within the Northern District of the Local Government Area. This District had a population of 16,456 in 2001, 17,965 in 2006 and a predicted population of 25,082 in 2031.

The numbers of persons per dwelling (ppd) has been falling gradually over recent census periods. In 1996 occupancy rates in Eurobodalla local government area were around 2.5 ppd. This fell to 2.33 ppd in 2001, significantly less that the NSW average of 2.5 ppd. It is assumed that occupancy rates will continue to fall as the proportion of the population aged 55 years plus continues to rise. It is assumed that by 2031 Eurobodalla will have an average occupancy rate of 2 ppd.

Tables 5.2 and 5.3 of the Settlement Strategy, reproduced in **Table 6** below, identify the demand for dwellings, on a District basis, in 2031 at a population density rate of 2.33 persons per dwelling and 2.0 persons per dwelling:

Table 6 - **Reproduction of Tables 5.2 & 5.3 of Eurobodalla Settlement Strategy`**

Table 5.2 Dwelling needs by district 2031 at 2.33 persons per dwelling

District	Project population 2031	Population increase 2006-2031	Dwellings needed at 2.33 ppd	Dwellings needed incl. 20% for holiday homes	Estimated vacant lots 2005	Surplus or deficit of dwellings 2031 at 1 dwg/lot
Northern	25,082	7,117	3,055	3,820	3,591	-229
Central	15,137	4,295	1,843	2,305	2,268	-37
Southern	11,081	3,144	1,349	1,685	2,125	440
Total	51,300	14,557	6,248	7,810	7,984	174

Source: Department of Planning, Transport and Population Data Centre 2006 and Eurobodalla Residential Land Monitor 2006

Table 5.3 Dwelling needs by district 2031 at 2 persons per dwelling

District	Project population 2031	Population increase 2006-2031	Dwellings needed at 2 ppd	Dwellings needed incl. 20% for holiday homes	Estimated vacant lots 2005	Surplus or deficit of dwellings 2031 at 1 dwg/lot
Northern	25,082	7,117	3,559	4,450	3,591	-859
Central	15,137	4,295	2,148	2,685	2,268	-417
Southern	11,081	3,144	1,572	1,965	2,125	160
Total	51,300	14,557	7,279	9,100	7,984	-1,116

Source: Department of Planning, Transport and Population Data Centre 2006 and Eurobodalla Residential Land Monitor 2006

It is noted that by 2031 in the Northern District, within which the subject site is located, there will be a shortfall of 229 dwellings, at the population rate of 2.33 ppd and a shortfall of 859 dwellings, at the predicted and more likely population rate of 2 ppd. **The subject development will assist, in a significant manner, in provision of the required housing by the delivery of 806 residential lots within the next 10 to 15 years.**

The South Coast Regional Strategy estimates that 10,700 new dwellings are needed for the Shire over the period 2006-2031. It is projected that about 70% of these new dwellings will be accommodated within existing vacant urban zoned land. Much of Eurobodalla's existing vacant urban land is within or adjoins the major towns of Batemans Bay, Moruya and Narooma. The draft strategy also identified five Urban Expansion zoned compartments as 'sensitive urban lands'.

An independent panel was appointed by the Minister for Planning to review the suitability of these areas for urban development. The findings of the panel are presented in the Strategy document and are addressed in **Section 1.6.5.1** of this report.

The Strategy has had regard to and is consistent with the recently released South Coast Regional Strategy and the recommendations of the Minister's Expert Panel on Sensitive Land Review.

The Rosedale Urban Expansion Zone is earmarked in the settlement Strategy as a Coastal Hamlet with an average lot size over the whole site of 1200sqm. This is consistent with Eurobodalla Council's submission to the Sensitive Land Review Panel (see **Figure 19:** extract from the Council submission in relation to the Rosedale site).

Although it is the desire of Council to achieve a lot yield of approximately of 1,120 lots over the Rosedale Sensitive Urban Land at an average size of 1,200 sqm per equivalent lot size over the entire area, the constraints on the subject site are such that only 806 lots are achievable. This represents an average equivalent lot size over the site of approximately 1,560 sqm over the approximately 126 ha of developable land.

The Settlement Strategy also articulates numerous Environmental and Ecological Strategies dealing with the protection of Flora and Fauna, the establishment of Fauna Habitat linkages, Contamination, protection of Water Quality, protection of the Coastline and Coastal Wetlands, Heritage and Scenic Protection. All these matters are addressed in various sections in this report under Environmental Planning Instruments already in place.

The proposed development has been designed primarily in response to the environmental and ecological constraints identified within the site and as such is consistent with the Environmental and Ecological Strategies within the Settlement Strategy. As a consequence, areas of conservation and open space have been established and integrated with development.

Through this integrated design process existing ecological features of the site will be protected and enhanced. The protection of ecological features has further assisted in improving the overall visual amenity of the site.

Key ecological protection and enhancement measures within the site include:

- **Protection of habitat by the retention and fencing of existing native vegetation remnants;**
- **Buffering of Bevian wetland and restoration of associated vegetation**

• Revegetation of significant drainage lines to provide bank stability, create vegetation connectivity and improve habitat
• Control of erosion through the upgrade of Bevian Road to a sealed surface
• Provision of Bio-retention swales along roads to treat and slow down runoff from lots and roads thus promoting subsurface flows
• Provision of bio-retention rain gardens on selected lots to infiltrate, treat and slow down runoff from paved areas on the lots
• Provision of gross pollutant traps to remove sediment, debris, organic matter and litter
• Upgrade farm dams to improve runoff quality and provide more diverse aquatic habitat
• Retention basins to collect sediments and control runoff flows
• Storage and infiltration promotion within bio-retention systems to balance surface and subsurface flows and slow down flows to maintain existing conditions;
• Creation of vegetation corridors to improve vegetation connectivity between native remnants and vegetation offsite
• Maintain water flows and maintain or improve water quality within the site to protect downstream water bodies including Saltwater Creek ICOLL and Bateman's Bay Marine Park; and
• Protection and conservation of items of environmental and archaeological and Aboriginal significance.

The Strategy also adopts the recommendations of the Sensitive Urban Land Review and the South Coast Regional Strategy which identify the subject site as suitable for development and, amongst other things, recommends that *"Residential development should aim to achieve a range of housing types to meet demographic change, with a higher overall yield than traditionally achieved in adjoining areas, to make better use of land resources and utility services"* and to meet the anticipated demand for housing in the area over the next 25 years.

The proposed development complies with the above recommendation in that it proposes a range of housing types at a higher lot yield than traditionally achieved. However, due to environmental and ecological constraints on the site, the proposed development can only achieve 806 lots.

Notwithstanding this, the provision of 806 residential lots, over the next 10 to 15 years, contributes approximately 7.5% of the total dwelling demand in the Shire over the next 25 years.

Conclusion – Eurobodalla Settlement Strategy

The proposed development is considered to be consistent with the provisions of the Eurobodalla Shire Settlement Strategy

1.6.4.3. Coastal Design Guidelines for NSW

A comprehensive analysis of the subject site and surrounding districts has been prepared and set of Urban Design Guidelines have been prepared for the subject development (**Attachment 16**). These Guidelines set parameters for the private and public domain, controls for building location and bulk which in combination will, amongst other things:

- Reflect and reinforce the character of the South Coast of NSW;
- Protect the visual amenity of the area
- Respond to the site's topography and other natural features;
- Provide quality open space
- Provide a public connection north-south through the site;
- Provide the infrastructure to support future public transport;
- Balance the pedestrian over the vehicle;
- Provide a range of housing types;

According to the Coastal Guidelines of NSW (2003), the character of a settlement may be determined through the structure of the development. Structure is composed of the urban and natural environment, where the features of each environment combine to create a three dimensional spatial system with a unique identity that is able to provide amenity, serviceability and economic viability to future residents and the wider community into the future.

The five principles of the Coastal Design Guidelines for New South Wales (2003) are listed in turn with an accompanying comment below:

1. "*Defining the footprint and boundary of the settlement to establish the outer limits of the settlement to protect the important visual and natural setting*"

Comment:

The boundary of the development has been based on the ecological, topographical and other natural features that define the site. The proposed development preserves significant view corridors and natural greenways, which maintains the visual amenity of the site. Protected conservation zones, regenerated and revegetated riparian zones and areas of open space provide a natural setting for the site whilst also improving the ecological functioning of the landscape.

2. "*Connecting open spaces to create recreation, conservation, public access, cultural and heritage opportunities in and around the settlement*"

Comment:

The development precincts within the site have been logically set around a number of open space and conservation zones, which separate the site into northern, central and southern neighbourhoods (**Figure 22**). Two east-west corridors, which comprise riparian zones and a knoll, are proposed to be linked by a newly created north south corridor with a comprehensive trail system for pedestrians (refer to Urban Design Guidelines prepared by Roberts Day at **Attachment 16**).

Within each neighbourhood a variety of time tested open space typologies are provided including plazas, squares, greens and pocket parks. Each has been sized and located to function properly based on the needs of people.

The open spaces have been distributed throughout the development to encourage walking and cycling

There are no listed heritage items on the site. However, the former Cheese Factory on the site has been identified by the heritage consultant as being of local significance and is to be retained as part of the development.

Provision has been made within the development for Public Transport and a bus route devised as shown in **Figure 20.**

The open space system will also provide the basis for a water sensitive urban design system in order to maintain water-flows and maintain or improve water quality across the site.

3. "*Protecting the natural edges of the settlement in recognition that the coastal edge is protected as a public place, with public access and ecological values including mitigating the impacts of natural hazards*"

Comment:
Although the proposed development does not encroach onto the coastal edge, the maintenance of the coastal environment is incorporated into the water sensitive urban design system. This involves ensuring runoff from the site is of adequate quality for protection of aquatic ecosystems, in particular the significant Saltwater Creek ICOLL, which links with the site and eventually discharges into the Pacific Ocean and Bateman's Bay marine park.

The proposed development does not impact on public access to the coastline. Natural hazards such as flood and sea level rise have been considered and will be mitigated through appropriate design of the development (See Flood Impact Assessment of Patterson Britton at **Attachment 26**).

Section 1.8 of this report details environmental risks associated with the development and appropriate mitigation measures.
4. "*Reinforcing the street pattern to highlight how streets enliven centres, connect important places within and around the settlement, allow for improved choice when moving from place to place, and provide commercial and social benefits*"

Comment:
The Bevian Road development proposes a new coastal community based on the principles of Traditional Neighbourhood Design. The design of the thoroughfare network for Rosedale is site responsive and represents a departure from the vehicle dominant strategies which characterise conventional suburban development.

The configuration of the site in this manner, in conjunction with the open space corridors, will ensure that walking is not only viable, but an attractive alternative throughout the site. In addition, the master plan has been designed to be 'public transport ready' through a neighbourhood structure that supports the provision of a public bus service across the site (**Figure 20**).

Major civic structures are to be strategically located in the proposed village centre, whilst the lower and upper neighbourhoods will include more minor structures such as meeting halls and informal structures designed to foster community awareness.

The connection of open space areas throughout the site in response to topography and natural features provides opportunities for physical movement and hence healthier lifestyle choices and a wider community benefit in that the character of the site is maintained.

5. "*Appropriate buildings in a coastal context shows how specific development relates to the site's natural features and to its location within the settlement*"

Comment:
The current application does not seek approval for building architecture. This will be the subject of a future application. However, the proposed architecture will comprise simple building volumes which sit within an informal landscape setting of remnant trees and swales. The Bevian Road development will draw on the images of buildings

and communities from the South Coast Region, which limit the use of lightweight materials, use pitch roofs with eves and include verandahs or shop front awnings to encourage social contact. Parking of vehicles occurs in a manner which does not impact on the visual quality of the public domain. Whether within a village centre or towards the rural edge of a neighbourhood, the architecture is complemented by a natural landscape (See Urban Design Guidelines prepared by Roberts Day at **Attachment 16**).

The design guidelines for the site comprise a set of holistic, interdependent documents which will control development. These include: a character plan, thoroughfare plan, building plan, architecture plan and landscape plan.

The orientation of blocks has been devised to respond to views towards the wetlands and coast as well as internal views to natural features such as dams, to ensure that as people move throughout the site a strong visual connection with nature is maintained. Building footprints within blocks will be managed by the design guidelines to ensure their consistency with the local topography and to prevent overshadowing and unsuitable development.

Conclusion - Coastal Design Guidelines for NSW

It is considered that the proposed development is consistent with the principles of the Coastal Design Guidelines

1.6.4.4. NSW Coastal Policy 1997

The NSW Coastal Policy broadly conforms to Ecologically Sustainable Development (ESD) Principles and recognises the importance of controlling public access to fragile coastal environments (NSW Coastal Policy 1997). This section will identify how the proposed Rosedale development conforms to;

- Conservation of biological diversity and ecological integrity
- Protection of the health, diversity and productivity of the environment is maintained and in some cases enhanced as a part of inter-generational integrity
- Incorporation of environmental costs within the development
- Utilisation of the precautionary principle in setting guidelines on ecosystem health and function

Comments

Within the subject site, two areas have been identified as aquatic environments with conservation value; the Bevian Wetland SEPP 14 Coastal Wetlands, a number drainage lines recognised by the Department of Environment and Climate Change (DECC). Outside of the site, the linking Saltwater Creek ICOLL and Bateman's Bay Marine Park have been considered.

Protection of the Bevian Wetland and DECC recognised drainage lines will be managed through best practice stormwater management measures in controlling and reducing urban runoff, overland flow velocities and sediment transport. The implementation of water sensitive urban design principles across the site will ensure that water leaving the site and entering the Saltwater Creek ICOLL and eventually Bateman's Bay Marine Park will also be managed.

Open space and Conservation Precincts will be managed in perpetuity by the Community Association under a Community Management Title. Zoning of these Precincts will provide for the new E2 Conservation Zone and allow for enhanced public access. Covenants and Conservation Precincts have been developed to specifically protect remnant vegetation and ecologically important areas.

Public access will be provided to open space areas. Cultural heritage items composed of Aboriginal archaeological material and stone artefacts in the Bevian Wetland and riparian zones across the site will be preserved.

Conclusion – NSW Coastal Policy

The proposal is considered to be consistent with the provisions of the NSW Coastal Policy.

1.6.4.5. Draft Rural LEP

Comment:

There are two amendments to the Rural LEP. Amendment No. 38 seeks to reclassify land at Broulee to 7(f1) Environment al Protection (Coastal Protection).

Amendment No. 39 seeks to reclassify certain land within the Eurobodalla LGA from Community Land to Operational Land.

Consequently, neither amendment has relevance to the subject development

1.6.4.6. Interim Policy - Minimum Lot Sizes for Rural Residential Land

The Interim Policy, in essence, recommends a minimum lot size in Rural 1(c) land be 5,000 sqm.

Comment:

It is noted that this Interim Policy does not have the authority of an Environmental Planning Instrument (EPI) or Development Control Plan (DCP). Nor has it gone through the procedural processes of the EPI or DCP in terms of public consultation and review.

Notwithstanding this, the issues raised by this interim Policy are the same as that for the Subdivision DCP 165. These issues are addressed in **Section 1.6.3.2** of this report.

Interim Policies by their very nature can be modified, revoked or applied at the discretion of Council where considered appropriate.

In this instance, Council, in its letter dated 9th October 2007 (**Attachment 43**) states that it has an expectation of higher lot yields on the subject site, to make better use of infrastructure, and that it supports in principle smaller lot sizes than specified in Council's DCPs.

Conclusion – Interim Policy / Lot Sizes in Rural 1(c) Land

It is considered that, as the Council has by letter supported the smaller lot sizes on Rural 1(c) zoned land, the Interim Policy has been deemed not to be appropriate in respect of the holistic masterplanning of the subject development

1.6.5. Other Reports

1.6.5.1. Report of Expert Panel on Sensitive Lands

In May 2006, the NSW Government released the draft South Coast Regional Strategy for public comment in May 2006. In preparing the draft Strategy, 16 areas, zoned to allow for urban expansion, were found to be environmentally sensitive and in relatively isolated locations and warranted a "priority review by an expert Panel to determine suitability and scale of any release" for urban development.

Subsequently, the Minister for Planning appointed an Independent Panel chaired by Dr Andrew Refshauge to investigate and report on the sensitive sites.

The **Terms of Reference for the Pane**l were as follows:

1. *Review the **suitability of each site for urban development and the scale and type of any recommended land release,** having regard to the site's biophysical constraints, servicing and infrastructure issues and compatibility with the strategic directions of the draft South Coast Regional Strategy.*

2. *Advise on the **priority and timing of any recommended releases for urban development, i**ncluding an assessment against forecast population growth trends contained in the draft South Coast Regional Strategy.*

3. *Advise on what (if any) **alternate land uses might be suitable for each site in the event that urban development is not considered suitable**.*

The Panel invited written submissions, and conducted open public hearings in each of the Council areas and in Sydney. 188 written submissions were received, and 51 people/ organisations made verbal presentations to the hearings.

Discussions were also held with relevant Government agencies and each Council.

Principles applied by the Panel
The Panel developed a range of principles that were applied to the review of each of site to ensure consistency of approach and fairness. These principles were:

• Adhere to the principles of the draft South Coast Region Strategy that there should be no new towns or villages, and that additional urban development should augment existing settlements
• Exclude development in the catchments of sensitive Intermittently Closing and Opening Lakes and lagoons (ICOLLS)
• Exclude development from areas that contain endangered ecological communities
• Encourage more site-specific approaches to the definition of the width of riparian corridors in sites identified as suitable for urban development
• Require early replanting of predominantly cleared riparian corridors in sites identified as suitable for development
• Implement best practice water quality management/ water sensitive urban design (WSDU) for sites identified as suitable for urban development
• Identify opportunities to improve bushfire protection for existing settlements
• Require development to achieve higher dwelling yields so that more efficient use is made of limited land resources (except where site constraints preclude higher densities)
• Take into account alternative urban development areas (whether zoned, or un-zoned but under consideration by Councils)

• Restrict development in areas where there appears little prospect of creating a sustainable community, due to factors such as small communities, high dwelling vacancy rates, relative isolation from services and facilities, and limited expansion potential.

Population Projections and Housing Demand
Eurobodalla is projected to grow by 15,500 residents, concentrated in Batemans Bay, Narooma and Moruya. 10,700 dwellings are needed to meet the population growth projection over the next 25 years. Existing zoned land is expected to accommodate over 7.5% of the housing demand. The remaining 2100 dwellings will be accommodated in existing centres and adjoining land as well as urban investigation areas to be identified in the Eurobodalla Settlement Strategy.

Recommendations of the Panel on the subject Marsim Site:

1. Suitability for Development

"The site is considered mostly suitable for urban development in view of the past land clearing and farming activities. Detailed site planning should place a high priority on protection of riparian zones and SEPP 14 wetlands through best practice storm water management, and early revegetation of riparian areas for ecological and visual benefits."

Comment:
Great care has been exercised in the design of the subject development to protect the riparian corridors and indeed enhance the water quality entering the SEPP14 Wetland by Sensitive Urban Design techniques detailed in **Section 1.6.2.2** of this report. In particular the Water Management Plan proposed by Patterson Britton will include the following elements:

- rainwater tanks to reuse runoff which reduces the runoff volume and slows down the flow;
- bio-retention rain gardens on selected lots to infiltrate, treat and slowdown runoff from paved areas on the lots;
- bio-retention swales along the roads to treat and slow down runoff from lots and roads, and to promote subsurface flows;
- gross pollutant traps to remove sediment, debris, organic matter and litter;
- rehabilitate wide riparian corridors and wetland buffers with native vegetation to stabilise banks and provide significantly improved habitat value;
- upgrade farm dams to wetlands to improve runoff quality and provide more diverse aquatic habitat; and
- provide storage and promote infiltration of runoff to balance the surface/subsurface flows and slow down flows to mimic closely existing conditions.
-

2. Scale and Type of Release

"Residential development should aim to achieve a range of housing types to meet demographic change, with a higher overall yield than traditionally achieved in adjoining areas, to make better use of land resources and utility services.
Site planning should ensure visual separation between Barlings Beach and Rosedale, and along George Bass Drive between Tomakin and Rosedale North, in line with Council's objectives under the Eurobodalla Urban Settlement Strategy".

Comment:
The subject development will provide a range of housing types and sizes. Lots within the development site will range from 450 sqm to 8,550 sqm. This represents a higher yield than would traditionally be achieved in adjoining areas.

The terms of reference and principles established by the Panel, namely to *"achieve a higher overall yield than traditionally achieved in adjoining areas to make better use of land resources and utility services"* is considered to be an appropriate planning principle to apply to the entire site, including land zoned 1(c).

It is noted that in the Panel report, there is an expectation that the subject site together with the adjacent site to the north-east, owned by Rosedale Farm NSW Pty Ltd will achieve a yield of approximately 1,100 lots. The adjacent site has significant ecological and environmental constraints. In terms of its suitability for development the Review panel were of a view that " *limited development could occur in the north-eastern portion of the site, outside the habitat corridor identified there, provided there is early revegetation of generous corridors adjacent to previously cleared areas along creeks and other riparian areas. Limited clearing of forest could be permitted provided early riparian revegetation and restoration occurs."*

The Marsim site in comparison has far less constraints. Notwithstanding this, **the cumulative environmental, physical and ecological constraints on the site are such that only 806 lots can be achieved on the subject site. However, this lot yield has only been possible to attain as the result of being able to achieve higher lot densities than have been achieved in adjoining land in both the Urban Expansion land and the Rural 1(c) land.**

3. Priority and Timing

"Development should be staged according to market conditions. Discussions should be held with the land owners about a planning agreement that guarantees the revegetation of the riparian corridors as a high priority"

Comment:

The staging of the development will be determined by market forces. However, it is anticipated that the development will be staged over a 10 to 15 year period. Revegetation of riparian corridors is being undertaken as part of the development of the site.

4. Alternative Uses where Urban Development is Not considered Suitable

"Environmental conservation zoning using the new Zone E2 Environmental Conservation under the LEP template should be considered for riparian corridors, wetlands, and areas containing EECs".

Comment:

Noted

Conclusion – Sensitive Urban Land Review

It is considered that the subject development is consistent with the principles and recommendations of the Sensitive Urban Lands Review.

1.7. DGR General Requirement 7: Where Relevant, compliance with the BCA and Relevant Australian Standards for the proposed building, traffic, road , parking, utilities, noise and flooding;

Comment:
The current application is for concept approval for subdivision only. No approval for works, including earthworks, is sought as part of this application. These activities will form part of subsequent applications. At that time documentation of compliance with relevant BCA and SAA Codes will be provided.

Conclusion – BCA and SAA Standards

The subject development is for subdivision only.

Documentation of the manner in which the development complies with the Building Code of Australia and relevant Australian Standards will be dealt with at a subsequent development application stage.

1.8. DGR : General Requirement 8: Environmental Risk Analysis of the project including consideration of the issues raised during construction

The Risk Assessment of project, including construction related issues, presented in tabular form below:

Table 7 – Risk Assessment

Environmental Indicator	Risk Rating (Low, Medium High)	Mitigation measures	Risk rating post mitigation
Eutrophication of water bodies	Low	All water bodies are currently in good condition. Water sensitive urban design principles will be implemented to treat stormwater runoff to a standard better than the current water quality conditions.	Low
Degradation of fish and plant habitat	Low	Rehabilitation of watercourse, establishment of native buffers, and stormwater treatment.	Low
Increased Water turbidity	Low	All water bodies are currently in good condition. Water sensitive urban design to treat stormwater runoff to a standard better than the current water quality conditions. Implementation of sediment and erosion control measures.	Low
Changes in hydrological functioning of wetland	Low	Water sensitive urban design resulting in the alterations of peak discharges similar to the current conditions	Low
Soil erosion	Med	Erection of silt fencing during construction phase, stabilisation of exposed surfaces, installation of temporary sedimentation basins, rapid establishment of ground covers on exposed soils, medium term revegetation works	Low

Loss of or damage to Aboriginal relics	Low	Protection of archaeological PADs, collection and relocation of Aboriginal relics within conservation zones, open space areas and riparian zones. Awareness information within civic facilities and signage within conservation zones.	Low
Loss of or damage to European history	Low	Retention of the cheese factory, collect records and photographic journal, public display and signage.	Low
Changes in soil profiles	Med	Retain natural soil topography where possible minimise cut and full works, strip, relocate and replace top soils as a standard earthworks procedure.	Low
Increased noise levels	High	Attenuate noise from aerators associated with Sewage Treatment Plant (STP), maintain setbacks from STP, logical traffic access points and road networks, reduce use of traffic calming devices, public transport facilities, impose speed limit to a maximum of 40km/hr, passive walking and cycling trails and restricted work hours during construction phases.	Low - Med
Soil compaction	Med	Designated access ways for heavy vehicles during construction phase, protection of tree roots with fencing at drip line, rip soils that have been overly compacted. Ensure adequate replacement of A & B horizons	Low
Increased odour emissions	High	Setbacks from STP, augmentation of existing STP to increase capacity.	Low
Loss of remnant vegetation	Low	Protection of conservation areas and ecological corridors, revegetation and regeneration of viable remnant vegetation, offset revegetation works.	Low
Loss of Endangered Ecological Communities	Low	Conserve good quality endangered ecological communities, regenerate areas of high resilience, revegetation in offset areas.	Low
Loss of vegetation connectivity (movement corridors for fauna and genetic transfer of plant material)	Low	Revegetation and rehabilitation works to maintain and enhance vegetation linkages especially along riparian corridors.	Low
Loss of threatened species habitat	Low	Maintain or improve areas of Threatened Species Habitat within the subdivision. Offset with rehabilitation works.	Low
Increased weed infestations	High	Implementation of a long term and comprehensive weed control and regeneration program. Promote a	Med

		coast-care group to support the community association and promote use of native species	
Increased rubbish dumping	High	Waste Collection and management program. Public awareness program, participate in clean up day. Signage.	Med
Trampling of vegetation	Med	Removal of livestock, fencing at key public focal points, design of a practical public pathway system.	Low

Conclusion DGR 1.8 - Environmental Risks

It is considered that the majority of the identified environmental indicators associated with potential impacts from the proposed development are likely to be mitigated, such that their risk of occurrence is low. Three indicators namely, increased noise levels, increased weed infestations and increased rubbish dumping, have a medium likelihood of occurring post mitigation measures.

The impacts of increased weed infestations and rubbish dumping may be managed through the establishment of a community association under the proposed community management title. The community association will be responsible for the ongoing monitoring, regulation and maintenance procedures to ensure these impacts are not elevated to a significant level. Noise levels are likely to ease post construction phases.

1.9. DGR: General Requirement 9: An Assessment of the potential Impacts of the Project and a Statement of Commitments, outlining environmental management, mitigation and monitoring measures to be implemented to minimize any potential impacts of the project;

1.9.1. Potential Impacts

1.9.1.1. Impacts on Flora

In summary, it is considered that there will be no significant detrimental potential impacts on both Flora and Fauna within the subject site as a consequence of the proposed development of the site as proposed in the subject Concept Application.

The site landscape is characterised by extensive clearing with fragmented areas of natural and disturbed vegetation. Fragmented remnants form the eastern, north eastern and north western boundaries of the property. The remaining areas comprise cleared land with scattered trees, currently being subjected to grazing by cattle.

The Flora and Fauna assessment of the site by Conacher Travers (**Attachment 18**) has identified that, overall, the vegetation within the site is considerably disturbed. Within each vegetation community varying levels of disturbance have occurred.

A total of two hundred and eighty four (284) flora species were observed within the subject site. Of these, two hundred and twenty two (222) species were native and sixty two (62) species were exotic. The native species observed consisted of twenty nine (29) trees, forty three (43) shrubs, one hundred (100) groundcovers, twenty six (26) vines, twenty two (22) water plants and two (2) epiphytes.

Of the above, nine significant Vegetation Communities are within the site. These are identified below together with a description of their current condition:

Table 8 – Vegetation Communities

Vegetation Community Number	Name	Condition
1	Spotted Gum Ironbark Open Forest / Woodland	Has been disturbed by partial clearing and under-scrubbing.
2	Blackbutt Woodland	Has been disturbed by under-scrubbing and cattle grazing.
3 *	Dry Gully Rainforest	Generally undisturbed.
4	Banksia Scrub	Has been disturbed by the construction of an informal vehicular track through its centre. This track is currently unused and regrowth of the vegetation is occurring.
5 **	Swamp Oak Open Forest	Highly disturbed with no shrub layer and a sparse groundcover due to cattle grazing. This vegetation, surrounding the Bevian Wetland, has been disturbed by the construction of Bevian Road along its western and along part of its northern boundary.
5a **	Regrowth Swamp Oak Open Heath	Highly disturbed regrowth variation of community 5.
6	Aquatic Herbfield	Has been partially trampled by cattle along the edge of the dams where weed incursion is high.
6a **	Natural Freshwater Wetland	Relatively undisturbed and in good condition.
7	Grassland with Scattered Trees	Contains many pasture weeds along roadsides, dams and drainage lines. The area surrounding the nursery contains a number of planted exotics and natives.
8 **	Regrowth Redgum Open Woodland	This vegetation community is the result of extensive clearing and agricultural activities including grazing that exhibits a very sparse canopy layer and an absence in the shrub layer.
9 **	Closed Swamp paperbark Scrub	This community is in good condition exhibiting little disturbance.
9a **	Regrowth Swamp Paperbark Open Heath	An understorey generally dominated by a mixture of exotic herbs and pasture grasses caused from previous clearing and grazing.

* Preliminary EEC
** EEC

The long term conservation of remnant vegetation, EEC's, threatened species and their habitats is considered to be a high priority for maintaining local biodiversity. **A conservation network will be integrated within the site to offset the impacts of development. Protection is ensured through the retention of remnant vegetation, protection to Bevian Wetland and the revegetation of riparian areas, which will in turn create wildlife corridors to remnant vegetation offsite.**

Riparian Zones

The more prominent riparian zone running in the northern portion of the site is a critical corridor between the northern and southern catchments that protects part of the Saltwater Creek Catchment (ICOLL status). **This riparian zone creates an additional East to West habitat link across the site. The riparian zones will be maintained and enhanced with appropriate buffer zones. Buffer zones will ensure adequate vegetation is present to maintain the water quality of the site. The objective of the buffer zones are to stabilise the drainage lines and create a protective corridor for ecological functions.**

Remnant vegetation

The following vegetation remnants will be protected within conservation zones across the site.

Banksia Scrub vegetation community is considered to be regionally significant. **This vegetation community** is under threat from processes such as clearing and urban development and **will be protected on the "Knoll" within an open space zone.**

Freshwater Wetland (Bevian Swamp), Swamp Oak Open Forest and Regrowth Redgum Open Woodland, all of which are listed as endangered ecological communities, **will be protected as offset within the Bevian Swamp conservation zone.**

Spotted Gum/Ironbark vegetation community provides important habitat by way of shelter and denning sites for arboreal animals. This is also the case for the Blackbutt Woodland vegetation community. **These remnants will be protected within conservation ones in the site.**

The specific effect of the proposed development on endangered ecological communities is detailed below:

Swamp Oak Floodplain Forest (SOFF)
Two of the three separate stands of Swamp Oak Open Forest identified within the subject site, and which constitute the SOFF are located within the proposals designated conservation precincts. These conservation precincts will not be significantly impacted on by the proposal. Approximately seven percent (7%) of this community's extent within the locality is secured within conservation reserves. The proposal, being for residential development, will no longer have cattle in the northern area of the Swamp Oak Open Forest and this will enhance the biodiversity within these highly disturbed areas. **Therefore it is considered unlikely that the proposed development will substantially and adversely modify the composition of this community such that its local occurrence is likely to be placed at risk of extinction.**

Freshwater Wetlands on Coastal Floodplains (FWCF)
The proposed development will potentially result in the delivery of pollutants into the Bevian Swamp. However, the Water Sensitive Urban Design Strategy prepared by Patterson Britton (**Attachment 24)** and incorporated into the proposed development will ensure that the balance between surface and subsurface flows would closely mimic for existing conditions for flows entering the Bevian Wetland and the runoff water quality would have pollutant loads up to 25% lower than existing conditions. This represents a significant contribution to the long term improvement in receiving water quality.

As a consequence, there will be no significant change in the composition of vegetation with the Bevian Swamp such that its local occurrence likely to be placed at risk of extinction.

The construction of the road along the western boundary of the Bevian Wetland will potentially impact on the extent and composition of the FWCF immediately adjacent to the road. The impact on Bevian Wetland will be minimised by careful alignment of the proposed road, minimising its overall width and installing protective measures to contain sedimentation, vegetation removal and the release of contaminants. Therefore **it is considered unlikely that the proposal will substantially and adversely modify the composition of this community such that its local occurrence is likely to be placed at risk of extinction.**

Conclusion - Impacts of Development on Flora

It is considered that the subject development will have minimal detrimental impacts on the Flora within the site.

1.9.1.2. Impacts on Fauna

Conacher Travers in their Flora and Fauna assessment of the site (**Attachment 18**) have identified a total of one hundred and twenty one (121) species within or adjacent to the subject site during the survey. This number comprised eighty (86) bird, five (5) reptile, seven (7) amphibian, twenty two (22) mammal species and one (1) fish species.

Five (5) threatened species, Powerful Owl (*Ninox strenua*), Glossy Black-Cockatoo *Calyptorhynchus lathami*), Eastern Freetail-bat (*Mormopterus norfolkensis*), Eastern Bentwing-bat (*Miniopterus schreibersii oceansis*), and Greater Broad-nosed Bat (*Scoteanax rueppellii*) were observed utilising the subject site by *Conacher Travers*. In addition, **one (1) threatened fauna species, Yellow-bellied Glider (*Petaurus australis*) was recorded within the subject site** by *Gunninah Environmental Consultants* in 2002. All other species are considered relatively common in the local area.

Eighty six (86) birds were identified within the subject site. This included two (2) threatened species, Glossy Black-Cockatoo and Powerful Owl. All other species are considered to be common within the local area. **Sixteen (16) threatened bird species are considered to have potential to utilise the subject site.**

Twenty two (22) species of mammal were recorded to be utilising the subject site. This included eight (8) terrestrial species, five (5) common arboreal species and nine (9) bats. **Three (3) bats species identified within the subject site are listed as threatened species.**

Fourteen (14) threatened mammal species, are considered to have potential habitat within the subject site.

Five (5) common species of reptile were recorded within the subject site. **No threatened species of reptile are considered to have potential to utilise the subject site**.

Seven (7) amphibians were heard calling within the wetland, creeklines and dams throughout the site. **Two (2) threatened species of amphibian are considered to have potential to utilise the subject site.**

One (1) fish species, Marbled Eel, was recorded within a dam located in the north-eastern portion of the subject site.
In respect of matters required to be considered under the *Threatened Species Conservation(TSC) Act* (1995), five (5) threatened fauna species were recorded by *Conacher Travers,*Powerful Owl (*Ninox strenua*), Glossy Black-Cockatoo (*Calyptorhynchus lathami*), Eastern Freetail-bat (*Mormopterus norfolkensis*), Greater Broad-nosed Bat (*Scoteanax rueppellii*) and Eastern Bentwing-bat (*Miniopterus schreibersii oceanensis.* In addition, one (1) threatened fauna species, Yellow-bellied Glider (*Petaurus australis),* was recorded within thesubject site by *Gunninah Environmental Consultants* (2002).

Habitat Retained as part of Development
The subject site has an area of 174 ha, the majority of the property is cleared with only a small portion of native vegetation occurring within the subject site. **The proposed development will retain all areas of potential habitat for the aforementioned species.**

The retention of native vegetation within the subject site is of particular importance to threatened species such as the Yellow-bellied Glider and Eastern Bentwing Bat, both of which have been identified within the subject site. Retention of suitable habitat for these species within the subject would assist in offsetting the cumulative impacts of

the proposed development within the Rosedale area. In addition, revegetation of the drainage lines within the subject site will improve, in the long-term, the connectivity of vegetation within the site to remnant vegetation within the adjacent Mogo State Forest. It is highly likely that the Yellow Bellied Gliders are using the habitat within the adjacent Mogo State Forest due to their large home range of 35 hectares.

Currently no wildlife corridors exist within the subject site. The proposed development will maintains and enhance foraging habitat and connectivity which will result in a positive ecological outcome.

Issues Raided By Department of Environment and Climate Change (DECC)
As part of the consultation process, the DECC has requested clarification on the issue of retention and protection of Endangered Ecological Communities and habitats of threatened hollow dependent fauna.

In respect of these two issues, the following information is provided:

• The Bevian Wetland will be fully protected from both direct and indirect impacts from upslope stormwater and other possible environmental impacts. It is also understood that a report was submitted by Geoff Sainty who assisted the Department in respect of the aquatic environment assessment in the Bevian Wetland.

• Riparian restoration will be undertaken as shown in Schedule 3 attached to the Travers Environmental letter to the Department of planing dated 25th January 2008 **(Attachment 47).**

• The Knoll vegetation is being conserved – see The Knoll as shown in Schedule 3 attached to the Travers Environmental letter to the Department of planing dated 25th January 2008 **(Attachment 47).**

• Connectivity is provided with adjacent vegetation and habitat resources – as shown in Schedule 3 attached to the Travers Environmental letter to the Department of planing dated 25th January 2008 **(Attachment 47).**

• Conacher Travers' fauna ecologist has recently completed a habitat tree surveys that has indicated the presence of 168 hollow bearing trees on the site the majority 80 % of which are located in the proposed conservation areas

• Of 33 Habitat Trees within the development footprint, only 2 are of medium or high value

• Hollow bearing trees onsite are severely degraded and have been significantly impacted by clearing onsite (94.5% reduction onsite compared with control sites).

• No threatened species have been observed within the high or medium value trees.

• No migratory species will be significantly affected.

• All endangered ecological communities will be maintained or expanded as a result of the proposed protection and restoration works.

It is also noted that there has been concern raised by the Catchment Management Authority (CMA) in relation to the loss of native vegetation on the site. Conacher Travers considers that this concern is an ill conceived assessment and not reflective of an accurate assessment of vegetation retention and hollow bearing trees being retained onsite. An accurate census of the habitat trees onsite and those being impacted by the development footprint has been undertaken by Travers

Environmental as detailed in Tables 1and 2 of the Travers Environmental letter to the Department of planing dated 25th January 2008 **(Attachment 47).**

A comprehensive assessment of the impacts of the development on hollow dependent fauna, the adequacy of vegetation offsets, and the justification of artificial nest box offset ratio is provided in the Travers Environmental letter to the Department of planing dated 25th January 2008 **(Attachment 47).**

Conclusion - Impacts of Development on Fauna

An assessment under Section 5(A) of the *Environmental Planning & Assessment (EP&A) Act* (1979) concludes that the proposed development will not cause a significant impact on threatened species, populations and endangered ecological communities within the site.

Indeed it is considered that as the proposed development will enhance the foraging habitat and ecological connectivity through the site, there will be a significant beneficial impact on fauna as a result of the development.

1.9.1.3. Impacts on Hydrology /Water Quality

Patterson Britton, Consulting Engineers, have developed a best practice water sensitive urban design strategy for the development in concert with the ecological and landscape design experts to provide an integrated water management strategy which significantly improves the runoff management and adds value in terms of ecological outcome and visual amenity of the area.

The integrated water management strategy proposed for the development which is based on a water sensitive urban design approach includes:

- rainwater tanks to reuse runoff which reduces the runoff volume and pollutant loads and slows down the flow;
- bio-retention rain-gardens on selected lots to infiltrate, treat and slowdown runoff from paved areas on the lots;
- bio-retention swales along the roads to treat and slow down runoff from lots and roads, and to promote subsurface flows;
- gross pollutant traps to remove sediment, debris, organic matter and litter;
- rehabilitate wide riparian corridors and wetland buffers with native vegetation to stabilise banks and provide significantly improved habitat value;
- upgrade farm dams to improve runoff quality and provide more diverse aquatic habitat; and
- provide storage and promote infiltration in bio-retention systems of runoff to balance the surface/subsurface flows and slow down flows to mimic closely existing conditions.

Conclusion - Impacts of Development on Water Quality

It is considered that the subject development will have minimal detrimental impacts on water quality. Indeed, as noted above, the sensitive water design strategy will significantly improve the stability, natural function and water quality of Salt Water Creek and Bevian Wetland. This would contribute to the long term improvement in these receiving waters as well as the Batemans Bay Marine Park.

1.9.1.4. Impacts of development associated with Bushfire

The subject site is substantially cleared as a consequence of its previous use as a dairy farm. The proposed development involves the subdivision of the land for 806 dwellings.

A Bushfire Protection Assessment (BPA) has been undertaken by Conacher Travers (**Attachment 22**) which

• **Reviews the bushfire threat**

Comment:

Bushland to the north and north-west of the property poses a potential bushfire threat to the proposed subdivision due to the presence of tall open forest. The existing remnant vegetation within the proposed subdivision poses minimal risk from bushfire, due to the small total area and the poor continuity of vegetation, however the riparian zones and corridors are intended to be revegetation and eventually restored to open forest vegetation.

Southern slopes of the Knoll are likely to be restored to Banksia scrub. Therefore the proposed corridors also present internal linear bushfire risks.

It would be expected that a fire burning within the open forest vegetation from the north, and North West of the proposed development and the vegetation within the subject site could develop significant intensities due to the total area, continuity of unmanaged vegetation and the exposure to hot dry winds.

It is possible that fires could occur within the surrounding bushland with the potential impact in the form of radiant heat, flame impact and potentially ember attack. **Therefore asset protection zones will be required to provide defensible space between the bushfire threats and the development.**

• **Reviews the potential to carry out hazard management over the landscape**

Comment:

The land owners and/or future managers will have an ongoing liability to ensure the management of the lands within the property to prevent the build-up of combustible fuel. Section 63 of the *Rural Fires Act* requires hazard management to occur. **There is no physical restriction that could constrain hazard management in any potential asset protection zone from being successfully carried out by normal means e.g. mowing / slashing following initial clearing works.**

• **Provides advice on mitigation measures including the provision of asset protection zones and construction standards in accordance with *'Planning for Bushfire Protection, 2006';***

Comment:

The Bushfire Assessment Report of Conacher Travers provides specific recommendations on the location and extent of Asset Protection Zones and Construction Standards of structures on the site in a tabular form in Section 2.2 of their report (**Attachment 22**)

A diagrammatic summary of the Bushfire Constraints for the proposed development is shown in **Figure 21.**

• **Provides advice on specific fire management issues**

Comment:
The Bushfire Protection Assessment (BPA) of Conacher Travers provides 6 specific recommendations in terms of Fire Management on the subject site. These are reproduced below:

Recommendation 1 - The development of the proposed dwelling should be sited as indicated in **Figure 21**;

Recommendation 2 - Asset protection zones should be provided to the proposed development. They shall take the form of Inner Protection Areas, measured from the exposed wall of the any dwellings. The asset protection zones shall be as in **Figure 21**;

Recommendation 3 - Asset protection zones should be maintained by regular maintenance of the landscaped areas / mowing of lawns (in accordance with the guidelines provided in Appendix 1 of the Bushfire Protection Assessment report at **Attachment 15**) , and or as generally advised by Rural Fire Service in their publications.

Recommendation 4 - Construction standards as per Australian Standard AS3959 *'Construction of Buildings in Bushfire Prone Areas',* in accordance with Part 2.3.4 of the *'Building Code of Australia',* should apply to all proximate dwellings to the asset protection zones.

Recommendation 5 - Roof gutters and valleys to all dwellings proximate to the asset protection zones should be leaf proofed by the installation of an external gutter protection shroud or a gutter system that denies all leaves from entering the gutter and building up on that gutter. Any material used in such a system should have a flammability index of no greater than 5 (as measured against AS 1530.2).

Recommendation 6 - A hydrant water supply should be installed in accordance with Australian Standard AS2419.1.

Conclusion - Impacts of Bushfire

The subject development will implement all the recommendations of the Bushfire Protection Assessment prepared by Conacher Travers. Consequently, it is considered that the proposed development will be satisfactory in relation to Bushfire Protection.

1.9.1.5. Impacts on Heritage

European Heritage
The subject site does not contain any heritage items as identified in the Eurobodalla Rural LEP. Notwithstanding this, the existing Cheese factory on the site has been identified as being representative of small scale, pre Second World War cheese factories which served the local community prior to the development of larger cheese factories and markets. The production of as such cheese was an important stage in the evolution of the NSW dairy industry. As such the site has high local heritage value within the local context particularly in terms of its cultural significance.

The proposed subdivision does not affect the former cheese factory. It is retained intact as part of the redevelopment of the site.

Aboriginal / Archaeological Heritage
The subject site has been identified as containing areas of low to medium archaeological potential (refer to report by Navin Officer (**Attachment 27**)).

The proposed development has been designed to avoid areas of significant potential heritage/archaeological significance.

Site RURIF1, a single lithic artefact of no heritage significance, will be removed as part of the access road works adjacent to the southern section of the site adjacent to the Bevian Wetland. In addition, a **minor portion of PDA 3 will be removed to facilitate the location of a road. PAD 3 is approximately 70m x 40m and has been classified as being of low to moderate significance. The extent of excavation within this area is not considered significant by Navin Officer.**

Elsewhere on the site, items HS1 (an agricultural ditch of low heritage significance), HS6 (two identified pits of no heritage significance) and HS8 (the location of an early settler's hut considered to be of no heritage significance) are also to be removed as part of the development of the site.

The local Aboriginal communities have been consulted on the proposed development and have raised no objection to the development (see **Section 3.11**). Those consulted were the Mogo Land Council, Yuin Elders Council and the Djuwin Women's Lore Council.

A heritage impact statement has been prepared as part of the Cultural Heritage Assessment report, (**Attachment 27)**.The report concludes that the proposed subdivision proposal successfully avoids any significant archaeological locations and that the proposed development will not have any significant impacts on the heritage significance of the site in terms of known relics or those areas of potential archaeological deposits.

Conclusion - Impacts of Development on Heritage

It is considered that the subject development will have minimal detrimental impacts on significant archaeological locations, potential archaeological deposits or heritage items.

1.9.2. Statement of Commitments

The Director-General has requested pursuant to section 75F(6) of the *Environmental Planning and Assessment Act 1979* that the Rosedale EA include a Draft Statement of Commitments. If approval for the proposed project is granted, MARSIM will commit to the following environmental management and mitigation measures for the proposed project:

1. Hours of Operation
2. Site Security
3. Appointment of Project Ecologist
4. Induction Manuals, Training and Contract Management
5. Site Construction Plans
6. Approvals and Licenses
7. Bushfire Prevention and Hazard Reduction
8. Vegetation Protection
9. Tree Protection
10. Fencing
11. Weed Control
12. Pest Species Management
13. Threatened Species Management
14. Bush Regeneration
15. Habitat Management
16. Landscaping
17. Pets
18. Erosion and Sediment Control
19. Groundwater
20. Stormwater and Nutrient Control
21. Cut and Fill Management
22. Monitoring / Auditing & Reporting
23. Cultural Heritage
24. Protection of Endangered Ecological Communities and habitats of threatened hollow dependent fauna

The details of the commitment are presented in tabular form at **Attachment 35**

1.10. Signed Statement by Author of the Environmental Assessment certifying that the information contained in the report is neither false nor misleading

This statement is at **Attachment 40** of this report

1.11. Quantity Surveyor's Certificate of cost to verify the capital investment of the project

This certificate is at **Attachment 41** of this report.

2. Assessment of Key Issues

2.1. Conceptual layout

2.1.1. DGR 1.1: Address the Requirements of the Eurobodalla Rural Local Environmental Plan 1987 (as amended) and Eurobodalla Council DCP 160-Rosedale and DCP 157 – Rural Subdivision. Demonstrate consistency with all relevant Zone objectives and standards

2.1.1.1. Eurobodalla LEP
This is addressed in **Section 1.6.2.6** of this report

2.1.1.2. Rosedale DCP 160
This is addressed at **Section 1.6.3.1** of this report.

2.1.1.3. Rural Subdivision DCP156
This is addressed at **Section 1.6.3.2** of this report.

2.1.2. DGR 1.2 Extent of Potential Development Footprints, Building Envelopes and Built Form Controls, and any significant vegetation to be removed;

Comment:

(i) Built Form
The subject application seeks concept approval subdivision of the site only. It does not seek approval for the construction of any buildings on the site. Notwithstanding this Urban Design Guidelines (**Attachment 16**) have been prepared by Roberts Day which identify the zones within which buildings may be located on each lot, the general nature and architectural style of buildings and development controls on the built form.

Within the development, precincts have been established which provide a range of building types ranging from small dwellings in higher density precincts to larger dwellings in low density precincts.

The larger, low density buildings are generally located in the northern portion of the site, whilst a mixture of cottages, semi-detached buildings and variety of small and large density lots are located in the southern portion of the site.

The range in sizes of building envelopes caterers for a range of demographic needs and income levels, whilst also allowing for the integration of open space and protection of ecologically significant areas across the site.

Proposed blocks within the Rosedale site can be can be categorised into three basic types: square, elongated and irregular. Block structure has been applied across the site based predominately on topography and density within the limitations of the identified environmental constraints (*Roberts Day Urban Design Guidelines)*.

Towards the village centre of the lower neighbourhood, blocks are squarer and elongated to provide the opportunity for parking off rear lanes to accommodate smaller cottage housing types and mix of uses. The other block used throughout the development is the irregular, organic block which responds to topography (*Roberts Day* 2007).

The orientation of blocks has been designed to respond to views towards the wetland and coast and internal views to natural views such as remnant bushland and dams.

As noted above, this concept approval application does not seek consent for the construction of any structures. This will be the subject of a future Development Application.

(ii) Removal of Vegetation
This is dealt with in **section 1.6.1.2**. However, in summary, the proposed development will remove/modify:

- 1.78ha of Swamp Oak Floodplain Forest. However, 5.04ha of this community will be revegetated in cleared lands and improved from its current state;
- 0.36ha of disturbed Redgum Open Woodland will be removed/modified. However, 0.74ha of this community will be revegetated in cleared lands and improved from its current state.

Conclusion – DGR 1.2 Built Form and Vegetation Removal

(i) Built Form
Built Form Controls are articulated in Urban Design Guidelines have been developed for the subject site which control the public and private domain and promote a high quality in urban design and architectural design.

(ii) Removal of Vegetation
Areas of Swamp Oak Floodplain Forest and disturbed Redgum Open Woodland will be removed/modified. However, these areas will be revegetated in clear lands and improved from its current state.

2.1.3. DGR 1.3: Address Safety, Provisions of Public Reserves, Potential Perimeter Road layouts, Pedestrian and Cycle Movement to , within and through the site

2.1.3.1. Safety

- **Flood**

Comment:
A Flood Impact Assessment has been preparedly Patterson Britton (**Attachment 26**) having regard to the requirements of the NSW government Floodplain Development Manual (2005).

The flooding would not inundate any of the proposed lots and would not pose a serious risk to the residents. All residents would have ready access to flood free land on their lots or to even higher ground in all floods up to the Probable Maximum Flood (PMF).

All proposed residential allotments would be located outside the predicted extent of inundation at the peak of the worst case 100 year recurrence flood. Accordingly, evacuation will not be required for any residential dwelling during all events up to and including the 100 year recurrence flood.

A more comprehensive assessment of Flood issues is presented at **Section 2.8.5** of this report.

- **Fire**

Comment:
Conacher Travers have prepared a Bushfire Protection Assessment report **(Attachment 22**). The report provides an assessment of the bushfire protection measures required for the development to guard against the potential impact of bushfires.
Recommendations have been made in respect of fuel management, construction standards / building protection, access, bushfire education and land ownership

responsibility. A comprehensive assessment of Fire Safety aspects of the proposed development is presented at **Section 2.8.1** of this report.

- **Roads and Footpaths**

Comment:
All roads and footpaths will be designed to the relevant SAA Standards and those roads dedicated to Council will, in also be designed to Council's additional requirements, if any.

- **Safety by Design**

Comment:
The subject development application does not seek consent for the construction of any structures or dwellings at this stage. Notwithstanding that, subsequent applications for the construction of the built form within the site will have regard to the provisions of the Eurobodalla DCP - Residential Design Code (Section 3.2.3 Safety and Crime Prevention)

2.1.3.2. Provision of Public Reserves

Comment:
The subject site provides a series of open spaces and ecological corridors; comprising 10 local parks distributed throughout the site, two large ecological corridors and the Bevian Wetland at the southern portion of the site (**Figure 22**).

The local parks provide a valuable neighbourhood facility in terms of:

- visual amenity;
- passive and active recreation;
- community focal point;
- the provision of a sense of place and identity

Whilst each open space type will be subtly different in character reflecting its location and function in the community, the overall character of the open space will reflect the character of the South Coast.

Public spaces will be simply and elegantly detailed, characterised by naturalistically clusters of regional trees, swales and other landscape elements..

This open space system also provides the basis for a water sensitive urban design system, as well as two large ecological corridors which provide vegetation connectivity and improve habitat.

2.1.3.3. Pedestrian and Cycle Movement

Comment:
A network of pathways and cycleways are provided throughout the development and will link areas of open space and provide recreational opportunities for residents and the wider community (**Figure 23**).

In order to minimise earthworks, thoroughfares are aligned to follow major ridge or drainage lines and a variety of traditional intersection types, such as forks ad triangles, have been employed. All thoroughfares have been designed to equally accommodate the need of the pedestrian and driver within a shared environment. Trails provide the opportunity for pedestrians and cyclists to move through Rosedale independently of vehicles, enjoy the sites natural features and connect key destinations.

The pedestrian and cycle paths provided for within the thoroughfare network are substantially expanded by a series of trails integrated into the proposed open space system and aligned to connect seamlessly into the thoroughfare network.
For example, from the upper neighbourhood it is possible to enter the central creek corridor, climb the knoll and then continue along a pedestrian trail which connects in the neighbourhood centre before passing back out into nature. At key points along the proposed system of trails and paths, it is envisaged that public art will be utilised to add meaning, enjoyment and education to the experience.

In addition to the Pedestrian and Cycle network, the site has been designed to be 'public transport ready'. The neighbourhood structure naturally supports the provision of a public bus service across the site. It provides for a built in catchment of people who are within walking distance of and able to support this system.

Conclusion – DGR 1.3 Safety Provisions

It is considered that the issues associated with Safety, Provisions of Public Reserves, Potential Perimeter Road layouts, Pedestrian and Cycle Movement to, within and through the site have been satisfactorily addressed.

2.1.4. DGR 1.4: Demonstrate a clear delineation between public and private spaces

Comment:
The subject development only seeks concept approval for subdivision. The detailed landscaping for the public and private domain Plan for the site, which would provide the clear delineation between the private and the public spaces, has not been finalised. However, indicative landscaping designs for the public and private domain are presented as part of the Urban Design Guidelines for the site (**(Figure 24** and **Attachment 16**).

Conclusion – DGR 1.4 Delineation of Public and Private Spaces

It is considered that the proposed development provides a clear delineation between private and public spaces, as detailed in Urban Design Guidelines prepared for the site. The detailed landscaping design for public and private spaces within the site will be the subject of a future Development Application.

2.1.5. DGR 1.5: Identify the Indicative Staging of the development and the future Management of the land (Torrens, Strata and/or Community Title)

Comment:

(i) Staging of Development
The subdivision and development of the project will be carried out in 3 stages over a period of approximately 10 to 15 years.

A draft staging proposal is outlined on the Precinct Plan. The plan shows the site divided into the following 3 Stages:

- **Stage 1** – Land to the north of the main east west riparian zone predominated by the Country Zone or rural residential development.

- **Stage 2** – Land to the north of the knoll and south of the main east-west riparian zone comprising a mixture of character zones that acts as a transition between rural residential development that predominates in the north and urban development that predominates in the south.

- **Stage 3** – The southern portion of the site characterised by higher density urban development.

The staging has been developed in response to the demand for housing at the time of lodgement of this application and after considering infrastructure and servicing delivery matters.

The staging plan is indicative and will be reconsidered in the DA phase when market forces and infrastructure / servicing issues can be more appropriately assessed.

Community Titling and Composition of Lots
Implementation of the Concept Application vision and its development form is proposed to be facilitated and guided through the use of community title legislation.

The site will be developed and subdivided under the Community Land Development Act 1989, with management arrangements established in accordance with the provisions of the Community Land Management Act 1989.

Key features of the use of a community title plan of management are as follows:

• The completed development will be a 'community', the members of which will be the community association owning community facilities and the owners of the housing and building lots.

• Building lots will at all times remain as freehold Torrens title, with the community title approach only affecting the method of subdivision.

• Subdivision under the community titles legislation is a conventional subdivision in the planning, approval and registration sense. Accordingly the processes, consents and certificates required for conventional subdivision will apply to the development.

• Upon subdivision, the 'community plan' will be the first plan to register. This plan subdivides the site into the 'community lot', which vest community property and facilities to the control of the 'community association', and also creates development lots. The 'community lot' will be a single registered lot.
• Subdivision within stages will be by way of 'neighbourhood lots' built, registered and managed separately but controlled by the 'community association'. The construction and registration of separate 'neighbourhoods' allows orderly delivery of community

property as well as development lots on a stage by stage basis. Each neighbourhood will require registration as a separate lot.

- A draft Precinct Plan has been attached to reflect the likely composition of community and neighbourhood lots within the development. The plan proposes 13 neighbourhood lots, 20 community title lots and 1 environmental protection lot. The layout of all community lots, although fixed in number, will be subject to final design during the Development Application phase of the project.

- The environmental lot comprises land identified for ecological protection and it is anticipated land within this lot will be rezoned.

• The 'community association' is constituted on registration of the 'community plan' and first 'neighbourhood' lot and has the owners of private development lots as its 'members'. The association owns the 'community lot'.

• The 'community association' manages the development.

• A 'community management statement' will be registered with the 'community plan'. This statement is binding on the 'community association' and each person who is the owner, lessee, occupier or mortgagee of a development lot.

• The 'community management statement' is the vehicle by which the development is managed and administered. It will contain by-laws and procedures:

- ❖ About how the estate will be managed
- ❖ Preserving the essence and theme of the development by controlling the manner in which the estate may be used and developed
- ❖ Establishing the executive committee for the 'community association'
- ❖ Governing the behaviour of owners and occupiers, insurance, garbage, internal fencing, keeping of animals, trading activities, access ways and whether any 'community property' is restricted for use by any person.

• The 'community management statement' is the tool by which the ownership, repair, maintenance, renewal and replacement of services and facilities is identified. The statement will identify those services and facilities that are owned by Council, the 'community association' and any other person, and identify which party is responsible for them. The statement also places responsibility on the 'community association' for the repair, maintenance, renewal and replacement of community facilities.

• The 'community management statement' also establishes the way in which the estate is developed, preserved and controlled. The statement establishes the owner's responsibility via the 'community association' for the repair, maintenance, refurbishment and replacement of community facilities. The statement will contain:

- ❖ Design standards
- ❖ Architectural standards
- ❖ Landscape standards

• These standards will:

- ❖ Encapsulate the vision of the Concept Application
- ❖ Outline the statutory planning process
- ❖ Describe strategies relating to drainage and water management
- ❖ Outline the 'theme' for the estate
- ❖ Outline best practice for management of community facilities
- ❖ Control development density
- ❖ Eliminate the capacity for future subdivision

• Owners of development lots will be obliged to comply with the standards contained in the 'community management statement'. This includes controls over the use of the

lot, change of use of the lot, erection of buildings on the lot, additions to an existing building on the lot, the carrying out of any works on the lot, demolition and subdivision and conservation of water. Such development will only be permitted when it complies with specific guidelines and controls applying to the site.

- The document detailing these codes and standards for private lots will be called the Pattern Book and will be developed and lodged with the detailed Development Application for the project once the Concept Application has been approved. The Pattern Book will refect the project philosophy outlined in Roberts Day's Urban Design Guidelines as lodged with this application.

- The implementation of the community title approach in this proposal is aimed at achieving a number of key outcomes, being:

    1. To ensure that the Concept Application vision is achieved
    2. To put in place a management structures that are largely 'self enforcing', placing an additional level of development control over and above Council planning controls
    3. To create a mechanism by which the development's quality can be maintained.

- The community title will be enforced through the Contract of Sale, where purchasers are legally required to comply with the architectural and landscape provisions through the Pattern Book.

- A Design Review Committee (DRC) will be set up through the Community Scheme where approvals must be obtained by each lot owner for construction within their lots by submitting a Development Application to the Consent Authority and Construction Certificate Application to Council or a Private Certifier for any building work. Consent Authority approvals must be obtained before commencement of any building work.

- The DRC will approve applications for the design and construction of a home before the applications are lodged with the consent authority. This process might broadly be undertake as follows:

    ▪ Step1 - Review Documents

    Prior to signing a Contract of Sale, Purchasers will receive a copy of the Pattern Book. This information should be reviewed prior to any preliminary design work. A DRC representative will be available for consultation on appointment.

    ▪ Step 2 - Sketch Design Review

    The Sketch Design Review will be carried out after initial schematic designs for a home have been completed. The purpose is to confirm that preliminary house designs comply with the Pattern Book. Applicants will be required to complete a Sketch Design Review Application Form for submission to the DRC. Following this review meeting the DRC will confirm that the preliminary design is acceptable or advise on a list of items which require further consideration. On Sketch Design approval, and prior to the preparation of construction drawings, the Applicant may submit to the consent authority or a Private Certifier a Development Application.

- Step 3 - Final Design Revie

The purpose of this review is to check construction documentation for compliance with the Pattern Book and verify that the requirements of the DRC made at the Sketch Design Review have been incorporated. The Applicant will be required to complete a Final Design Review Application Form. The Applicant is responsible for ensuring conformity with the relevant Local and State statutory regulations. Following this meeting the DRC will issue final design approval or a list of items which require modification and resubmission to the DRC.

- Step 4 - Approval

Within its absolute discretion the DRC may approve, approve with conditions or deny approval for submission to the consent authority.

Conclusion – DGR 1.5 Staging and Management of Land

The construction of the development is proposed to be in 3 stages and is likely to commence in the northern precinct subject to market and infrastructure considerations

The future management of the land will be dealt with under Community Title under the Community Land Development Act 1989, with management arrangements established in accordance with the provisions of the

2.2. Visual Impact , Amenity and Scale

2.2.1. DGR 2.1: Demonstrate the Suitability of the proposal with the surrounding area in relation to potential character, bulk , scale and visual amenity of the development resulting from the development having regard to the Coastal Guidelines of NSW (2003), NSW Coastal Policy (1997) SEPP71- Coastal Considerations (specifically Clauses 2 and 8) and the Eurobodalla Settlement Strategy

Comment:
The proposed Concept Application is for subdivision only. Notwithstanding this Urban Design Guidelines for the site have been prepared by Roberts Day (**Attachment 16**) which specifically addresses the issue of character, scale and visual amenity.

The purpose of the proposed Design Guidelines is to ensure the implementation of the principles of the plan in a manner which reflects and enhances the character of the South Coast.

South Coast Character
South Coast character is expressed in the architecture which has been modified by local architects and builders over time to respond to the environment in subtle ways. Whilst the architecture can be described as “eclectic”, a variety of recurring themes relating to the treatment of roofs, walls, openings and attachments suggests ways that buildings can continue to evolve a South Coast architecture.

Buildings generally comprise simple volumes, limit the use of materials which are generally lightweight, pitch roofs with eaves and include verandahs or shop front awnings to encourage social contact. Parking of vehicles occurs in a manner which does not impact upon the visual quality of the public domain. Whether within a village centre or towards the rural edge of a neighbourhood, the architecture is complemented by a natural landscape which varies in its level of informality. It includes verges of varying width, swales and naturalistic clusters of trees of multiple species. This sense of wholeness which exists is underscored by the interweaving of

neighbourhood form, coastal landscape and built elements, each reinforcing an appreciation of the other.

Character of Proposed Development
The proposed development will draw on these images and to establish a character unique to the South Coast which continues to evolve a tradition of community building. No detailed architecture has been developed at this stage, because the subject application only seeks Concept Approval for Subdivision. Notwithstanding this, building controls are provided for each precinct within the development which control bulk, scale and the building footprint through the following controls:

- Minimum Lot Width and Lot Depth ;
- Maximum Building Height;
- Side Setbacks;
- Site Coverage ; and
- Parking.

Height, in particular, will generally be limited to 2 storeys throughout the development.

Visual Amenity from within the Subject Site
Visual amenity of the development from within the site will be of the highest order and determined by the quality of the design of the public and the private domains as detailed by Roberts Day in their Urban Design Guidelines (**Attachment 16).**

Public Domain
The visual amenity of the public domain is not only determined by the quality of its landscaping, street treatments and street furniture but also by the fundamental configuration of the subdivision itself. In this regard the subject development has gone to great lengths to create a community of the highest visual and environmental amenity. It has done this by the following strategies

- Walkable neighbourhoods

Neighbourhoods within the development are limited in size so that the majority of the population is within a 5-minute walk of its centre (400m). Daily needs such as those provided by a corner store, are theoretically available within this area. This centre provides an excellent location for a potential public transport stop. By bringing the activities of daily life into walking distance, all people gain independence of movement, particularly the young and elderly.

- Connected network

Thoroughfares are laid out in a network so there are alternate routes to most destinations. This permits most streets to be smaller with slower traffi c, as well as having on street parking, trees, footpaths and buildings. They are designed for both pedestrians and vehicles. People feel comfortable walking and are able to get to know each other and to watch over their collective security.

- Quality open space

Open space is provided in the form of specialised plazas, squares, playgrounds, greens, parks and reserves. Each type is defined by its size; the landscaping used, if any; and the way the space is surrounded. Open space to be truly public should be overlooked by buildings and fronted by thoroughfares. To be fully functional, it should straddle pedestrian trajectories or be adjacent to meaningful destinations.

Private Domain
The visual amenity of the private domain in terms of character, bulk and scale will be determined by the requirement, under the Community Title Scheme, for all buildings on the site to be designed in accordance with the building controls articulated in the Urban Design Guidelines (UDG).

As noted above, the UDG will control:

- Minimum Lot Width and Lot Depth ;
- Maximum Building Height;
- Side Setbacks;
- Site Coverage ; and
- Parking.

The maximum building height will be 2 storeys.

There will be a mixture of houses (large and small), outbuildings, courtyard houses, cottages, and sideyard houses. These buildings are diverse in function but compatible in size and disposition on their lots. By providing a wide range of housing types and work places, age and economic classes are integrated and the bonds of an authentic community are formed.

The diversity in size and form also provides richness in texture of the development. A Pattern Book will also be developed for the site in order to ensure that all new building architecture is consistent with the desired future character and visual amenity for the development as articulated in the Urban Design Guidelines.

Visual Amenity of the Development from locations External to the Site
There are currently 4 locations, external from the site, from which future built form is visible on the land within the site. These locations are:

1. George Bass Drive , adjacent to the Sewerage Treatment Plant at the south-eastern portion of the subject site;
2. From George Bass Drive looking across Wetland
3. Melville Point lookout at Tomakin
4. Barlings Beach, Redhill Parade Carpark

The scale of the proposed development will be low scale and restricted to 2 storeys. Consequently, as a general assessment of visual impact, it is considered that due to the visual separation of the development from these locations, the extent of visual presence will be small, if not imperceptible from Melville Point in particular. Consequently, the visual impacts of the development are considered to be minimal (**Attachment 15**).

A more comprehensive assessment of the visual amenity of the development from locations external to the site is presented below in **Section 2.2.2**

It is considered that the subject site will only be visible from limited locations external to the site. In all instances the views to the development will be distant and, given the scale of the development on the site will be limited to 2 storeys, the visual impact of the development on the scenic qualities of the area will be minimal. Consequently the visual amenity of the development of the development from locations external to the site is satisfactory.

Coastal Guidelines
The proposed **development has adhered to the urban design objectives of the Coastal Guidelines in terms of**:

- Defining the footprint and boundary of the settlement to establish the outer limits of the settlement to protect the important visual and natural setting;
- Connecting open spaces to create recreation, conservation, public access, cultural and heritage opportunities in and around the settlement;
- Protecting the natural edges of the settlement in recognition that the coastal edge is protected as a public place, with public access and ecological values including mitigating the impacts of natural hazards;
- Reinforcing the street pattern to highlight how streets enliven centres, connect important places within and around the settlement, allow for

improved choice when moving from place to place, and provide commercial and social benefits;
- Developing appropriate buildings in a coastal context shows how specific development relates to the site's natural features and to its location within the settlement.

A more comprehensive assessment of the manner in which the development satisfies the above objectives of the Coastal Guidelines is dealt with at **Section 1.6.4.3** of this report.

NSW Coastal Policy
The manner in which the development addresses the relevant provisions of the NSW Coastal Policy is dealt with at **Section 1.6.4.4** of this report.

Conclusion – DGR 2.1 Suitability of Development

It is considered that the suitability of the proposal has been demonstrated in terms of contextual compatibility, modest bulk and low scale of development.

2.2.2. DGR 2.2: In accordance with the recommendations of the Independent Review Panel for Sensitive Lands, demonstrate how the development will ensure the visual separation between Barlings Beach and Rosedale, and along George Bass Drive between Tomakin and Rosedale North;

Comment:
The relevant recommendation of the Expert Panel on the South Coast Sensitive Urban Lands Review states:

'Site planning should ensure visual separation between Barlings Beach and Rosedale and along George Bass Drive between Tomakin and Rosedale North, in line with Council's objectives under the Eurobodalla Urban Settlement Strategy'

The existing site is generally screened form George Bass Drive by significant and dense vegetation which is ranges in height between 6 and 9m (approximately).

As noted above, there are currently 4 locations, external from the site, from which future built form is visible on the land within the site. These locations are:
1. George Bass Drive , adjacent to the Sewerage Treatment Plant at the south-eastern portion of the subject site;
2. From George Bass Drive looking across Wetland
3. Melville Point lookout at Tomakin
4. Barlings Beach Caravan Park

The scale of the proposed development will be low scale and restricted to 2 storeys. Consequently, as a general assessment of visual impact, it is considered that due to the visual separation of the development from these locations, the extent of visual presence will be small, if not imperceptible from Melville Point in particular. Consequently, the visual impacts of the development are considered to be minimal (**Attachment 15**).

More specifically, at the southern end of the site, from George Bass Drive, the development will be visually screened by the existing vegetation associated with Bevian wetland. This vegetation and wetland will be retained and protected within a conservation precinct as part of the post development landscape. The natural screen provided by this vegetation will also visually separate the development from Barlings Beach and Tomakin.

Moving north up the site from the Bevian Wetland, a natural ridgeline, divides the site into approximately two halves. This ridgeline and associated vegetation will be retained within an open space precinct. The ridgeline is visible from George Bass Drive. However, no development will be permitted on the ridgeline and general knoll area. This open area will be retained and further enhanced with vegetation which will provide a screen to development in the lower portion of the northern half of the site.

The upper portion of the northern half of the site is currently visible from George Bass Drive and will remain visible. However, the due to the steepness of the land, dwellings will be located on the lower portions of the hills and therefore will be less visible, if not totally obscured. In addition, the lots in this area will be large in size (between 750sqm and 8550 sqm).These larger lots will allow for the retention of habitat and reduce the visual impact of the dwellings. Remnant vegetation will also be retained within this portion of the site in addition to revegetation works along significant watercourses, which will further assist in screening development.

Lands adjoining the northern and western boundaries of the site comprise Mogo State Forest and hence the development will be effectively screened from these aspects. Lands adjoining the eastern boundary of the site comprise fragmented vegetation among development. The retention of remnant vegetation within the site along this eastern boundary will assist in effectively screening the development.

Conclusion – DGR 2.2 Visual Separation of Development

It is considered that the subject site will only be visible from limited locations external to the site. In all instances the views to the development will be distant and, given the low scale of the development, its impact on the scenic qualities of the area will be minimal. Consequently the visual separation of the development from locations external to the site is considered to be satisfactory.

2.3. Social and Community

2.3.1. DGR 3.1 : Demonstrate that the development achieves a range of housing types to meet the anticipated demographic needs

Comment:
The subject development only seeks Concept Approval for subdivision. A subsequent application will be submitted for the construction of dwellings.

As noted in a previous section of this report, it is proposed that there will be a mixture of houses (large and small); comprising of courtyard houses, dual occupancies, cottages, and sideyard houses. These buildings will be diverse in function but compatible in size and disposition on their lots. Lot sizes will also vary significantly, ranging from a minimum lot size of 450 sqm to a maximum lot size of 8,550 sqm.

In terms of housing demand, the South Coast Regional Strategy identifies a demand for 10,700 new dwellings over the next 25 years.

Profile of Existing Population

The total population of Rosedale and Guerrilla Bay recorded in the 2001 Census was 744 people. Rosedale and Guerrilla Bay are grouped together in the data because census statistics are not available for areas smaller than the Census Collector Districts. 19% of those counted in Rosedale/Guerrilla Bay were younger than fourteen years old, 8.2% were between 15 and 24 years of age, 38.8% were between 25 and 54 years, 14.9% were between the ages of 55 and 64 and 18.9% were over 65 years old.

Likely Demographic profile
Marsim, in March 2007, prepared a population and Services Discussion Paper (**Attachment 32**). Below is extract from that paper which addresses population forecasts and the likely demographic profiles of the incoming population:

"The Eurobodalla Shire Profile, available from http://www.esc.nsw.gov.au, was last updated in October 2000. It describes the Eurobodalla Nature Coast as a prime holiday and retirement destination, with 46.7% of the ratepayers being non-residents and of that 17% are ACT residents.

Mr. Greg Bowman, Business Development Manager of Eurobodalla Shire when contacted for more current statistics stated that they would be reworked after the next census. He cautioned that the current data, particularly in regard to disposable incomes, rental averages, mortgage repayments etc. should be used with caution as the "sea-change phenomenon" had drastically altered the context and content of the shire.

The Eurobodalla LGA has more than 22% of the population over the age of 65 compared to 13% for NSW. Rosedale/Guerrilla Bay show approximately 34% of their population aged over 64 years. When combined with the 19% under the age of 14 years Rosedale/Guerrilla Bay and the Eurobodalla LGA in general have a high proportion of their population in the dependant age groups."

The South Coast Sensitive Urban Lands Review identified the importance of the subject site to meet a range of changing demographic needs. The Eurobodalla Settlement Strategy identifies the anticipated increase in retirees, single-person households and other demographic or socio-economic group changes likely to occur in the future. The Strategy also highlights the need to continue catering for the influx of tourists during holiday periods.

It is anticipated that the likely incoming population to the Bevian Road development will comprise sea-changers, retirees, as well as families with young children. The dwellings will be used both for permanent accommodation and as weekenders.

Conclusion – DGR 3.1 – Range of Housing Types

It is considered that the proposed development will provide for all of the anticipated demographic groups through a combination of low density and higher density forms of development. Within the lower portion of the site, housing will comprise a higher density and include a wide range of housing types. Lower density housing will be provided in the mid section and uppers section of the site and may suit themselves more to families with young children.

It is therefore considered that the subject development will provide an appropriate range of lot sizes and dwelling types to cater for the various types of housing needs and demographic cohorts of the incoming population.

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2.3.2. DGR 3.2: Address the social and economic context of the development in terms of the infrastructure requirements, access, public transport, community services and facilities including medical and educational needs

Comment:
Dr Bernard Salt in a paper prepared for Marsim as part of its submission on the South Coast Strategy sates in part:

" ….the age profile of new residents in Eurobodalla as recorded by the 2001 Census. New residents are those persons living in Eurobodalla at 2001 who were not living in Eurobodalla at the time of the 1996 Census, and who were aged 5 years and over. In other words, these new residents could be described as 'in-shifters', or people who have made a conscious decision to move into the shire. This is an important profile since it shows the age group that is most contributing to local population growth.

……. 35 per cent of new residents to the Eurobodalla shire were aged 50 to 69 in 2001; this age group actually comprises 29 per cent of the local resident population. These figures reflect a growing retirement community being attracted to Eurobodalla. The imminent retirement of the baby boomer generation could be expected to have an impact on the demand for housing in locations such as Eurobodalla.

The first baby boomer to reach official retirement age of 65 will do so in July 2011; over the following 15 years 4.1 million boomers will then surge into retirement. But the fact is that many are retiring this decade in the social process that has come to be known as seachange. Eurobodalla is a logical destination for today's seachangers and tomorrow's retirees."

As well as retirees and seachangers, families will be also attracted to the development because of the high level of amenity it provides for the family group and children in particular.

Infrastructure provided by the Subject Development
Infrastructure will be provided as part of the development; including all roads, connection to the existing phone network, electricity and water supply and to the adjacent sewerage treatment plant as well as the establishment of parks plazas and the landscaping of the public domain.

In addition, the development twill contribute towards public infrastructure and facilities by way of s94 Contributions.

Access
Access to the site is proposed from the southern end and the north east corner of the site along Bevian Road. Consent has been granted by Council to use and upgrade the southern access to the site (**Attachment 37**) and Dairy Farm Pty Ltd and Marsim have prepared a Heads of Agreement for the use and upgrade of the north-eastern access (**Attachment 42**).

In addition, the northern and southern intersections of the Bevian Road with George Bass Drive will be upgraded as part of the subject development.

The design of the thoroughfare network for Bevian Road development is site responsive and represents a departure from the vehicle dominant strategies which characterises conventional suburban development. The design provides a spine road through the site in the form of a boulevard. This boulevard utilises the alignment of existing trails and responds to the site topography. All other thoroughfares within the site are aligned to follow major ridge or drainage lines. In order to further minimise earthworks, a variety of traditional intersection types such as forks and triangles have been employed

All of the thoroughfares have been designed to equally accommodate the need of the pedestrian and driver within a shared environment. Pedestrian and cycle paths provided for within the thoroughfare network are substantially expanded by a series of trails integrated in to the proposed open space system. The configuration of the site in this manner according to the principles of neighbourhood design, in conjunction with the open space corridors, will ensure that walking and cycling are not only viable, but attractive alternatives.

Public Transport
Existing public transport in Eurobodalla Shire consists of privately owned bus and coach companies providing limited local and regional travel. Private taxi companies provide transport only in larger population centres.

A small airport is present at Moruya, which connects to Sydney and Melbourne, and provides small charter flights. There are no rail services within the shire (ACT Commissioner for the Environment, 2006). Eurobodalla currently has plans to integrate the available public road-based transport in order to provide a more reliable transport system.

The Bevian Road development has been designed as 'public transport ready'. The neighbourhood structure naturally supports the provision of a public bus service across the site. It provides for a built-in catchment of people who are within walking distance of and able to support this system.

Community Services and Facilities
The various public facilities and services currently available to the incoming population of the subject development are as follows:

- **Shopping / Entertainment**

Shopping facilities, restaurants and services are available at the two major commercial centres of Bateman's Bay and Moruya.

Major shopping centres, cinemas, licensed clubs, swimming pools, community health centres, medical centres, fire brigades and taxi services are found in Bateman's Bay, Moruya and Narooma.

Stockland and the Stevens Group have recently completed a large shopping centre at Bateman's Bay which comprises a Coles and Aldi supermarkets, K-Mart and various speciality retailers.

Of note are two recent development applications for retail developments in Narooma. One is for a doubling of size of the existing Woolworths in the Narooma Plaza Shopping Centre to 3,200sqm, a 1,600sqm Franklins store, a possible Go-Lo and a two storey carpark. The other is proposed construction of a Bi-Lo supermarket, Country Target and 5 specialty shops with surrounding carpark.

The nearest racecourse is at Moruya.

- **Medical**

Doctors, Dentists, Chemists and Optometrists are located in Batemans Bay and Moruya

- **Public Hospitals**

Public Hospitals are located in Moruya and Batemans Bay

- **Kindergartens**

Kindergartens are located in Batemans Bay, Broulee, Moruya , Mogo and Narooma.

- **Schools**

The following is a table detailing the schools in the area

Schools – Public	Suburb	Ages	Km's from Site
	Surfside Nt		
Batemen's Bay Primary School	B/Bay	Kinder - Year 6	18
Batemen's Bay High School	Batehaven	Year 7 - Year 12	12
Sunshine Bay Primary	Sunshine Bay	Kinder - Year 6	10
Mogo Public School	Mogo	Kinder - Year 6	10
Broulee Primary School	Broulee	Kinder - Year 6	6
Moruya Public School	Moruya	Kinder - Year 6	20
Moruya High School	Moruya	Year 7 - Year 12	21
Schools – Private			
St Benards Primary	Batehaven	Kinder - Year 6	12
Carrol College	Broulee	Year 7 - Year 12	6
St Peters Anglican College	Broulee	Kinder - Year 11	6
St Mary's School	Moruya	Kinder - Year 6	20

- **Tertiary Institutions**

University Wollongong Annex	Batemans Bay	All	13
TAFE Batemen's Bay	Batemans Bay	All	13
TAFE Moruya	Moruya	All	22

- **Aged / Disabled Care**

Numerous aged care facilities and facilities for the disabled are provided in the vicinity; as shown below

Adult Day Care,	Moruya
Aged Care Assessment Team,	Moruya
Alzheimers Disease Support,	Moruya
Bunyip Special Needs Group,	Batemans Bay
Edgewood Park Assisted Living,	Batemans Bay
Home Care Service,	Moruya
Home Maintenance & Modification,	Moruya
Hostel for the Disabled,	Narooma
Koori Aged Community Care,	Batemans Bay
Maranatha Lodge,	Batemans Bay
Meals on Wheels,	Batemans Bay
Meals on Wheels,	Moruya
Meals on Wheels,	Narooma
Moruya Retirement Village,	Batemans Bay
Relatives & Friends of the Mentally Ill,	Moruya
Royal Blind Society,	Moruya
Royal Blind Society,	Narooma
Stroke Recovery Group,	Moruya
Yumaro Supported Employment,	Moruya

- **Churches**

Anglican Church,	Batemans Bay
Anglican Church,	Moruya
Anglican Church,	Narooma
Assembly of God,	Batemans Bay
Baptist Church,	Batemans Bay
Baptist Church,	Moruya
Catholic Church,	Batemans Bay
Catholic Church,	Moruya
Catholic Church,	Narooma
Christian Family Church,	Moruya
Christian Family Church,	Tuross
Christian Ministry Centre,	Batemans Bay
Christian Outreach Centre,	Batemans Bay
Church of Christ,	Batemans Bay
Eurobodalla Revival Fellowship,	Moruya
Jehovah's Witnesses,	Batemans Bay
Jehovah's Witnesses,	Narooma
Jehovah's Witnesses,	Rosedale
Presbyterian Church,	Batemans Bay
Presbyterian Church,	Moruya
Salvation Army,	Batemans Bay
Seventh Day Adventist Church,	Moruya
Seventh Day Adventist Church,	Narooma
St Joseph's Convent,	Batehaven
Uniting Church in Australia,	Batemans Bay
Uniting Church in Australia,	Narooma

Conclusion – DGR 3.2 – Social and Economic Context

Having regard to development's social and economic context, in terms of infrastructure requirements, access, public transport, community services and facilities, it is considered that:

- **the subject site is suitably located to have access to adequate infrastructure for the subject development ;**
- **the development will contribute to the provision and augmentation of community infrastructure and facilities by virtue of its section 94 contribution;**
- **access within the development is provide by a hierarchy of road , pedestrian and cycle networks that facilitates easy access throughout the site and promoted pedestrian and cycle use;**
- **the site been designed to be "public transport ready" by providing a built-in catchment of people within walking distance of potential bus stops; and**
- **the site has access to district, and regional shopping centres, education, health and aged care services**

As a consequence, it is considered that the economic and social context associated with the subject site is one which is conducive to the development of the site as proposed in the subject residential subdivision application.

2.4. Environmental Protection

2.4.1. DGR 4.1 Address the measures for the conservation of Animals and Plants and their habitats within the meaning of the Threatened Species Conservation Act 1995 having regard to the Draft Guidelines for Threatened Species Assessment (DEC and DPI July 2005). Address the measures for the conservation of aquatic species within the meaning of the Fisheries Management Act 1994

The Bevian Road Concept Application has been designed in response to the Constraints Map (**Figure 1**), which incorporates the protection of remnant vegetation and hence threatened species habitat.

Conacher Travers have addressed the above DGR in Sections 3.1.2 of the Ecological Assessment (**Attachment 19**) and is summarised in the Executive Summary of the Flora and Fauna Assessment (**Attachment 18**) as follows:

• *Threatened Species Conservation Act 1995*

In respect of matters required to be considered under the *Threatened Species Conservation (TSC) Act* (1995), five (5) threatened fauna species were recorded by *Conacher Travers,* Powerful Owl, Glossy Black-Cockatoo, Eastern Freetail-bat, Greater Broad-nosed Bat and Eastern Bentwing-bat.
In addition, one (1) threatened fauna species, Yellow-bellied Glider, was recorded within the subject site by *Gunninah Environmental Consultants* (2002). Three (3) endangered ecological communities, Swamp Oak Floodplain Forest (SOFF), River Flat Eucalypt Forest on Coastal Floodplains (RFEFCF) and Freshwater Wetlands on Coastal Floodplains (FWCF) were also recorded within the subject site.

• *Fisheries Management Act 1994*

No threatened fauna species listed under this Act were recorded within the subject site. The subject site is considered to comprise of limited habitat for fish species within the dams and Bevian Swamp. Fish habitat will be improved through the revegetation of drainage lines.

• *Environmental Planning & Assessment Act 1979 Part 3A Maintain / Improve Assessment*

Overview of Development Impact on Habitat and Fauna including Hollow Dependant Fauna

The proposed development will not remove any areas of vegetation which have connectivity to surrounding areas of native vegetation. At present, the majority of the vegetation within the site has been cleared for agricultural purposes. Isolated Remnants of native vegetation occur along the eastern boundary, north-western and north-eastern corners of the site. All habitats in these areas have been almost wholly maintained. More particularly the concept application has been designed to;

• To increase the connectivity within the site by linking these remnants through revegetation works along rehabilitated riparian zones and through areas of open space.

• Revegetation works, as documented in full, will create linkages from vegetation in the north western and north eastern corners of the site to the vegetation within the adjacent Mogo State Forest. The Mogo State Forest extends to the north and west of the site and encompasses an area of approximately 15,500 ha.

• Revegetation of the major riparian zone traversing the site in an east-west direction will, in our view, create connectivity from the remnants along the eastern boundary of the site to the western boundary of the site extending into Mogo State Forest

• Vegetation to the east of the site is partially fragmented and interrupted by both rural and urban development. For example the Tomakin sewerage treatment plant adjoins the south eastern boundary of the site.

• Habitat linkages have been planned to provide connectivity via habitat corridors, public parks and street trees.

• 80% of hollow bearing trees found onsite and significant foraging resources will be retained and restored within the post development landscape as part of the Conservation and Open Space Precincts within the site. These areas will create connectivity across the site to habitat within the adjacent Mogo State Forest. This connectivity will maintain the ecological functioning of the post development landscape.

• All habitat trees found onsite will be retained in order of priority in accordance with the quality, quantity and size of hollows found in each tree. Given that the current Concept plan is a 'concept only', specific survey and assessment on the impact on hollow trees will only need to be undertaken at the DA stage.

• Seasonal foraging resources within the site provide year round food sources for native fauna. The Spotted Gum/Ironbark Open Forest vegetation community provides an important winter foraging resource, while the Blackbutt Woodland vegetation community provides an important summer foraging resource.

• These foraging resources will be protected within the conservation zones throughout the site. In addition, all landscaping works will utilise locally occurring native species to further enhance foraging habitat.

The Ecological Site Management Plan (Attachment 47) ensures protection of these important ecological values.

Endangered Ecological Communities (EEC)

Summary
The proposed measures to conserve endangered ecological communities are detailed within the Conservation Land Use Management Plan (CLUMP) , **Attachment 20**, and Ecological Site Management Plan (ESMP), **Attachment 21**.

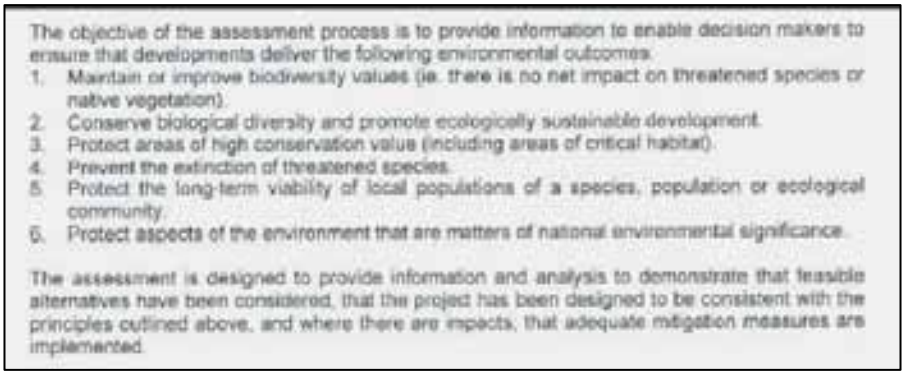
The proposal is to increase the total area of EEC's from 19.29 hectares to 22.83 ha. In addition, the proposed native vegetation enhancement will provide linkages for the benefit of the site's EEC's and other terrestrial and or aquatic EEC's. The additional lands include an additional 23 hectares of restored Spotted Gum, Banksia Scrub and Blackbutt Forest.

In respect of the DECC *maintain and improve* requirements there is no requirement to provide a specified offset ratio as required under the *maintain & improve test* (DECC Draft Threatened Species Assessment Guidelines 2005).

Indeed the project has demonstrated that the development will have a significant net improvement for EEC's.

There is also no requirement to provide offset lands when there is no net loss of EEC's.

The Draft Threatened Species Assessment Guidelines (2005) for a part 3A project, Section 1.2, states:



The objective of the assessment process is to provide information to enable decision makers to ensure that developments deliver the following environmental outcomes:

1. Maintain or improve biodiversity values (ie. there is no net impact on threatened species or native vegetation).
2. Conserve biological diversity and promote ecologically sustainable development.
3. Protect areas of high conservation value (including areas of critical habitat).
4. Prevent the extinction of threatened species.
5. Protect the long-term viability of local populations of a species, population or ecological community.
6. Protect aspects of the environment that are matters of national environmental significance.

The assessment is designed to provide information and analysis to demonstrate that feasible alternatives have been considered, that the project has been designed to be consistent with the principles outlined above, and where there are impacts, that adequate mitigation measures are implemented.

The Environmental Assessment documentation clearly satisfies all the above objectives.

Notwithstanding the Maintain or Improve test being achieved, *Conacher Travers* Flora and Fauna Assessment report (**Attachment 18**) has provided statistical information on EEC restoration via the provision of a *ratio of restoration* (not including existing EEC's to be retained) versus the *removal of endangered ecological communities.* See Table 3 & 4 'EEC Maintain & Improve Assessment'; Section 6 Conclusions - within *Conacher Travers Flora and Fauna report (**Attachment 18**)*; and Section 3.1.2.1 *Ecological Assessment Conacher Travers (**Attachment 19**).*

Impact of Development on Endangered Ecological Communities
The application of the maintain and improve assessment for Swamp Oak Floodplain Forest (SOFF), Riverflat Eucalypt Forest on Coastal Floodplains (RFEFCF) and Freshwater Wetlands on Coastal Floodplains (FWCF) has resulted in a "maintained or improved"outcome for all endangered ecological communities identified within the site.

Specifically, an improvement in both the condition and overall extent will be achieved through the restoration and revegetation of endangered ecological communities SOFF and RFEFCF. The total extent of SOFF will improve from 11.23ha to 14.46ha, whilst the total area of core condition vegetation will improve from 4.57ha to 12.41ha.

The total extent of RFEFCF will improve from 2.05ha to 2.43ha, whilst the total area of core condition vegetation will improve from 0ha to 1.61ha. The total extent and condition of FWCF will be maintained at 5.94ha. All endangered ecological communities recorded on site will be protected from indirect impacts such as stormwater runoff through the implementation of bio-swales along road sides, bio-retention basins, gross pollutant traps and the revegetation of watercourses.

As such it is considered that the Bevian Road Concept Application will result in a net improvement in the extent and condition of SOFF and RFEFCF and will maintain the extent and condition of FWCF endangered ecological communities recorded within the subject site.

Threatened Flora
The application of the maintain and improve assessment for *Aldrovanda vesiculosa* and *Correa baeuerlenii* resulted in a maintained or improved outcome for all threatened flora species with the potential to occur within the site.

The total extent of suitable habitat for *Aldrovanda vesiculosa* will be maintained within the Bevian Wetland. A significant improvement in overall extent of suitable habitat for *Correa baeuerlenii* will be achieved from the existing 18.68ha to 42.8ha. This is a result of the revegetation works across the site, which will create ecological corridors through the replanting of Spotted Gum/Ironbark Forest and Blackbutt Woodland.

As such, the Bevian Road Concept Application will result in maintained or improved suitable habitat for threatened flora species with the potential to occur within the subject site.

Threatened Fauna
The application of the "maintain and improve assessment" for threatened fauna resulted in a maintained or improved outcome for all threatened fauna species known to occur or with the potential to occur within the site.

Habitat types used for the assessment were based on natural vegetation communities listed in Table 2 of the Flora and Fauna Assessment (**Attachment 18**) report, with the exception of the Grassland with Scattered Trees vegetation community.

The Grassland with Scattered Trees vegetation community, which covers approximately 78% (146.68 ha) of the site has been excluded from the assessment based on its disturbed nature. 142.62 ha of this community will be removed as a result of the proposed development. This habitat is not considered to be significant to the lifecycle of any threatened fauna species for the following reasons:

- Grassland with Scattered Trees habitat is considered to be of low quality due to past agricultural associated clearing and current grazing by cattle. Weed incursions are extensive across the majority of this habitat.
- The Grassland with Scattered Trees habitat is considered to provide a limited foraging resource only and as such provides marginal habitat.
- The majority of the threatened fauna likely to utilise the Grassland with Scattered Trees habitat are considered to be highly mobile and would be unlikely to utilise the subject site exclusively.
- Surrounding farmlands to the north and west of the site provide similar cleared lands with scattered trees suitable for foraging.
- Any hollow bearing trees identified within the Grassland with Scattered Trees habitat will be retained within the post development landscape or replaced at a ratio of 2:1 in conservation zones within the subject site.
- Areas of cleared foraging land will be retained across the site in the form of open space/recreation areas and larger lots
- Compensatory habitat will be provided within the site including the revegetation of Ecological Corridors 1 & 2 (Schedule 1 - Restoration Management of Flora and Fauna Assessment report), which will create new vegetation linkages between remnants within the site and vegetation offsite and the retention and restoration of the Southern Conservation Zone (Schedule 1 - Restoration Management of the Flora and Fauna Assessment report).

As such, the Bevian Road Concept Application will result in a net improvement in suitable habitat and vegetation connectivity for all threatened fauna species known to occur, and with the potential to occur, within the subject site. Any losses in Grassland with Scattered Trees habitat are considered to be insignificant.

Section 5(A) 7 Part Test of Significance
An assessment under Section 5(A) of the *Environmental Planning & Assessment (EP&A) Act 1979* concluded that **the proposed development will not cause a significant impact on threatened species, populations and endangered ecological communities.**

• *State Environmental Planning Policy 44 – Koala Habitat Protection*

Based on the absence of SEPP 44 Potential or Core Koala habitat within the subject site, the results of the maintain or improve assessment in Section 5 of this report and the 7 part test of significance (Addendum 1 of the Flora and Fauna Assessment report), the subject site is not considered to be significant with regards to Koala habitat and as such the Bevian Road Concept Application is unlikely to have an impact on the Koala. Conversely, the future development may improve the potential habitat for this species through the creation of wildlife corridors between remnants within the site and vegetation off site. This policy is specifically addressed in the "State Legislative Matters" section of the Ecological Assessment report (**Attachment 19**).

• *State Environmental Planning Policy 14 – Coastal Wetlands*

This policy is specifically addressed in the "State Legislative Matters" section of the Ecological Assessment report (**Attachment 19**).

Key ecological aspects of this policy were considered within that report including: the growth of native plant communities, the survival of native wildlife populations, the provision and quality of habitats for both indigenous and migratory species, the surface and groundwater characteristics of the site on which the development is proposed to be carried out and of the surrounding area, including salinity and water quality. **The Bevian Road Concept Application is considered to adequately meet each of these objectives through the protection and enhancement of native vegetation, revegetation of drainage lines and overall improvement in vegetation connectivity across the site and to vegetation off site.**

• *State Environmental Planning Policy 71 – Coastal Protection*

This policy is specifically addressed in the "State Legislative Matters" section of the Ecological Assessment report (**Attachment 19**). **The Bevian Road Concept Application meets the requirements of this state policy through the retention, protection and enhancement of vegetation within the site. As a result water quality within the site and reaching areas down stream of the site will be improved and native flora and fauna habitats will be enhanced.**

• *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)*

In respect of matters required to be considered under the *Environment Protection and Biodiversity Conservation (EPBC) Act* (1999), no threatened fauna or flora species were recorded within the subject site. One (1) preliminary listed Endangered Ecological Community (EEC), Dry Rainforest of South East Forests, was recorded within the north-west corner of the subject site. This vegetation community will not be impacted upon by the development.

Given that no threatened flora or fauna species listed under the *EPBC Act 1999* were identified within the site and that the EEC is currently only a preliminary nomination, a referral to the Department of Environment and Water Resources is not required.

Furthermore Conacher Travers have determined that the proposed development and ecological restoration works would have no possibility of significantly impacting on Latham's Snipe, White Bellied Sea Eagle and White-throated Needletail (Migratory and Marine species; not threatened species under the EPBC Act).

Conclusion – DGR 4.1 Impact on Flora, Fauna and Habitat

The Bevian Road Concept Application will achieve a maintained or improved result for threatened flora, endangered ecological communities and a number of threatened fauna species known to occur or with the potential to occur within the site. The loss of Grassland with Scattered Trees vegetation community is not considered to be significant to the lifecycle of any threatened species or endangered ecological community.

The implementation of the following mitigation measures will result in the protection of threatened flora and fauna species and endangered ecological communities known to occur or with the potential to occur within the site:

- **Exclusion of existing cattle grazing**
- **Weed control**
- **Erosion control**
- **Installation of protective fencing and signage**
- **Stormwater Quality and Quantity Control (Bio-retention basins, bio-swales, gross pollutant traps, rainwater tanks and revegetation of watercourses)**
- **Retention of Dead Timber and Habitat Supplementation**
- **Prohibition of domestic animals with the exception of companion animals as defined under the *Companion Animals Act 1998***
- **Retention of Regrowth**
- **Creation of vegetation corridors**
- **Retention or replacement of all hollow bearing trees**
- **Strategic Supplementary Planting**

As such, the Bevian Road Concept Application adequately meets the requirements of the *Draft Guidelines for Threatened Species Assessment* (DEC & DPI July 2005) and the provisions of the *Threatened Species Conservation Act 1995.*

2.4.2. DGR 4.2: Outline the measures for the conservation of existing wildlife corridor values and/or connective importance of vegetation on the subject land, including areas identified as being of high/or very high ecological status

Vegetation connectivity
Currently there is no vegetation connectivity between native remnants within the site and limited vegetation connectivity to surrounding areas of vegetation

The Bevian Road Concept Application has been designed in response to the constraints identified within the site, **Figure 1**, and as a result has identified key areas of remnant vegetation for retention and areas of restoration works to improve vegetation connectivity, threatened species habitat and water quality within and leaving the site. **Figure 25** identifies those areas designated for restoration works.

Proposed Ecological Corridor 1
Ecological Corridor 1, **Figure 25,** will form the northern, east-west corridor, within the site and incorporates a major riparian zone which links with Saltwater Creek and forms the northern catchment area. A number of dams have been constructed along the drainage line within this corridor which will be retained. Similar to Vegetation Corridor 2, once restored, Vegetation Corridor 1 will link vegetation within the Mogo State Forest adjoining the sites western boundary with pockets of vegetation adjoining the eastern boundary of the site.

In addition, the revegetation and regeneration of this corridor will provide connectivity between the retained remnants, Spotted Gum/Ironbark Forest on the eastern boundary of the site and the north eastern and north western portions of this vegetation community (Schedule 1 – Restoration Plan). This vegetation corridor will also assist in improving the water quality of the northern catchment by averting the loss of sediments and nutrients into the water cycle.

Proposed Ecological Corridor 2
Ecological Corridor 2, **Figure 25**, will form the southern, east-west corridor, within the site and incorporates 'the knoll'. Once restored, this corridor will link vegetation within the Mogo State Forest adjoining the sites western boundary with pockets of vegetation adjoining the eastern boundary of the site. In addition, the revegetation and regeneration of this corridor will provide connectivity between the retained remnants, Banksia Scrub 'the knoll' and Spotted Gum/Ironbark Forest and Blackbutt Woodland on the eastern boundary of the site.

Southern restoration zone
The Southern Restoration Zone, **Figure 25,** specifically aims to restore the endangered ecological communities, Swamp Oak Forest and River-Flat Eucalypt Forest on Coastal Floodplains between the existing remnants of these vegetation communities.

This area of restoration is of particular importance in that it achieves an overall net improvement in endangered ecological community protection within the site.

Stepping stones to vegetation corridors
Native landscaping throughout the site including areas of open space and street plantings will provide stepping stones to the more significant vegetation corridors. The result being improved ecological functioning of the corridors an improvement in fauna movement and the genetic transfer of plant material within and off site.

Consultation with Officers of the Department of Environment and Climate Change
Officers of the Department of Environment and Climate Change (DECC) have raised the need for connectivity to the west from the western tongue of SOFF associated with Bevian Wetland to Mogo State Forest. In addition DECC suggested

that connectivity should also be established to the east through the restoration of existing cleared lands within the Rosedale STP Buffer Zone.

In preparing the design of the restoration areas, existing site constraints such as transmissions lines, waterlogged soils, existing regenerating vegetation and topography were considered to design the proposed restoration works.

Habitat Connectivity to the East
A 50 m corridor has been provided to the east along the southern boundary of the site. A vegetated riparian corridor varying between 30-110m of mainly SOFF, also exists on the Rosedale Sewerage Treatment Plant (STP) site on the same boundary. The total habitat corridor width as proposed including vegetation on STP lands will vary between 80 to 160 m in width.

Given the existing level of connectivity onsite to the east, Conacher Travers consider it unnecessary to re-establish further connectivity to the east. However the Concept Landscape Plan shows significant revegetation works on the south eastern boundaries which should be retained to enhance connectivity on the eastern boundary.

Habitat Connectivity to the West
It appears that DECC may have assumed that Mogo State Forest extends the full length of the western boundary of the site. Mogo State Forest in fact stops immediately adjacent to the proposed Ecological Corridor passing through The Knoll. In addition an existing high voltage transmission line exists on the south western boundary on adjacent lands which are kept cleared for maintenance of vegetation under the transmission line. With this existing infrastructure in place it will not be possible to establish vegetation connectivity from the SOFF across the transmission line easement and adjoining lands into the Mogo Forest.
Given the presence of this transmission line, the lack of security in protecting vegetation on private lands, Conacher Travers consider it unnecessary to establish further connectivity to the west. The current proposed Ecological Corridor through the Knoll provides direct habitat connectivity to Mogo State Forest.

These issues are discussed in the letter of Travers Environmental to the Department of Planning dated 25th January 2008 (**Attachment 47**).

Conclusion – DGR 4.2 Conservation of Wildlife Corridors

It is considered that the Bevian Road Concept Application will result in an overall improvement in vegetation connectivity across the site and to vegetation offsite, having regard to the restoration of the proposed Vegetation Corridors 1 and 2, the Southern Conservation Zone and native landscaping across open space areas and streets.

In addition, the improved vegetation connectivity across the site will assist fauna movement and the genetic transfer of plant material and will result in an improvement in water quality within and leaving the site.

2.4.3. DGR 4.3: Demonstrate how the proposal will allow for the future transition of areas of high environmental conservation value to the new Environmental Conservation Zone 2 areas, under the new LEP template; particularly in relation to the riparian corridors , wetlands and areas containing Endangered Ecological Communities

The conservation precincts (Figure 5 – Precinct Plan contained in the Ecological Assessment Report (**Attachment 19)**) identified within the subject site may be zoned into the new E2 – Environmental Conservation Zone as recommended within the South Coast Sensitive Urban Lands Review (Refshauge et al 2006). This zone is part of the Standard Instrument (LEP) Order 2006, which states the following objectives for the zone:
- To protect manage and restore areas of high ecological, scientific, cultural or aesthetic values
- To prevent development that could destroy, damage or otherwise have an adverse effect on those values.
The following types of development are prohibited in Zone E2 – Business premises, Hotel accommodation, Industries, Multi dwelling housing, Recreation facilities (major), Residential flat buildings, Retail premises, Seniors housing, Service Stations, Warehouse or distribution centres.

Application of the E2 zone within the site would require an amendment to the existing Eurobodalla Rural Local Environment Plan (1987). It would be appropriate to coincide the timing of this amendment with the preparation of the new consolidated LGA-wide LEP as required by the Department of Planning.

Conclusion – DGR 4.3 Future Zoning of Conservation Areas

Through the incorporation of conservation zones across the site, the Bevian Road Concept Application will result in an overall improvement in the ecological functioning of the landscape. The eventual rezoning of these areas into E2 zones will establish the commitment to creating a sustainable development.

2.5. Riparian Management

2.5.1. Riparian Zone Buffering

DGR 5.1: In accordance with the objectives of the Draft Eurobodalla Riparian Corridor Study (RCOS), address riparian zone buffering to the wetland and drainage lines demonstrating how they will be protected and how the downstream environment will not be adversely affected by the proposed development

Conacher Travers in their Ecological Assessment Report (**Attachment 19**) have confirmed that all watercourses within the site have been given a Category 3 classification by the Department of Water and Energy (DWE). These Category 3 Watercourses are depicted on **Figure 26.**

Site inspections with DWE representative, Mr Bob Britten, identified that the "top of bank" was not distinct on the main watercourses due to past erosion history and a lack of stabilising vegetation. Given the lack of a defined 'top of bank' an alternative riparian management concept was needed to ensure that the watercourse was protected and met the primary functions of a 'stable' watercourse, which contained at a minimum, the 1:2 year flow level.

The 1:2 year flow level is "technically" considered to represent the top of bank in the absence of a defined "top of bank". In addition, the containment of the erosion bank within the total protected riparian zone was considered an important benchmark to achieve. Given the absence of a defined 'top of bank' and consultation undertaken both on and off site with DWE, it was agreed that a reduced riparian buffer would be accepted by DWE at "pinch points". The riparian buffer generally extends greater than 10m beyond the top of the erosion bank but is reduced to 2.5m at pinch points. As shown on **Figures 27(a), (b), (c) and (d)** the majority the riparian zone has a riparian buffer exceeding 10 metres. At the pinch points the edge of the buffer would be landscaped within the asset protection zone to provide equivalent protection to a distance of 10m from the erosion bank.

Riparian zones within the subject site have been divided into two sub-zones (**Figure 28)** as follows:

- The Core Riparian Zone' - considered to be the area of land between the top of the erosion bank on either side of the watercourse, and
- The Riparian Buffer Zone' is the variable area of land from the top of the erosion bank with a minimum of 2.5 m to a maximum of 30m. The width of the buffer being determined by site characteristics and provision of asset protection zones.

The width of the Riparian Zone throughout the subject site has been determined on a case by case basis to ensure an adequate buffer is provided along the entirety of each watercourse. Due to variations in the level of erosion, the erosion in some cases is on the outer edge of the riparian buffer, and in other cases close to the core riparian zone edge. The primary aim being to ensure that the "erosion bank" was contained within the total riparian zone.

a) Drainage lines

Defined drainage lines/channels within the site have been identified as per the *Rivers and Foreshores Improvement Act 1948.* These drainage lines have been assessed and management measures proposed.

As a result of the DNR (now DECC) site inspection on site on the 22 November 2006 all "water courses" (as defined under the R&FI Act) were classed as Category 3 watercourses (**Figure 26**) and as such a general riparian buffer zone of 10 metres was

required either side of these channels from 'top of bank'. Reductions at pinch points are permissible with appropriate landscaping to an equivalent of 10m. From this assessment five watercourses as opposed to overland flow zones, were identified within the site.

Watercourse 1 forms part of the northern most riparian zone, situated in the northern Saltwater Creek Catchment. Watercourse 2 forms the second major riparian zone in the northern Saltwater Creek Catchment. Watercourse 3 forms the eastern watercourse also draining to Saltwater Creek.

Watercourse 4 and 5 represent the upper most extent of category 3 watercourses which collect overland flows from the southern catchment. Watercourses in the southern catchment are not defined by well formed channels but collect significant surface and sub-surface drainage after heavy rainfalls. A flowing stream is evident at the inflow to Bevian Wetland after heavy rainfall.

Watercourse 4 extends on a north westerly direction upslope from Bevian Wetland which contains remnant Swamp Oak Forest (good and low condition vegetation). This Watercourse has been given significant protection in the form of a removed buffer due to the quality of water after heavy storm events.

Watercourse 5 extends to a lesser extent in a northerly direction. Due to lower grades, surface water tends to collect on the flats and slowly drains to Bevian Wetland. Significant restoration of the lower flats is proposed in recognition of the low quality Swamp Oak and River Flat Forest vegetation currently regenerating.
Those drainage lines, as distinct from watercourses, that are considered to form overland flow zones will be managed through the implementation of water sensitive urban design principles incorporating best practice storm water management measures.

All watercourses will be regenerated or revegetated in order to re-establish functional riparian corridors. Watercourse 4 and 5 in the southern catchment will be largely left to regenerate in recognition of the high level of native species within the ground layer.
Four watercourse crossings are proposed in the Concept Application These crossings will be constructed so as not interrupt the natural flow of the watercourse and rehabilitated to an appropriate standard to be approved by DECC.

By letter dated 1 November 2007 (Attachment 46), Mr Bob Britten, Resources Officer, Compliance and Licensing, has stated that the identification of the Category 3 Watercourses on the site as shown in Figure 26 and the Riparian Buffer distances as shown in Figures 27 (a) , (b), (c) and (d) are agreed with.

(b) Intermittent Closing and Opening Lake or Lagoon (ICOLL)

Water sensitive urban design will be implemented incorporating best practice stormwater management measures across the site. These design principles will maintain the water flows and improve the water quality entering Saltwater Creek (ICOLL).

Water sensitive urban design measures will include: gross pollutant traps, bio-retention strips and grass swales along roadsides, rainwater tanks at all dwellings and various water detention measures. The combination of these water sensitive design measures upstream from the Saltwater Creek ICOLL will ensure the mitigation of any potential adverse downstream impacts.

In addition, a monitoring program is proposed to measure the performance of the water quality measures.

(c) Bevian Wetland

The exact boundary of the SEPP 14 Wetland was ground truthed by *Conacher Travers* and previous ecological consultants using the outer edge of the existing Swamp Oak Open Forest (*Casuarina* species). This edge was mapped by differential GPS.

In addition the 'high water mark' of the wetland was surveyed. The 'high water mark' was surveyed by registered land surveyors by ground truthing the contours around the entire wetland. Subsequently, *Conacher Travers* undertook a site inspection immediately after a major rainfall event (June 2007). A high watermark was clearly identified during this site inspection in the north eastern corner of the wetland where contours where sufficiently spread. A contour was chosen that was considered indicative of the high water mark from this location.

The minimum 50m buffer extends from the wetland high water mark at all aspects. The wetland buffer extends to a maximum of 200m to the north of the high water mark boundary in the Southern Conservation Zone where restoration works are proposed (Schedule 3 of the *Conacher Travers Ecological Assessment)*. In addition to the wetland buffer are retention basins and asset protection zones, which function as additional buffering to the wetland.

The area surrounding the Bevian Wetland is currently vegetated with the endangered ecological communities Swamp Oak Floodplain Forest and River Flat Eucalypt Forest on Coastal Floodplains. Freshwater Wetlands on Coastal Floodplains (EEC) forms the vegetation within the wetland and Bangalow Sand Forest (EEC) occurs to the south-east.

Stormwater treatment measures will be installed within the southern catchment of the proposed development in a similar manner to the northern catchment to improve the water quality over existing conditions and maintain the water flows entering the Bevian Wetland.

Two primary dry retention ponds basins will be installed within asset protection zones to control peak stormwater discharge and provide further settlement time for suspended sediments.

Regeneration works will be undertaken within the Swamp Oak Floodplain Forest and River Flat Eucalypt Forest to enhance these endangered ecological communities. These restoration zones will continue to function as a natural infiltration zone to Bevian Wetland.

Conclusion – DGR 5.1 Riparian Management

It is considered that the Bevian Road Concept Application will achieve an improvement in the water quality within and leaving the site through the buffering of the Drainage Lines, revegetation of these drainage lines, buffering of the Bevian wetland, restoration works in the land surrounding the Bevian Wetland and the implementation of water sensitive urban design principles across the site.

2.5.2. Management of Wetland

DGR 5.2: Outline management measures to maintain/improve the stability water quality, habitat and natural function of the wetland. A core riparian zone extending at least 40m from the high water mark plus a further 10m is required

The **Bevian Road Concept Application will provide a 50m riparian buffer** and protect the Bevian Wetland through the following strategies:

a. Mitigation of potential impacts associated with the Bevian Road Upgrade
Bevian Road provides the only existing access point to the subject site from George Bass Drive along the southern boundary of the site. Bevian Road adjoins the western boundary of the Bevian Wetland and forms the central road to the land. The road is currently unsealed and provides a source of potential sediments to the wetland during rainfall events.

It is proposed to maintain the existing alignment of Bevian Road as the major southern access point to the site and as the major central road through the proposed development. This will require the upgrade of the road to a sealed carriage way. In order to ensure the protection of the wetland, the alignment of the road immediately adjacent to the western boundary of the wetland will be retained, preventing the need for further earthworks along the wetland edge. The Road will be raised by approximately 1 m to allow for installation of stormwater filtration devices at strategic points. The filtered waters will be delivered into Bevian Swamp through a stabilised stormwater outlet. (see **Section 1.9.1** regarding impacts on Flora and **Section 2.6.3** regarding Water Cycle Management)

Other access options such as adjoining the Rosedale Sewerage Treatment Plant were also considered. However as there is no existing road in this location, a completely new road would need to be established and constructed which would significantly disturb three (3) endangered ecological communities.

Consequently, the existing access of Bevian Road was considered to have significantly less impact (**Attachment 44**). Conacher Travers has comprehensively mapped the exact boundary of the SEPP 14 wetland on its eastern edge, which demonstrate that the proposed access is immediately outside the actual wetland vegetation interfacing with Spotted Gum Ironbark Forest which is not a endangered ecological community or part of the wetland vegetation

A secondary access is also provided to the north-east of the site i.e. the other end of the Bevian Road. As this north-east access is needed as a secondary evacuation during a bushfire event, it is not possible to have only one entry. However the southern access to George Bass Drive provides to safest evacuation route that has the best visibility when approaching from a northern or southern direction.

It is considered that despite the road's close proximity to Bevian Wetland, the southern access onto George Bass Drive provides the best outcome. Given that the road is being built on a currently formed road and the wetland can be protected during construction of the road and storm water filtered, the proposed southern access is not expected to have significant adverse environmental impact.

b. The provisions of SEPP 14 Coastal Wetlands

The objectives of this policy are outlined in **Section 1.6.2.2** of this report.
Bevian Wetland is located within the southern portion of the subject site and has been mapped by the NSW Department of Planning as SEPP 14 wetland no. 194. As such the proposed development is required to consider and meet the objectives of the SEPP 14 – Coastal Wetlands Policy; namely to ensure that the coastal wetlands are preserved and protected in the environmental and economic interests of the State.

Under the provisions of Section (2) of SEPP 14 consideration must be given to

"(a) the environmental effects of the proposed development, including the effect of the proposed development on:
(i) the growth of native plant communities,
(ii) the survival of native wildlife populations,
(iii) the provision and quality of habitats for both indigenous and migratory species,
(iv) the surface and groundwater characteristics of the site on which the development is proposed to be carried out and of the surrounding area, including salinity and water quality",

The Bevian Road Concept Application has considered the specific plant species and vegetation communities associated with the Bevian Wetland, which include three endangered ecological communities:

1) Swamp Sclerophyll Forest,
2) River Flat Eucalypt Forest on Coastal Floodplains and
3) Freshwater Wetlands on Coastal Floodplains.

These vegetation communities will be retained, restored and buffered as part of the subdivision layout (**Figure 26)**. Section 5 of the *Flora and Fauna Assessment Report* (**Attachment 18***)*, undertook a "maintain or improve" assessment for these vegetation communities (Table 3-5 of that report).

The land surrounding the wetland and containing two of the endangered ecological communities, Swamp Sclerophyll Forest and River Flat Eucalypt Forest on Coastal Floodplains, will form an important restoration zone which will achieve an overall net improvement in the retention and restoration of these communities.

No migratory species have been recorded within the site. However, the wetland may provide potential habitat for migratory species. The potential habitat for migratory species will be improved through restoration works within the vegetation surrounding the wetland and the implementation of water sensitive urban design principles across the site. As such, there is unlikely to be a significant impact on any migratory birds with the potential to utilise the site.

Bevian Wetland currently undergoes wetting and drying cycles, which follow rainfall patterns with a lag period, likely to be due to slower subsurface water flows draining the landscape.

The occurrence of dry periods indicates the wetlands are mainly supplied by surface flows. **With regard to water quality and the maintenance of current water flows, a water sensitive urban design principles have been incorporated into the development to achieve an improvement in the existing condition**s (Patterson Britton report on Water Management **Attachment 24)**

(b) whether adequate safeguards and rehabilitation measures have been, or will be, made to protect the environment,

Adequate safeguards to protect the wetland and associated vegetation have been incorporated into the Bevian Road Subdivision Plan (Figure 4). These management measures include: t**he application of a 50 metre vegetated buffer to the wetland,** two detention basins to the north of the wetland, within the Bevian Wetland Catchment, the upgrade of Bevian Road from the existing unsealed surface and the restoration of the vegetation communities surrounding the wetland.

Grass swales will also be applied to road reserves and rain water tanks will be installed with each dwelling.

(c) whether carrying out the development would be consistent with the aim of this policy,
The Bevian Road Concept Application is considered to be consistent with the aim of the policy, which is to ensure the preservation and protection of the wetland in the environmental and economic interests of the State.

This is achieved through the implementation of water sensitive urban design principles, development setbacks from the wetland, buffering of the wetland and restoration works surrounding the wetland.

(d) the objectives and major goals of the "National Conservation Strategy for Australia" (as set forth in the second edition of a paper prepared by the Commonwealth Department of Home Affairs and Environment for comment at the National Conference on Conservation held in June, 1983, and published in 1984 by the Australian Government Publishing Service) in so far as they relate to wetlands and the conservation of "living resources" generally, copies of which are deposited in the office of the Department;

The three main objectives in conserving living resources as outlined in the *National Conservation Strategy for Australia* are:
1. To maintain essential ecological processes and life support systems
2. To preserve genetic diversity
3. To ensure the sustainable utilisation of species and ecosystems

The Bevian Road Concept Application incorporates the following ecological protection and enhancement measures across the site, which adequately meets the objectives outlined above:

1. Retention, protection and restoration of existing remnants within the site;

2. Revegetation of drainage lines creating connectivity between existing remnants and vegetation offsite and as a consequence improving the viability of habitat

3. The integration of conservation precincts, open space precincts and development precincts such that the ecological functioning of the landscape is improved whilst also improving the social, visual and recreational values and opportunities of the site.

(e) whether consideration has been given to establish whether any feasible alternatives exist to the carrying out of the proposed development (either on other land or by other methods) and if so, the reasons given for choosing the proposed development,

The lands associated with the Bevian Road Concept Application are predominately zoned 10 – Urban Expansion and as such have been identified under the Eurobodalla Local Environment Plan as suitable for the residential subdivision proposed. Moreover, the South Coast Regional Strategy, the South Coast Sensitive land Review and the

Eurobodalla Settlement Strategy also identify the site as suitable for residential development. The proposed development will results in an improved environmental outcome for the land through the removal of livestock, restoration of vegetation communities, revegetation of riparian zones and implementation of water sensitive urban design principles as well as satisfying housing demand in the Shire..

(f) any representations made by the Director of National Parks and Wildlife in relation to the development application,

Key issues raised by the Department of Environment and Climate Change (DECC) with regard to the previous application for the Bevian Road, Rosedale site are:

• Environmental impacts on the SEPP 14 Wetland – Bevian Swamp, notably due to stormwater and road construction;
• Environmental impacts on the foraging habitat of threatened species including the Yellow Bellied Glider and Eastern Bentwing Bat;
• Environmental impacts of pets and increased human presence on wildlife and shorebirds;
• Protection of Endangered Ecological Communities (EECs);

These issues have been addressed in the current Bevian Road Concept Application in the following ways:

• Impacts to the Bevian wetland have been addressed as per the comments provided in points (a) – (f) above. Specifically, those impacts associated with the Bevian Road upgrade have been addressed above under *'Potential impacts associated with the upgrade of Bevian Road'.*

• Assessment of threatened species habitat under the maintain or improve assessment in Section 5 of the *Flora and Fauna Assessment report* (*Conacher Travers* 2007a) resulted in no significant impacts on threatened species habitats.

• The impact of domestic animals has been considered within the proposed development and a bylaw is proposed to exclude all cats and dogs from the development, with the exception of companion animals as defined under the *Companion Animals Act 1998.* This bylaw will be regulated under a community management title proposed for the development.

• The three endangered ecological communities associated with Bevian Wetland, Swamp Oak Floodplain Forest, River Flat Eucalypt Forest on Coastal Floodplains and Freshwater Wetlands on Coastal Floodplains, will predominately be retained within the 50 metre buffer surrounding the wetland. These vegetation communities will also have a development setback applied. The areas surrounding the wetland will form an important restoration zone (Schedule 1 – Restoration Plan), which will restore the endangered ecological communities in order to achieve a net improvement in their coverage and protection. The consideration of these previous key issues raised by the DECC and recent onsite visits and consultation undertaken with the DECC has been an important component of the current design of the Bevian Road Concept Application and it is considered that the current application adequately addresses these concerns.

(g) any wetlands surrounding the land to which the development application relates and appropriateness of imposing conditions requiring the carrying out of works to preserve or enhance the value of those surrounding wetlands.

Bevian Wetland is the only wetland within the vicinity of the proposed development. It is considered that the Bevian Road Concept Application adequately protects this wetland through the measures outlined in points (a) – (f) above. All works associated with the development will be controlled under an Ecological Site Management Plan - ESMP - **(Attachment 21)**, which will further ensure that protection measures are implemented prior, during and post construction phases.

Conclusion – DGR 5.2 Management of Wetland

It is considered that the Bevian Road Concept Application adequately protects Bevian Wetland by virtue of its consistency with the objectives of the SEPP 14 – Coastal Wetlands Policy. The proposed development will apply a 50 metre to 200 metre buffer to the wetland, an extensive restoration area surrounding the wetland for the rehabilitation of associated low condition endangered ecological communities, two detention basins to the north of the wetland within the Bevian Wetland Catchment and the implementation of water sensitive urban design principles across the site.

2.5.3. Drainage Line - Riparian Buffer Zone

DGR 5.3: A 10m riparian buffer zone extending from the "top of bank" is required to all drainage lines within the development area

A response has been provided to this DGR under DGR 5.1, in **Section 2.5.1** above, dealing with Riparian Zone Buffering, (a) Drainage Lines.

In summary, a comprehensive riparian protection area has been designed to protect the existing riparian habitat, stabilise eroding banks and protect of the quality of water consistent with a category 3 watercourse. The Marsim master planning team has undertaken consultation with DNR now DECC to confirm the suitability of the proposed riparian zones.

Figures 27(a), (b), (c) and (d) – Buffer Analysis, depict the buffers and boundaries associated with the Category 3 watercourses.

Conclusion – DGR 5.3 Drainage Line Riparian Buffer Zone

It is considered that the subject development satisfactorily meets requirements of the Department of Environment and Climate Change (DECC) formerly the Department of Natural Resources .

Core riparian zones vary across the site. Riparian buffers also vary in width and are, in part, less than 10m in width. A reduction in the 10m buffer zone has been considered adequate , in sections of the Category 3 Watercourses, given the large core riparian zone, the result of erosion processes, and a resulting undefinable 'top of bank' along the majority of channels. In each instance, the development provides adequate bank stability and water quality protection.

This has been agreed to as a consequence of an on-site assessment on 22 November 2006 by a representative of the Department of the Environment and Climate Change, Mr Bob Britten.

2.5.4. Potential for Fish Passage and Habitat

The subject site comprises a network of intermittent watercourses and dams. Currently these dams do not provide for fish passage into the linking watercourses. Based on the current conditions it is considered that the watercourses within the site vary between the defined Class 3 - minimal fish habitat and Class 4 - unlikely fish habitat, under NSW Fisheries document *Fish Passage Requirements for Waterway Crossings* (Fairfull & Witheridge 2003). The recommended crossings types for these watercourses include culverts, causeways or fords.

One (1) aquatic species, Marbled Eel, was recorded within one of the northern dams within the site during fauna survey. It is considered that the intermittent nature of the watercourses means that they are unlikely to provide significant breeding habitat for fish species. The Bevian wetland within the site may however, provide more significant fish habitat and to a lesser extent the dams within the northern and southern catchments.

The Saltwater Creek ICOLL, which is downstream from the northern catchment in the subject site provides an area of significant fish habitat and during open periods can provide a breeding ground for migratory fish species into Bateman's Bay Marine Park. Therefore, suitable fish passage structures will be incorporated into the watercourses in the northern catchment, which link with the Saltwater Creek ICOLL. The design of these structures is being considered at this stage and conceptual design will be provided at a detailed design stage. A water sensitive urban design system will be implemented across the site, which will ensure that water flows leaving the site are maintained and that water quality is maintained or improved for aquatic species.

Conclusion – Potential for Fish Passage and Habitat

The Bevian Road Concept Application can provide for fish passage through the removal of barriers in the northern watercourses and the provision of spillways that accommodate the movement of aquatic fauna species.

2.6. Water Cycle Management

2.6.1. Compliance with Relevant Policies

DGR 6.1: Address the NSW Coastal Policy, Wetland Management Policy, Estuary Management Policy, State Rivers Policy and Estuary Policy;

The relevant provisions of the following policies have been incorporated into the Bevian Road subdivision layout:
(a) NSW Coastal Policy
(b) Wetlands Management Policy
(c) Estuary Management
(d) NSW State Rivers and Estuary Policy

(a) NSW Coastal Policy
The key considerations of relevance to the subject site under this policy are outlined in Section 3.3.2.1 of the Conacher Travers Ecological Assessment report **(Attachment 19).** Commentary on these considerations is provided below.

Comment:
Within the Rosedale site, two (2) areas have been identified as key aquatic environments with conservation value; Bevian Wetland - SEPP 14 wetland no. 194 and a number of DNR (now DECC) recognised Category 3 drainage lines. Outside of the site, the linking Saltwater Creek ICOLL and Bateman's Bay Marine Park have been considered. Protection of the Bevian Wetland and DNR (now DECC) recognised drainage lines will be managed through the implementation of best practice stormwater management measures including Gross Pollutant Traps, grass swales and detention basins, which will control overland flow velocities and sediment transport.

Significant drainage lines will be restored through revegetation works (Schedule 1) and the lands surrounding Bevian Wetland will also provide an important restoration zone. The implementation of water sensitive urban design principles across the site will ensure that water leaving the site and entering the Saltwater Creek ICOLL and eventually Bateman's Bay Marine Park will also be managed.
Open space and Conservation Precincts will be managed in perpetuity by the Community Association under a Community Management Title. Zoning of these Precincts will provide

for the new E2 Conservation Zone and allow for enhanced public access. Covenants and Conservation Precincts have been developed to specifically protect remnant vegetation and ecologically important areas.

Public access will be provided to open space areas. Cultural heritage items composed of Aboriginal archaeological material and stone artefacts in the Bevian Wetland and riparian zones across the site will be preserved.
ESD principles have been incorporated into all plans and project management actions developed for the Rosedale site. In all appropriate cases, conservation of biological diversity and ecological integrity of all existing ecosystems have been proposed to ensure protection of the health, diversity and productivity of the environment is maintained. Where degradation has affected the ability of an ecosystem to function in a self-sufficient manner, rehabilitation and enhancement of the ecosystem has been proposed to ensure the benefit of a healthy environment for future generations. Where data is unavailable or unreliable a precautionary principle approach has been adopted.

Higher density housing is located in the lower portion of the site towards the coast, and is separated from the low density housing by green corridors and open space areas which incorporate rural values held by the community and maintains open vistas of native forests.

Conservation of threatened species within the designated Conservation Precincts will be enhanced through improved linkages from the subject site to vegetation offsite and improved connectivity within the site. Continual monitoring and regular reporting of wildlife diversity will be carried out to assess, manage and modify the rehabilitation program. Standards in surveying and assessment of wildlife biodiversity will be established prior to the commencement of monitoring.

The reduction, re-use and recycling of stormwater is encouraged through the inclusion of rainwater tanks with each house. Water quality of urban runoff will comply with guidelines that have been established based on the Australian and New Zealand Guidelines for Fresh and Marine Water Quality and follow the Australian Guidelines for Water Quality Monitoring and Reporting. Best management practices proposed to minimise pollution are based on Ecologically Sustainable Development (ESD) principles.

Continual monitoring and regular reporting of water quality will be carried out to assess, manage and modify impacts caused by land use change. As a part of the reporting process it is recommended that a section of the report is devoted to interpretation of water quality results and recommending actions necessary to maintain an ecologically acceptable standard of water quality.

(b) Compliance with the Wetland Management Policy
The key considerations of relevance to the subject site under this policy are outlined in Section 2.2.6.2 of the Ecological Assessment (**Attachment 19**). Commentary on these considerations is provided below.

Comments
Bevian Wetland presently experiences wet and dry cycles in response to rainfall events.

Principle 1 of the Wetlands Management Policy acknowledges the dependence of lacustrine flora and fauna on the wet and dry cycles within wetlands. In recognition that changes to hydrological patterns within a wetland are likely to result in degradation and to address the requirement of the Wetlands Management Policy to return the water regime of wetlands to the natural regime, it is recommended native plant species are used to revegetate wetland and riparian zones. Plant species composition and planting densities will reflect local remnant forest areas.

Bevian Wetland will be rehabilitated to allow for near-natural aquatic processes to occur. Part of the rehabilitation process will include selective removal of non-native and non-

local pest flora and fauna species. Vegetated buffer zones will also surround drainage lines and tributary streams, forming a practical and aesthetically pleasing component of the developments green areas. Best practice stormwater management practices will be implemented across the site including, retention basins, Gross Pollutant Traps and the revegetation of riparian zones to ensure water flows are maintained and that water qualities maintained or improved as per a 'natural' system. Ongoing monitoring of the restoration project and regular reporting of the results is recommended.

(c) Estuary Management Policy

The key considerations of relevance to the subject site under this policy are outlined in Section 2.2.6.3 of Ecological Assessment report (**Attachment 19**). Commentary on these considerations is provided below.

Comments

The Estuary Management Program was established in 1992 to restore and protect estuaries along the NSW coast. The Program targets a broad range of issues and engages local communities in the process of preparing Estuary Management Plans.

The program focuses on improving or maintaining the overall health and functionality of an estuary, and maintaining the integrity of the whole system -- its chemical, physical, and biological properties, as well as its economic, recreational, and aesthetic values.

The following list summarises what is considered to be the most serious issues potentially affecting the Rosedale estuarine environment.

• Declining water quality
• Sediments and nutrients

Increases in sediment and eutrophication associated with sedimentation of waterways pose a likely risk. This risk is notably higher during the construction period when soil surfaces are cleared and left unprotected against erosion processes. Removal of sediment once it has arrived within a water body requires maintenance dredging which is likely to disturb and resuspend sediment particles in the water column. This poses a risk for a reduction in water clarity and may further eutrophy waters by disturbing nutrient rich benthic sediments. The occurrence of this scenario is likely to result in loss of estuarine habitats and general degradation of the waterway.

Estuarine environments throughout much of NSW are declining because of eutrophication and sedimentation, acid sulphate soils runoff, coastal development, loss of habitat and overfishing. Intermittently closed and open lakes and lagoons (ICOLLs), which have restricted exchange of ocean water and tidal flushing, have been particularly affected by catchment runoff.

To prevent degradation of the aquatic ecological communities within the Rosedale site and those linked externally to the Rosedale site (Saltwater Creek ICOLL and Bateman's Bay Marine Park) water sensitive urban design principles have been applied across the site and include, detention basins, grass swales, water tanks at each dwelling, revegetation of riparian zones and Gross Pollutant Traps.

(d) NSW State Rivers and Estuary Policy

The key considerations of relevance to the subject site under this policy are outlined in Section 2.2.6.4 of Ecological Assessment report (**Attachment 19**). Commentary on these considerations is provided below.

Comments
The proposed development at Rosedale incorporates ESD principles in the development, construction and maintenance of residential, parks and ecologically important ecosystems onsite. Remnant areas of native forest and wetland communities will be retained and incorporated into green areas that are integral to the development. Environmentally degraded areas within the proposed subject site will be rehabilitated. Improvements in biodiversity through revegetation of selected zones, and prevention of future degradation through sound management of urban runoff will be used to ensure rehabilitation is successful.

Conclusion – DGR 6.1 Compliance with Relevant Policies

The Bevian Road Concept Application is considered to have demonstrated its consistency with the NSW Coastal Policy, Wetland Management Policy, Estuary Management Policy, State Rivers Policy and Estuary Policy.

2.6.2. Potential Impacts on Water Quality

DGR 6.2: Address the potential Impacts on Water Quality of surface and groundwater, on all watercourses, and on groundwater dependant ecosystems. Consideration to the Protection of the Bateman's Bay Marine Park

• **Surface water**
Surface water flows within ephemeral grass channels show signs of stream bank erosion and riparian vegetation clearing. Some sections of channel have also been dammed to provide drinking water to livestock. It is likely the trampling effects of livestock and the reduced stability of the creek channels associated with vegetation clearing have contributed to channel bank erosion.

Changes in land use from pastoral agricultural to rural urban are likely to result in slight changes to landscape hydrology. The introduction of increased surface areas covered by impermeable materials such as concrete, tar and buildings are likely to result in very high runoff from these areas. The use of riparian buffer zones and open space/conservation areas are incorporated into the development as well as a sophisticated stormwater treatment train to maintain the current water flows and water quality within and leaving the subject site.

All drainage lines will be revegetated within the core riparian zone with native plant species. Revegetation works will commence prior to development of the area to provide a safeguard to water quality within Saltwater Creek and the Bevian Wetland.
Increasing riparian vegetation is likely to increase water extraction from surface and subsurface water sources (Benyon *et al* 2006). However, the presence of canopy trees which shade the river channel and intermediate shrubs and grasses which intercept and slow overland flows are likely to result in an overall improvement in water quality in terms of physicochemical, hydrochemical and aesthetic characteristics.

• Sub-Surface Water
To maintain the quality of groundwater it is recommended surface and groundwater quality monitoring and reporting is established prior to commencement of the proposed development.

• Groundwater Dependent Ecosystems
"Groundwater-dependent ecosystems (GDEs) are ecosystems that must have access to groundwater to maintain their ecological structure and function" (Murray et al., 2006)

The protection of groundwater dependent ecosystems is now recognised as an important part of water management. However, the growing understanding of the processes that underly GDE needs to be reflected in continuously updated management plans, which take new information into account (MacKay 2006).

Rivers are generally classified as a GDE due to the contribution of baseflow to stream flow. Rivers depend upon groundwater to varying degrees, and may change over time in response to anthropocentric effects on the groundwater system. These effects include groundwater extraction from riparian wells, or variations in local water table depth (Boulton & Hancock 2006). Water extraction and alteration to groundwater systems often results in ecosystem degradation to GDE's (Murray *et al* 2006). Degradation may result in a decline in services provided by GDE's, which include food and habitat for native wildlife and water purification (Murray *et al* 2006).
With the exception of ephemeral streams that flow only after rain and surface runoff, rivers are groundwater dependent. GDE's include the ecology within the riparian zone, where the lifecycles of wildlife have adapted to become dependent on the groundwater system (Boulton & Hancock 2006).

Based on the literature relating to GDE's, Saltwater Creek is considered to be a GDE. The effects of replanting woody riparian vegetation, such as tall canopy trees, as a part of riparian vegetation renewal, is likely to result in increased annual water consumption compared to the present grassy vegetation cover. The increased presence of woody vegetation is likely to reduce stream and groundwater recharge, when compared to present grassy vegetation (Benyon *et al* 2006).

Increases in water infiltration as a result of disposal of stormwater through infiltration and percolation as a part of water sensitive urban design, are likely to offset groundwater uptake by increased woody vegetation. It is also likely the return of near-native riparian vegetation populations will return groundwater consumption by GDE's to a similar level to the presettlement consumption levels.

The Swamp Oak Floodplain Forest (SOFF) EEC and River Flat Eucalypt Forest surrounding the Bevian Wetland are highly likely to be groundwater dependent ecosystems given their association with areas of land frequently or periodically waterlogged or inundated (NSW Scientific Committee 2004). Variations in groundwater depth or quality are likely to affect the vegetation structure of these endangered ecological communities. Other threats to this ecosystem include further clearing for development and associated vegetation fragmentation, activation of potential acid sulphate soils, pollution in urban runoff and rubbish dumping (NSW Scientific Committee 2004). Since pumping of groundwater from the wetland
area is not proposed and a 50m protective buffer is to be applied along with the protection of the associated endangered ecological communities through buffering and restoration works, it is considered that changes within the landscape will not be significant to directly affect the ecosystem

• Bateman's Bay Marine Park
The Bateman's Bay marine park encompasses the majority of the Eurobodalla Shire coastal zone. From north of Bateman's Bay to Rosedale Beach it is zoned Habitat Protection and from Jimmies Island at the southern end of Rosedale Beach to Burrewarra Point it is zoned as a Sanctuary Zone.

The maintenance or improvement of water quality within the subject site through a sophisticated stormwater treatment train will ensure that the water quality further down stream from sources leaving the subject site will also be maintained or improved. This is demonstrated in Section 3.2 of the Ecological Assessment Report (**Attachment 19**) . This is the case for both surface and ground water sources, which eventually make their way to the Pacific Ocean off
Rosedale and Barlings Beaches.

• SEPP 71 – Coastal Protection
The key considerations of this policy are outlined in **Section 1.6.2.5 of this report** and Sections 2.2.5.1 of the Conacher Travers Ecological Assessment Report (**Attachment 19**).

Commentary on those considerations relevant to the ecological features of the site are provided below.

Site Restoration
Three key restoration zones have been designated within the site. These include Vegetation Corridor 1, Vegetation Corridor 2 and the Southern Restoration Zone.

The two vegetation corridors will provide vegetation connectivity between protected remnants within the site and to vegetation off site. These corridors will improve the movement of fauna and genetic transfer of plant materials across the site and improve the habitat viability of protected remnants within the site. Further improvements proposed for vegetation connectivity are further described in Section 3.1 of the Ecological Assessment report (**Attachment 19**)

Conservation of water quality and use
The aim of the Bevian Road Concept Application has been to achieve a maintain or improve outcome for water quality post development. Modelling of the water treatment measures to be applied across the site has resulted in an improvement to existing conditions in water quality (*Patterson Britton*). Further details as to the comprehensive water sensitive urban design principles to be applied across the site are provided in **Section 2.6.3** of this report.

Conservation of fish and marine vegetation and their habitats
There are no marine habitats within the site and fresh water fish habitats are considered to be limited to the Bevian Wetland and dam areas. Fish habitat has been considered in the ephemeral drainage lines within the northern portion of the site which link with the Saltwater Creek ICOLL and eventually the South Pacific Ocean. Fish passage structures are proposed along the northern drainage lines within the site to allow for freedom of movement for fish into Saltwater Creek during times of flow.

Conservation of animals, plants and their habitats
The conservation of flora and fauna and their habitats has been key to the final Constraints Map (**Figure 1**) developed for the site. The Subdivision Plan (**Figure 3**) has been designed in response to the Constraints Map. The result being that The Bevian Road Concept Application provides for the integration of development and conservation precincts.

Conservation precincts retain and protect remnant native vegetation within the site, whilst the proposed restoration of riparian zones will improve the vegetation connectivity between these protected remnants and to vegetation off site. As a consequence, fauna movement and the genetic transfer of plant material across the site will be enhanced. **Sections 2.4.2 and 2.4.1** of this report provide further details on the improved vegetation connectivity within the site and the conservation of flora and fauna.

Conclusion – DGR 6.2 – Potential Impacts on Water Quality

It is considered that the Bevian Road Concept Application will improve the existing water quality conditions within the site and leaving the site through the implementation of water sensitive urban design principles. Protection measures proposed include the installation of water tanks with all dwellings, grass swales within road reserves, Gross Pollutant Traps, retention basins and the revegetation of riparian zones.

These measures will serve to protect the important water bodies within the site such as Bevian Wetland whilst also protecting the important aquatic habitats offsite such as Saltwater Creek ICOLL and Bateman's Bay Marine Park. In addition, it is considered that the Bevian Road Concept Application adequately meets the key requirements of the SEPP 71 – Coastal Protection Policy.

2.6.3. Integrated Water Cycle Management Plan

DGR 6.3: Address and outline Measures for Integrated Water Cycle Management Plan (including Stormwater concept) based on Water Sensitive Urban Design principles. This should include measures to ensure no net increase in the nutrient /pollutant loads entering the watercourses including both construction and post construction operational management measures

A Water Sensitive Urban Design Strategy is presented in Section 6 of the Water Management Report at **Attachment 24.** The elements of the Water Sensitive Urban Design approach focus on a treatment train, which starts at each lot and extends to the receiving water. These elements include:

- rainwater tanks to reuse runoff which reduces the runoff volume and pollutant loads and slows down the flow;
- bio-retention rain gardens on selected lots to infiltrate, treat and slowdown runoff from paved areas on the lots;
- bio-retention swales along the roads to treat and slow down runoff from lots and roads, and to promote subsurface flows;
- gross pollutant traps to remove sediment, debris, organic matter and litter;
- rehabilitate wide riparian corridors and wetland buffers with native vegetation to stabilise banks and provide significantly improved habitat value;
- upgrade farm dams to improve runoff quality and provide more diverse aquatic habitat; and
- provide storage and promote infiltration of runoff in bioretention systems to balance the surface/subsurface flows and slow down flows to mimic closely existing conditions.

Rainwater harvesting is considered part of an Integrated Water Cycle Management Plan to reduce potable water use and is discussed in Section 8.3 of the Water Management Report. Control of runoff water quantity to match existing flow rates and volumes is discussed in section 8.2 of that report.

The State Government BASIX requirement is for a 40% reduction in potable water use compared with traditional households. This can be achieved through the provision of

water efficient fixtures, the employment of rainwater capture and re-use devices and general conservation practises. Examples of these measures include:

- Landscaping with plant species that require minimal water and irrigating with appropriate systems to minimise water loss and evaporation;
- Using water-efficient taps, shower roses or flow restricting devices (*3-A rated minimum*);
- Providing water efficient dishwashers and toilets *(3-A rated minimum and dual flush toilet)*; and
- Water harvesting using rainwater tanks and re-use of stormwater for toilet flushing, washing machine use and irrigation.

According to the BASIX requirements, residential developments must be designed and built to use less drinking-quality water and produce less greenhouse gas emissions than average NSW homes of the same type. The target reductions are 40% for both water and greenhouse gas emissions.

These targets represent significant yet readily achievable savings in water use and greenhouse gas emissions by proposed developments.

The Water Management strategy proposes to use up to 8kL of rainwater storage in two 4kL slimline tanks on each residential lot in subcatchments C,D & E and 4kL tanks in subcatchments A and B (refer to Figure 6 of Water Management Report; **Attachment 24**) to provide a substitute water stream for non-potable uses and thus reduce the demand on potable water. A summary of the proposed rainwater tank design is as follows:

- A rainwater tank volume designed to collect roof runoff and store it for external uses (*e.g. irrigation and car washing*) and internal use (*e.g. toilet flushing and laundry use*) purposes will be installed on each dwelling;
- The tank is to incorporate a first flush device, inspection/cleanout hatch and cleanout valve;
- The tank is to incorporate an outlet tap for connection to an irrigation system driven by the tank head (*where applicable*);
- All tank overflow would be directed to the formal piped stormwater drainage systems (*i.e. overflow to the street or water quality treatment measure where applicable*) to prevent nuisance flooding;
- Half of the volume of the rainwater tank would be effective in the long term as on-site detention;
- All rainwater tanks would be installed and maintained so as to prevent cross connection with the potable water supply;
- A "*topping up"* device (*from the potable water supply*) would be provided to supplement roof runoff from the rainwater tanks;
- A *"backflow prevention device"* would be installed on the potable water supply;
- All rainwater services would be clearly labelled "*Non Potable Water*" with appropriate hazard identification; and
- Pipe work used for rainwater services would be coloured purple in accordance with AS1345. All valves and apertures would be clearly and permanently labelled with safety signs to comply with AS 1319.

Potable water use

Stormwater runoff collected from residential roofs would be reused for internal (*toilet flushing and washing machine use*) and external (*irrigation and car washing*) domestic use. In addition, the water conservation measures such as water efficient taps and flow regulators in the kitchen, bathroom and shower and dual flush toilets would be incorporated into the dwellings. No account has been made for water efficient dishwashers or washing machines as these items could be readily changed by residents.

The reduction in potable water use for the proposed development compared to a traditional house has been assessed using the daily water balance component model. This model and the quantification of the potable water use reductions is discussed in detail in Section 10 of the Patterson Britton Report

The values adopted for water reuse demand were compiled from a water use study from NSW Planning guidelines. The study also took into consideration the use of water saving devices required to adhere to BASIX requirements.

If rainwater harvesting could satisfy all the demand for toilet flushing, washing machines, irrigation and car washing, the reduction in potable water use would be approximately 80%. However, rainfall is variable in time and quantity and as such it can only provide for part of the demand. The water balance model simulations estimated an effective reduction in potable water use of 45% compared to a traditional dwelling.

Runoff water quality
The water sensitive urban design approach incorporated into the Concept Plans would significantly reduce pollutant loads in runoff compared to existing conditions.

The comparison of annual pollutant loads for 'rural' and 'proposed development' are presented in **Table 8** below**:**

Table 8 – Annual Pollutant Loads

Bevian Wetland (subcatchments A & B)	**Rural**	**Proposed Development**
Flow (ML/yr)	247	206
Cv	0.31	0.26
Total Suspended Solids (kg/yr)	9670	4690
Total Phosphorus (kg/yr)	27.9	21.3
Total Nitrogen (kg/yr)	312	247

Salt Water Creek (subcatchment C)	**Rural**	**Proposed Development**
Flow (ML/yr)	51.7	48.5
Cv	0.27	0.25
Total Suspended Solids (kg/yr)	1980	1030
Total Phosphorus (kg/yr)	5.98	5.21
Total Nitrogen (kg/yr)	66.4	65.4

The results illustrate that the proposed treatment measures are capable of reducing the levels of suspended solids, total phosphorus and total nitrogen to below those of rural conditions which would be significantly better than for existing conditions.

Flows would be unaffected, with post developed treatment measures producing a similar runoff co-efficient (runoff volume) as for the existing site. Hence, the measures would ensure no net increase in nutrient/pollutant loads or surface runoff volume post construction, as specified in the Director- General's Requirements 6.3.

Soil and Water Management
Best management practice soil and water management practices in accord with the Managing Urban Stormwater guidelines would ensure no net increase in runoff pollutant loads during construction.

In summary the proposed development will significantly reduce runoff pollutant loads below existing levels thereby ensuring no net increase in nutrient/pollutant loads entering watercourses. The use of best practice soil and water management strategies, in accord with the Managing Urban Stormwater guidelines, would ensure no net increase in runoff pollutant loads during construction. **The proposed treatment measures comprise approximately 6.4% of the total area to be developed. This excludes the use of rainwater tanks which will provide significant further benefits.**

Conclusion – DGR 6.3 Integrated Water Cycle Management

It is considered that the proposed Water Sensitive Urban Design strategies provide an integrated water cycle management plan which uses rainwater harvesting to reduce potable water consumption.

In addition it is considered that the Water Sensitive Urban Design and Best Practice Soil and Water Management techniques during construction would also significantly reduce pollutant loads in runoff compared to existing conditions.

2.7. Traffic and Access

2.7.1. Traffic Impact Study

DGR 7.1 : Prepare a Traffic Impact Study (TIS) in accordance with RTA Guide to Traffic Generation Developments

A Traffic Impact Study has been undertaken by Traffic consultants, Colson Budd. **(Attachment 31**).

The report has undertaken an assessment of existing traffic volumes and those likely to be generated, as a result of the proposed development, through the intersections of Princes Highway with Broulee Road at Moruya and with Tomakin Road at Mogo during the weekday morning and afternoon peak periods and the effect of those traffic volumes on the existing road network.

Existing Traffic Flows
In order to assess traffic conditions, vehicular counts of existing conditions were undertaken during the weekday morning and afternoon periods at the following intersections:-

- George Bass Drive/Bevian Road;
- George Bass Drive/Rosedale Parade;
- George Bass Drive/Tomakin Road.

In accordance with the Roads and Traffic Authority's request, traffic counts were also undertaken at the intersections of the Princes Highway with Broulee Road at Moruya and with Tomakin Road at Mogo.

The results of these counts are summarised in **Table 9** below:

Table 9 - Existing Peak Hour Two-Way (Sum of Both Directions) Traffic Flows

Location	Morning	Afternoon
Princes Highway		
- north of Tomakin Road	630	685
- south of Tomakin Road	475	560
- north of Broulee Road	695	670
- south of Broulee Road	945	930
George Bass Drive		
- north of Bevian Road	310	280
- north of Rosedale Parade	320	280
- south of Rosedale Parade	315	290
- north of Tomakin Road	350	490
- south of Tomakin Road	405	515
Broulee Road		
- east of Princes Highway	290	300
Tomakin Road		
- east of Princes Highway	245	225
- west of George Bass Drive	195	185
Rosedale Parade		
- east of George Bass Drive	55	50
Bevian Road		
- west of George Bass Drive	20	20

The above Table demonstrates that the Princes Highway carried the heaviest traffic flows of some 475 to 950 vehicles per hour two-way during the morning and afternoon peak periods.

Traffic flows on George Bass Drive and Broulee Road were some 280 to 550 vehicles per hour two-way during peak periods. Flows were generally observed to be higher south of Tomakin Road compared to north of Tomakin Road.

Tomakin Road was found to carry morning and afternoon peak period traffic flows of some 180 to 250 vehicles per hour two-way.

Traffic flows on Rosedale Parade were some 50 to 60 vehicles per hour two-way at peak times. Flows on Bevian Road during the same peak hour periods were some 20 vehicles per hour two-way.

Intersection Operations

The capacity of the road network is largely determined by the capacity of its intersections to cater for peak period traffic flows. The surveyed intersections shown have been analysed using the SIDRA program. SIDRA analyses isolated intersections controlled by signals, roundabouts or signs. The program produces a number of measures of intersection operations. The most useful measure provided is average delay per vehicle expressed in seconds per vehicle. Based on average delay per vehicle, SIDRA estimates the following levels of service (LOS):

- For traffic signals, the average delay per vehicle in seconds is calculated as delay/(all vehicles), for roundabouts the average delay per vehicle in seconds is selected for the movement with the highest average delay per vehicle, equivalent to the following level of service (LOS):

0 to 14 = “A” Good
15 to 28 = “B” Good with minimal delays and spare capacity
29 to 42 = “C” Satisfactory with spare capacity
43 to 56 = “D” Operating near capacity
57 to 70 = “E” At capacity and incidents will cause excessive delays. Roundabouts require other control mode.
>70 = "F" Unsatisfactory and requires additional capacity

- For give way and stop signs, the average delay per vehicle in seconds is based on the movement with the highest average delay per vehicle, equivalent to following level of service (LOS):

  0 to 14 = “A” Good
  15 to 28 = “B” Acceptable delays and spare capacity
  29 to 42 = “C” Satisfactory but accident study required
  43 to 56 = “D” Near capacity and accident study required
  57 to 70 = “E” At capacity and requires other control mode
  >70 = "F" Unsatisfactory and requires other control mode

It should be noted that for roundabouts, give way and stop signs, in some circumstances, simply examining the highest individual average delay can be misleading. The size of the movement with the highest average delay per vehicle should also be taken into account. Thus, for example, an intersection where all movements are operating at a level of service A, except one which is at level of service E, may not necessarily define the intersection level of service as E if that movement is very small. That is, longer delays to a small number of vehicles may not justify upgrading an intersection unless a safety issue was also involved.

Conclusion on Existing Traffic Volumes
The analysis found that the unsignalised intersections of the Princes Highway with Tomakin Road and Broulee Road are operating with average delays for the highest delayed movement of less than 20 seconds per vehicle during the morning and afternoon peak periods. This represents a level of service B, which is an acceptable level of intersection operation.

The remaining intersections of George Bass Drive/Tomakin Road, George Bass Drive/Rosedale Parade and George Bass Drive/Bevian Road were found to operate at a level of service A/B during peak periods. Average delays for all movements through the intersections were less than 15 seconds per vehicle, representing a good level of intersection operation.

Consequently it is considered that the existing development is satisfactory in terms of traffic generation and its effect on the surrounding road network.

Traffic Generated by the Proposed Development
Traffic generated by the proposed development will have its greatest effects during the morning and afternoon peak periods when it combines with commuter traffic on the surrounding road network. Surveys undertaken by the RTA indicate a generation rate of 0.85 vehicles per hour two-way during peak periods for residential dwelling houses and 0.4 to 0.65 vehicles per hour two-way during peak periods for medium density residential villas. This compares to the surveyed traffic generation rate of residential dwellings in the Rosedale area, of some 0.4 to 0.5 vehicles per hour per dwelling during peak periods.

In order to undertake a conservative analysis, we have adopted the higher RTA generation rates. Based on a residential housing mix of 50% dwelling homes/large rural lots and 50% residential villas, the proposed residential subdivision will have a peak period traffic generation of some 500 to 600 vehicles per hour two-way during the morning and afternoon peak periods. In addition, for large residential subdivisions, similar in size to that proposed, the traffic generation typically includes some 10% to 25% self-

contained internal trips within the new subdivision. Adopting the lower figure of 10% results in an overall traffic generation of some 450 to 550 vehicles per hour two-way during peak periods onto the external road network.

For the purpose of the assessment, the consultants have used the higher generation of 550 vehicles per hour two-way. Some 65% of the expected traffic generation would be outbound in the morning. The reverse would apply in the afternoon.

The additional traffic has been assigned to the road network to assess the impact of the proposed subdivision, based on surveyed turning movements and the existing distribution of traffic on the surrounding road network. Existing traffic flows plus the additional traffic from the proposed residential subdivision are shown in **Table 10** below.

Table 10 - Existing Peak Hour Two-Way (Sum of Both Directions) Traffic Flows Plus Development Traffic

Location	Morning		Afternoon	
	Existing	Plus Development	Existing	Plus Development
Princes Highway - north of Tomakin Road - south of Tomakin Road - north of Broulee Road - south of Broulee Road	630 475 695 945	+120 - - +160	685 560 670 930	+120 - - +160
George Bass Drive - north of Bevian Road - north of Rosedale Parade - south of Rosedale Parade - north of Tomakin Road - south of Tomakin Road	310 320 315 350 405	+280 +240 +240 +280 +160	280 280 290 490 515	+280 +240 +240 +280 +160
Broulee Road - east of Princes Highway	290	+160	300	+160
Tomakin Road - east of Princes Highway - west of George Bass Drive	245 95	+120 +120	225 185	+120 +120
Rosedale Parade - east of George Bass Drive	55	-	50	-
Bevian Road - west of George Bass Drive	20	+280	20	+280
Southern Access Road - north of George Bass Drive	-	+280	-	+280

Traffic flow increases on George Bass Drive would be some 160 to 280 vehicles per hour two-way during peak periods.

Traffic flows on the Princes Highway north of Tomakin Road would increase by some 120 vehicles per hour two-way at peak times. South of Broulee Road, increases would be some 160 vehicles per hour two-way.

Bevian Road and the Southern Access Road would generally carry traffic flows of some 280 vehicles per hour two-way during peak periods, when the proposed subdivision is fully developed. Roads within the subdivision, with the exception of the main collector road, would generally carry traffic flows less than 100 vehicles per hour two-way. This level of traffic flow would be typical for these types of roads.

The proposed residential subdivision will be developed over a period of some years. As previously discussed, access to the residential subdivision will be provided via Bevian Road and the Southern Access Road. “Seagull” intersection treatments will be provided at both access points onto George Bass Drive.

In order to assess the appropriateness of the intersection treatments to cater for the proposed staged development, the operations of the intersections have been analysed with the proposed development traffic added to future traffic flows along George Bass Drive and the Princes Highway, over a ten year development period.

The analysis undertaken is considered conservative because the proposed development would be a proportion of the future traffic growth on the surrounding road network over this period. Nevertheless, we have increased traffic on George Bass Drive and the Princes Highway by two percent compounded for ten years and added the development traffic to this growth.

In addition to future traffic flows. The traffic generation of the approved Barlings Beach development has also been added to the base traffic flows. We understand that approval has been granted for a residential subdivision at Barlings Beach comprising some 215 dwellings. Access to the Barlings Beach development will e provided via a single “seagull” controlled intersection onto George Bass Drive and via Ainslie Parade. The growth in traffic flows plus development traffic are shown on summarised in **Table 11**.

Table 11 - Cumulative Traffic Volumes

Road/Location	Morning			Afternoon		
	Base Flow	Plus Barlings Beach Development	Plus Proposed Development	Base Flows	Plus Barlings Beach Development	Plus Proposed Development
Princes Highway - north of Tomakin Road - south of Tomakin Road - north of Broulee Road - south of Broulee Road	725 570 850 1150	+30 -- +45	+120 -- +160	765 625 750 1035	+30 -- +45	+120 -- +160
George Bass Drive - north of Bevian Road - north of Rosedale Parade - south of Rosedale Parade - north of Tomakin Road - south of Tomakin Road	385 390 385 415 470	+70 +70 +70 +75 +45	+280 +240 +240 +280 +160	310 305 315 550 575	+70 +70 +70 +75 +45	+280 +240 +240 +280 +160
Broulee Road - east of Princes Highway	360	+45	+160	345	+45	+160
Tomakin Road - east of Princes Highway - west of George Bass Drive	245 195	+30 +30	+120 +120	260 215	+30 +30	+120 +120
Rosedale Parade - east of George Bass Drive	55	-	-	50	-	-

Bevian Road - west of George Bass Drive	20	-	+280	20	-	+280
Southern Access Road - north of George Bass Drive	-	-	+280	-	-	+280

The intersections previously analysed in Chapter 2 and the proposed access points onto George Bass Drive, have been re-analysed with SIDRA for the additional traffic flows.

Having regard to the above analysis it is considered that :

1. The analysis of the proposed development found that the unsignalised intersections of the Princes Highway with Tomakin Road and Broulee Road with existing traffic flows plus additional development traffic would operate with average delays for the movement with the highest average delay of less than 25 seconds per vehicle during the morning and afternoon peak periods. This represents a level of service B, an acceptable level of intersection operation.

2. The proposed "seagull" controlled access points to the subdivision on George Bass Drive, including Bevian Road and the Southern Access Road would operate with average delays for the movement with the highest average delay of less than 15 seconds per vehicle during peak periods. This represents a level of service A/B, a good level of intersection operation.

3. The other intersections of George Bass Drive/Tomakin Road and George Bass Drive/Rosedale Parade would operate at level of service B or better during peak periods. Average delays for all movements through the intersections would be less than 20 seconds per vehicle, representing an acceptable level of intersection operation. As previously discussed, it is understood that Council are investigating the possible introduction of a roundabout at the intersection of George Bass Drive/Tomakin Road. With existing traffic flows plus additional development traffic, the roundabout would operate at a good level of service during peak periods.

4. With the future ten year flows and the additional development traffic generated by the Barlings Beach project included, the intersections of the Princes Highway/Tomakin Road and Princes Highway/Broulee Road would operate with average delays for the movement with the highest average delay of less than 35 seconds per vehicle. This represents a level of service C or better, a satisfactory level of service.

5. The other intersections along George Bass Drive including the "seagull" controlled access points will operate with average delays for all movements through the intersections of less than 20 seconds per vehicle during the morning and afternoon peak periods. This represents an acceptable level of intersection operation, with level of service B or better during peak periods.

6. Hence, the surrounding road network, incorporating the proposed "seagull" controlled access points onto George Bass Drive, will be able to satisfactorily cater for the future traffic growth including traffic from the proposed development.

Conclusion – DGR 7.1 Traffic and Access

It is considered that the proposed development will not detrimentally affect the operation of the surrounding road network in conjunction with the introduction of seagull controlled access points at northern and southern intersections of the Bevian Road with George Bass Drive.

2.7.2. Upgrade of Roads

DGR 7.2: Identify the needs to upgrade roads/junctions and improvement works to ameliorate any traffic inefficiency and safety impacts associated with the development, particularly in relation to access points from George Bass Drive. This should include identification of pedestrian movements and appropriate treatments.

Upgrade of Intersections of George Bass Drive with the Bevian Road
Vehicular access to the residential subdivision is proposed to be provided at two locations off George Bass Drive. These access points will be connected via an internal circulation road passing through the site. The topography and location of SEPP 14 wetland reserves affect the development of the site and the location of the access points.

The proposed access points will be via Bevian Road to the north and via the continuation of Bevian Road through the site located adjacent to the SEPP 14 Wetlands.

In association with the residential subdivision, "seagull" intersection treatments are proposed to be provided at both access points onto George Bass Drive. The proposed arrangements incorporate storage lanes for right turning vehicles at both locations. In the case of the southern access a left turn deceleration lane would be included for the ingress movement. It should be noted that the plans prepared by the architects are conceptual and are subject to detailed design. The proposed access points will provide appropriate sight distances along George Bass Drive in both directions and will provide appropriate storage lanes for turning vehicles. A full detailed and engineered design of these intersections will be developed as part of a subsequent application.

Reduction in speed limit along George Bass Drive
Following discussions with the RTA, consideration should be given to reviewing the speed environment on George Bass Drive in the vicinity of the southern access road, with the intent of reducing the speed limit adjacent to the southern part of the site to 80 km/hr. This would be consistent with the speed limit adjacent to the northern access point and would be appropriate taking into consideration the existing and future developments in the area. This includes residential development at Rosedale, Burrewarra Point and Tomakin, the existing caravan park to the south-east of the southern access point and the proposed Barlings Beach development.

The General Manager of Council has also by letter (**Attachment 43**) expressed his personal opinion that he supported the reduction in speed limit.

Conclusion – DGR 7.2 Upgrade of Roads

In relation to the necessity to upgrade roads as a consequence of the subject development, it is considered that there is a need to upgrade the northern and southern intersections of the Bevian Road with George Bass Drive.

Furthermore, it is considered that the RTA should give consideration to reducing the speed limit in George Bass Drive from 100kph to 80kph in the vicinity of the subject site.

2.7.3. Ownership of Crown Roads

DGR 7.3: Consult with Eurobodalla Council and Department of Lands with regard to management and ownership of Crown roads.

Roads currently on the site, **Figure 29**, are in the ownership of the Eurobodalla Council and the Crown. Both bodies have been consulted in relation to the proposed development and have given their approval for the lodgement of the application **(Attachment 37**).

It is proposed to reconfigure the road network within the site in accordance with the concept plan proposal. Both Council and the Crown have agreed in principle to the proposed reconfiguration of the main road through the site and the closure and subsequent sale and transfer of these portions of road to Marsim (**Attachment 37**).

Council, by letter dated 9 October 2007, (**Attachment 43**) has also indicated that it will accept dedication of the new main road through the subject site.

Conclusion – DGR 7.3 Ownership of Crown Roads

The requirement of DGR 7.3 has been satisfied by virtue of the advanced level of consultation with the Eurobodalla Shire Council and the Department of Lands

2.8. Hazard Management and Mitigation

2.8.1. Management for Bushfires

DGR 8.1: Address the requirements for addressing Management for Bushfire Protection 2001 (RFS), in particular the provision of adequate access for fighting bushfire, adequate asset protection zones and water supply for bushfire suppression operations.

Conacher Travers have prepared a Bushfire Protection Assessment report **(Attachment 22**). The report provides an assessment of the bushfire protection measures required for the development to guard against the potential impact of bushfires.

Recommendations have been made in respect of fuel management, construction standards / building protection, access, bushfire education and land ownership responsibility.

The assessment has been prepared in accordance with the '*Planning for Bushfire Protection Guidelines'* (NSW RFS 2006) and key bushfire issues outlined within the Director Generals

In relation to the above DGRs in particular the provision of:

- adequate access for fighting bushfire,
- adequate asset protection zones and
- water supply for bushfire suppression operations.

… the following comments are provided.

Access for Fire Fighting

The primary access points to the development will be via the proposed main access roads in the north-east (onto Bevian Road) and south-west (onto George Bass Drive). These entry points are adequately separated and are unlikely to be impacted by bushfire at the same time. Additional emergency access/egress for emergency services is not required.

Planning for Bushfire Protection (2006) recommends perimeter roads as the preferred option to separate bushland from urban areas. Due to very steep slopes adjoining the boundaries of the site, perimeter roads are not an appropriate outcome in all circumstances. The alternative includes the creation of larger lots which are capable of supporting increased asset protection separation. Access to these buildings is provided from the internal road network to these areas of increased defendable space.

Planning for Bushfire Protection (2006) recommends the minimum widths for the internal road system (public roads) for a single lane as ranging between 3.5m and 4.5m. The minimum width of a two way road ranges from 6.5 to 8m. The road width adopted depends on the curve radius of the road.

Roads should be constructed to carry fully ladened Category 1 Bushfire Tankers with a G.V.M. of 15 tonnes.

The *Performance Criteria* required by the RFS involves "*providing safe operational access to structures and water supply for emergency services, while residents are seeking to evacuate from an area'"*.

Below is a preliminary assessment of the Concept proposal against the Acceptable Solutions of the RFS. It is noted that all the "deemed to satisfy" design details have not been finalised, at this stage. This is because the detailed level of road design has not been undertaken at this preliminary stage of the development process. Notwithstanding this, it is considered that these matters can be made conditions of consent as part of the subject application :

Table 10 - RFS Acceptable Design Solutions for Access Roads

Acceptable Solutions	Compliance
Public roads are two-wheel drive, all-weather roads	Yes
Urban perimeter roads are two-way, that is, at least two traffic lane widths (carriageway 8 metres minimum kerb to kerb), allowing traffic to pass in opposite directions. Non perimeter roads comply with Table 4.1 – Road widths for Category 1 tankers	Not compliant, masterplan currently allows two travel lanes of 5.5m plus 1.25m parking bay Able to comply; this matter may be made the subject of a Condition of Consent.
The perimeter road is linked to the internal road system at an interval of no greater than 500 metres in urban areas.	Yes
Traffic management devices are constructed to facilitate access by emergency services vehicles	Able to comply; this matter may be made the subject of a Condition of Consent.
Public roads have a cross fall not exceeding 3 degree	Able to comply; this matter may be made the subject of a Condition of Consent.
All roads are through roads. Dead end roads are not recommended, but if unavoidable, dead end roads are not more than 200	Yes.

metres in length, incorporate a minimum 12 metres outer radius turning circle, and are clearly sign posted as a dead end and direct traffic away from the hazard.	
Curves of roads (other than perimeter roads) are a minimum inner radius of six metres and minimal in number, to allow for rapid access and egress.	Able to comply; this matter may be made the subject of a Condition of Consent.
The minimum distance between inner and outer curves is six metres	Able to comply; this matter may be made the subject of a Condition of Consent.
Maximum grades for sealed roads do not exceed 15 degrees and an average grade of not more than 10 degrees or other gradient specified by road design standards, whichever is the lesser gradient.	Able to comply; this matter may be made the subject of a Condition of Consent.
There is a minimum vertical clearance to a height of 4 metres above the road at all times.	Able to comply; this matter may be made the subject of a Condition of Consent.
The capacity of road surfaces and bridges is sufficient to carry fully loaded fire fighting vehicles (approximately 15 tonnes for areas with reticulated water, 28 tonnes or 9 tonnes per axle for all other areas). Bridges clearly indicate load rating.	Able to comply; this matter may be made the subject of a Condition of Consent.
Public roads greater than 6.5 metres wide to locate hydrants outside of parking reserves to ensure accessibility to reticulated water for fire suppression.	Able to comply; this matter may be made the subject of a Condition of Consent.
Public roads between 6.5 metres and 8 metres wide are No Parking on one side to ensure accessibility to reticulated water for fire suppression.	Able to comply; this matter may be made the subject of a Condition of Consent.
Public roads up to 6.5 metres wide provide parking within parking bays and locate services outside of the parking bays to ensure accessibility to reticulated water for fire suppression.	Able to comply; this matter may be made the subject of a Condition of Consent.
One way only public access roads are no less than 3.5 metres wide and provide parking within parking bays and locate services outside of the parking bays to ensure accessibility to reticulated water for fire suppression	Able to comply; this matter may be made the subject of a Condition of Consent.
Parking bays are a minimum of 2.6 metres wide from kerb edge to road pavement. No services or hydrants are located within	Able to comply; this matter may be made the subject of a Condition of Consent.

parking bays	
Public roads directly interfacing the bushfire hazard vegetation provide roll top kerbing to the hazard side of the road.	Able to comply; this matter may be made the subject of a Condition of Consent.

Asset Protection
Class 1 & 2 buildings constructed within a bushfire prone area are to be provided with asset protection zones in accordance with Table A2.4 of *'Planning for Bushfire Protection 2006'*.

The land within the proposed development footprint (Zones 1 – 6; **Figure 30**) is to be managed to an Inner Protection Area standard. Asset Protection Zones are provided adjoining the external boundaries of Zones 1 – 6 and are outlined within Schedule 1 of the Bushfire Protection Assessment report (**Attachment 22**). The remaining land within the development area is considered a Heritage Management Zone managed for conservation purposes.

A 30m wide corridor managed to an Inner Protection Area (IPA) standard applies to the north western access road (Bevian Road) that links Zone 1 to George Bass Drive in the east.

A 20m wide corridor managed to IPA standard applies to the main access road to the south. Corridors of between 10 meters and 20 meters wide (IPA standard) will also be provided to the internal road network where roads pass through bushland vegetation to provide an access link between each zone. These access corridors have been addressed above.

Water Supply
Town reticulated water supply is available to the proposed development, therefore an additional supplementary water supply will not be necessary for fire fighting purposes. Although a hydrant supply should be installed in accordance with Australian Standard AS2419-1 (1994).

All hydrants are to be marked with a blue 'cats eye' in the centre of the road.
This water supply arrangement is in strict compliance with *'Planning for Bushfire Protection 2006'* in respect of water supply.

Conclusion – DGR 8.1 Hazard Management and Mitigation

It is considered that the subject development has satisfactorily addressed the requirements for managing bushfires; in particular the provision of adequate access for fighting bushfires, adequate asset protection and an adequate water supply to fight bushfires.

2.8.2. Plan of Fuel Management

DGR 8.2: Prepare a Plan of Management for fuel management including the provision and maintenance of APZs, natural area , buffer zones and revegetation.

Comment:

A Fuel Management Plan has been prepared by Conacher Travers (**Attachment 23**). It has been prepared to facilitate the management of the bushfire hazards that occur within the subject site. The Plan brings together various policies, guidelines and specifications relevant to the fire management of the Bevian Road development site, and has been designed to be used as a reference by the current and future land managers.

This plan focuses on the reduction of fuel loads within:

- Land that is intended for development
- Land where there is an ongoing requirement to manage hazard levels due to neighbouring responsibilities and
- Land that is subject to revegetation works or that is to be retained as part of the riparian restoration program.

Other land may be identified as being subject to strategic fuel management as required.

The implementation of this fuel management plan will be the responsibility of *Marsim (*trading as *Nature Coast Developments Pty Ltd*) for the foreseeable future. The broad aims of bushfire protection are to take all practical steps to minimise potential damage to the proposed development from fire, minimise the spread of fires once they commence and promote cooperative fuel management and fire suppression with other fire control authorities and nearby landholders.

More specifically, the objectives are to:

- Protect life and property from wildfires
- Allow for effective evacuation
- Provide safe working platforms for fire fighting operations
- Provide safe and suitable housing for residents
- Prevent the spread of wildfires
- Exclude fire from environmentally sensitive areas and
- Maintain biodiversity

.

Fuel Management Strategies

Asset Protection Zones have been categorised into 3 zones.

1. Asset Protection Zones – protection of high risk assets including residential, cultural and built assets.
2. Heritage Management Zones – Environmental Protection including aboriginal heritage, ecologically significant features and other culturally significant features.
3. Strategic Fire Management Zones - Strategic control and constrainment of bushfires.

The strategies identified as practical for the site are:

1. Staged Fuel Reduction (underscrubbing and selective fuel removal)
2. Prescribed ecological burns
3. Trail construction
4. Watering
5. Radiation zone construction standards
6. Monitoring of fuel loads of significant fuel loads.

The strategies also consist of the main management tasks to implement the Fuel Management Plan and to gain approval from the NSW Rural Fire Service (RFS) to undertake Hazard Reduction Works in accordance with the RFS Hazard Reduction Code.

Contract Management Specifications

The contract management pertains to those tasks that need to be undertaken by contractors / supporting organisations to implement the Fuel Management Plan. Generally the work tasks have been categorised into:

i) Fuel Management Co-ordination – appointment of a co-ordinator responsible for:
   a. Submitting Hazard Reduction Applications with supporting documents i.e. (Hazard Reduction Plan including Burn Program).
   b. Engagement and supervision of contractors including preparation of contract briefs, fuel monitoring, liaison and auditing.
   c. Liaison with Council, community and regulation authorities.

ii) Hazard Reduction Works – Contract works addressing:

   a. Slashing of APZ's
   b. Selective fuel removal
   c. Trail maintenance
   d. Ecological burns
   e. Environmental protection works

iii) Monitoring and Review of the Fuel Management Plan
   a. Review on an annual basis, amend and resubmit for approval as required
   b. Monitoring fuel loads
   c. Monitoring ecological impacts of fuel management works, including changes in biodiversity and threatened species' distribution and abundance

Slashing of APZ's and selective fuel removal are the two main contract tasks undertaken by an appropriately qualified contractor. Any works undertaken within Environmentally Sensitive areas e.g. Swamp Oak Open Forest (EEC), need to be undertaken by a bush regeneration qualified contractor in accordance with vegetation retention criteria relevant to the type of fuel management zone. Fuel reduction works undertaken within Heritage Management Zones are not required to comply with vegetation retention criteria of Inner and Outer Protection Areas. However, fuel reduction can be undertaken in selected areas by localised fuel removal and ecological pile burns to remove the build-up of significant fuel loads. The management focus of the Heritage Management Zone is the protection of biodiversity and the structural integrity of the vegetation community typical to the site.

iv) Community Facilitations and Support

Within urban areas it is indeed possible to generate community involvement in the management of reserves, heritage areas of high public profile. Within new urban areas it takes approximately 5-10 years to generate practical levels of volunteers focusing on tasks of 'interest'. Using events such as Clean up Australia Day, Planet Ark and Tree Planting Days and establishing volunteer bushfire venues, means that volunteer participation can be achieved with commensurate support.

Support includes:
   a. Provision of tools and equipment
   b. Provision of insurance covering volunteers
   c. Supporting social events such as BBQ's, etc
   d. Provision of training
   e. Co-ordination of working bees
   f. Preparation of newsletters, fact sheets
   g. Provision of specialist expertise
   h. Preparation of bush-care plans
   i. Promoting projects and seeking volunteer participation.

In regard to contract management, various support staff will be needed as required to support any proposed community participation program.

Conclusion – DGR 8.2 Fuel Management

A Fuel Management Plan has been prepared in accordance with the Director General's requirement. It identifies the strategies to minimise fuel loads and the impact of hazard reduction works in environmentally sensitive areas. The approach is fundamentally based on the measurement and monitoring of fuel loads and subsequently specifying the level of fuel removal sensitive to the site's ecological attributes.

2.8.3. AS 3959: Building in Bush Fire Prone Areas

DGR 8.3: Address AS 3959 : Building in Bush Fire Prone Areas

Comment:
The detailed manner in which buildings on the site are to be protected in accordance with Australian Standard 3959 : Building in Bush Fire prone Areas, is documented, in tabular form in Appendix 2 of the Bushfire Protection Assessment report prepared by Conacher Travers (**Attachment 22**) .

Conclusion – DGR 8.3 Building in Bush Fire Prone Areas

It is considered that the requirements of AS 3959 : Building in Bush Fire Prone Areas has been satisfactorily been addressed in the report on Bushfire Assessment (Appendix 2 of Attachment 22) prepared by Conacher Travers.

2.8.4. Sediment and Erosion Management

DGR 8.4: Demonstrate the use of best management sediment and erosion techniques particularly to the area surrounding the SEPP 14 Bevian Wetland

The Director General's requirements DGRs 5.2 and 6.2 require maintenance of the natural function of the Bevian Wetland and groundwater dependent ecosystems.

Patterson Britton, Consulting Engineers, have devised water sensitive urban design features in the development which mimic the existing hydrology in order to maintain existing surface runoff volumes and the balance between surface and shallow through-flow (groundwater) flows (**Attachment 24**).

This has been achieved by a combination of rainwater retention (rainwater reuse) and infiltration in bioretention systems. This balance can be demonstrated by comparison of runoff volumes over the highly variable three year rainfall period.

Comparative flows across the 3 year rainfall period indicate that the treated flows from the proposed development would mimic the existing flows into the wetland. As such, the wetland would experience the same wetting and drying episodes post development as occurs at present.

Conclusion – DGR 8.4 Sediment and Erosion Management

It is considered that the sediment and erosion techniques proposed within the subject development, utilising best practice water sensitive urban design techniques outlined in this report, adequately demonstrate the use of *"best management sediment and erosion techniques"* particularly in relation to the area surrounding the Bevian Wetland.

2.8.5. Flood Study

DGR 8.5: Undertake A Flood Study having regard to the requirements of the NSW Floodplain Management Manual. Address impacts of flooding on the development, the impact of development on flood behaviour (including cumulative impacts), and the impact of flooding on safety of people over a full range of possible floods up to the probable maximum flood (PMF) and mitigation measures.

A Flood Impact Assessment has been preparedly Patterson Britton (**Attachment 26**) having regard to the requirements of the NSW government Floodplain Development Manual (2005). This manual has superseded the Floodplain Management Manual nominated in the Director General's requirement 8.5. As such, it is considered that this study satisfies the requirements of DGR 8.5.

Flood Impact
The estimated 100 year ARI and PMF flood levels would not inundate any proposed habitable floor levels in the development. Minor filling on one lot is proposed to raise it above the predicted PMF level. The predicted flood levels were based on a highly unlikely scenario that the runoff management measures proposed in the Water Management Report would not function. This scenario provides worst case flood levels which are unlikely to be achieved. Even in this worst case scenario, the flooding would not adversely impact on the proposed development.

It has been established that even for a worst case flood scenario, which would be highly unlikely, the:

- development would not be adversely affected by the flooding as all proposed development would be outside the 100yr flood extent;
-
- the minimal encroachment of the PMF flood extent onto lots would be resolved with minor filling of these lots such that no development would be adversely affected;

- development would not adversely impact flooding for other development on the site as the proposed development and site extends too close to the upstream extent of the catchment and as such, there would be no adverse impacts on flooding upstream of the site; and

- development would not adversely impact on flooding downstream of the site as peak flows would be maintained at or below existing rates.

The proposed development therefore conforms to the requirements of the NSW Floodplain Development Manual and meets the Director General's requirement 8.5.

Cumulative Impacts
The development will incorporate industry best practice runoff control measures to ensure peak flow rates do not increase above existing rates. This will ensure there is no adverse impact on flooding behaviour either upstream or downstream of the site.

The development is located at the upstream end of the catchment and as such could not cause any cumulative impacts on flood behaviour especially when peak flow rates will be controlled at existing rates.

Flooding and Safety
The flooding would not inundate any of the proposed lots and would not pose a serious risk to the residents. All residents would have ready access to flood free land on their lots or to even higher ground in all floods up to and including the PMF.

All proposed residential allotments would be located outside the predicted extent of inundation at the peak of the worst case 100 year recurrence flood. Accordingly, evacuation will not be required for any residential dwelling during all events up to and including the 100 year recurrence flood.

The majority of the proposed residential areas are also located outside of the predicted worst case PMF extent. As such evacuation from the majority of the development site will not be required during all floods up to and including the PMF.

The worst case PMF is predicted to extend across one residential allotment located adjacent to Tributary 1 (**Figure 31**). Therefore, filling is proposed across this allotment. This will elevate the allotment above the peak level of the PMF and will ensure that evacuation will not be necessary. Filling of this allotment is not predicted to expose any other section of the proposed development, or any adjoining properties to an increase in flood hazard.

The stormwater drainage system would be designed on a minor/major system approach as recommended by the Floodplain Development Manual. This system would include a pipe drainage system to convey the minor storms and the road system as the major flow path catering for runoff in excess of the pipe capacity. The road and pipe system would be designed to ensure safe flow conditions in the streets for both pedestrians and vehicles. The Floodplain Development Manual recommends that these safe conditions can be achieved with the product of the flood velocity and depth being less than 0.4m²/s for pedestrians and 0.6m²/s for vehicles. The development would be designed to achieve these safe flood conditions on the streets.
Accordingly it is considered that the flood hazard across the site can be suitably managed

Conclusion – DGR 8.5 Flood Study

Having regard the flood analysis detailed in the subject Environmental Assessment, it is considered that the safety of the residents would be appropriately managed in all floods and the proposed development would not be adversely affected.

The Concept Approval Plans have been formulated to address the flood behaviour and the requirements of flood risk management detailed in the NSW Government Floodplain Development Manual.

2.8.6. Rise in Sea Level

DGR 8.6: Address sea level rise and coastal inundation restricting where necessary development in low lying areas

Flood levels in the vicinity of the coastline are influenced by many factors including ocean levels. Other significant factors are the beach berm level for an intermittently closed entrance and the distance from the ocean.

The typical ocean levels adopted for the purposes of flood studies range between RL 2.0m AHD to RL 2.6m AHD depending on local conditions. This influence on peak flood levels can be secondary if the beach berm level can be at RL 3m AHD.
The most reliable estimates (adopted by NSW Government), at present, of possible future sea level rise up to 2100 are *(Source: Intergovernmental Panel on Climate Change)*:

- Low 0.09 m
- Median 0.48 m
- High 0.88 m

This would raise the design ocean level for the purposes of flood level estimation to between RL 2.09m AHD and RL 3.48m AHD. The Salt Water Creek and Tributaries 1 and 2 flood levels at the site eastern boundary range between RL 8.8m to 11.8m AHD due to the varying site ground levels. The distance from the coast and the ground elevations would mean that any influence from potential sea level rise would be dissipated before the eastern boundary of the site.

The NSW government Floodplain Development Manual recommends that the appropriate flood planning level for residential development should still be the 100 year ARI flood plus a 500mm freeboard even considering climate change issues. It recommends that the freeboard could be expected to account for reasonable change in risk overtime and therefore selection of a more conservative flood planning level may not generally be necessary *(Appendix G9.8 – NSW Floodplain Development Manual)*.

The flood levels adopted for Bevian Wetland for the purposes of this flood impact assessment were controlled by the level of George Bass Drive at RL 4.2m AHD. The flood level in Bevian Wetland may be affected by future sea level rise. At worst, the flood level may increase by RL 0.88m AHD to RL 5m AHD due to the high estimate of sea level rise. This is considered to be highly unlikely. Notwithstanding this, the proposed development around the Bevian Wetland is above the maximum flood level.

Conclusion – DGR 8.6 Rise in Sea Level

It is considered that even the present highest predicted sea level rise within the next 100 years combined with a highly unlikely worst case influence on flood levels would not adversely impact on the proposed development.

2.9. Infrastructure Provision

2.9.1. Infrastructure Capacity

DGR 9.1: **Address existing capacity and requirements of the development for sewerage, water and electricity in consultation with relevant agencies.**

Patterson Britton have undertaken a report on Services and Infrastructure (**Attachment 25)**. In terms of the capacity and requirements of the development for sewerage, water and electricity the flowing information has been provided:

- **Sewerage**

Council has confirmed that there is capacity planned at the sewage treatment plant for this development. Council has a programme of upgrades to the treatment plant to cater for future development at the site.

The development would be serviced by a series of sewage pumping stations delivering sewage to the Council's sewage treatment plant adjacent to the south eastern corner of the site. The provision of the sewerage reticulation, pumping stations and rising mains to the sewage treatment plant would be the responsibility of the developer.

- **Water**

The Eurobodalla Shire Council has confirmed that the site is within Council's water supply area and as such, is able to be supplied with potable water. A reservoir located on a high part of the site would be required to provide adequate pressure for areas of the site higher than RL 40m AHD. This reservoir would be required to provide two days storage capacity.

An existing 450 mm trunk main is located in the south-eastern section of the site. A pressure main would be required from the trunk main through the development to supply the reservoir. The reticulation network would be designed in future design phases of the development.

The servicing strategy for the proposed development is integrally linked to the water management strategy, in that a sustainable approach to water management has reduced the potable water demand considerably.

Potable water use would be reduced by the installation of water saving devices and appliances and rainwater harvesting for reuse in toilets, washing machines, irrigation and car washing. Roof water would be captured in rainwater tanks. Water balance modelling outlined in the Water Management Report derived optimum sizes of the rainwater tanks. Generally, on smaller lots, 4kL slimline rainwater tanks were recommended while two 4kL slimline tanks were recommended for the larger lots. This would maximise the reduction in potable water use while controlling runoff to mimic the existing site hydrology. Potable water use reduction would exceed 40% which is the BASIX requirement.

- **Electricity**

The estimated power demand from the proposed 806 lots would be approximately 4MVA. There is an 11kVA feeder above ground on poles along the western side of the site. An 11kV feeder has up to about a 4MVA capacity depending on the distance from the supply point and demand from other users. This existing feeder may be able to supply power to the initial development.

Country Energy has indicated that it can service the proposed development with power. It can service up to 100 to 125 dwellings from its existing infrastructure in George Bass Drive opposite the north eastern entry road to the site. Country Energy will upgrade their supply to the site with a new feeder from the south to service development beyond this initial development. For the ultimate development, Country

Energy would have a supply to the development along both entry roads in the north east and south west.

A letter from Country Energy confirming the power supply is included at Appendix D to the Patterson Britton Report. The power reticulation in the development would be underground along the road verge. The high voltage 11kV feeder would supply kiosk substations (5.4m x 2.4m) located in the road verge. The low voltage supply to residences and street lighting would be distributed from the kiosk substations. Infrastructure in the road reserve would be the responsibility of Country Energy.

Conclusion – DGR 9.1 Infrastructure Provision

It is considered that the subject development has adequate access to sewerage treatment, water and electricity.

2.9.2. Staging of Infrastructure Works

DGR 9.2: Identify staging, if any, of infrastructure works

The staging of the development will be influenced by a range of factors including house product, market conditions and cost of servicing and access. In terms of the cost of servicing and access, the important issues relating to staging are discussed below for each type of infrastructure.

The bulk water supply will come from the south eastern area of the site. The most cost effective staging for water supply would be from south to north although it is likely that areas developed first would be below RL 40m AHD which is the limit of supply from the existing infrastructure. Similarly for sewerage infrastructure, with the STP at the southern end of the site, the most cost effective staging would be from south to north. The cost of trunk infrastructure would however not necessarily preclude staging of development in the other direction from north to south.
The power infrastructure would suit initial development at the north eastern end of the site however a new feeder could be provided to support initial development at the southern end if other infrastructure or considerations were more important.

The runoff control measures and drainage infrastructure should be developed on a catchment basis preferably commencing at the downstream end of a catchment. This would allow progressive provision of drainage infrastructure as development proceeds in an upstream direction.

This is similar to roads which are best constructed gradually from the downstream end adjacent to the entry road and proceeding in an upstream direction. This is the most cost effective method of staging development. Neither the drainage or road infrastructure is sensitive to commencement at either the southern or northern end of the development.

Conclusion – DGR 9.2 Staging of Infrastructure Works

In terms of cost effective provision of infrastructure, the staging of the development would commence at the southern end. However, the likely cost of the infrastructure is unlikely to preclude the commencement of the development at the northern end or gradually at both the southern and northern ends of the development.

The staging strategy is to a large extent market driven and is currently proposed to commence within the northern precinct of the site.

2.9.3. Provision of Public Services

DGR 9.3: Address provision of public services and infrastructure having regard to the Council's s94 Plans

The proposed development will contribute towards public infrastructure and community facilities as part of its s94 Contribution associated with the proposed development. This contribution will assist in the provision of:

- open space and recreation;
- cycleways and pedestrian facilities;
- community facilities;
- tree planting;
- waste disposal; and
- administration of the Section 94 plan.

The development twill also be the subject of a further levy under the provisions of s64 of the Local Government Act and s302 of the Water Management Act for the augmentation of the Council's water and sewerage works.

In addition to these contributions, the development will provide open space, landscaping in the public domain and community facilities within the development. It will also fund:

- the upgrade of Council's portion of the Bevian Road at the south–western portion of the site;
- the upgrade of the portion of the Bevian Road, owned by the adjacent owner, at the north-eastern portion of the site. This portion of the road is likely to be dedicated to Council as part of a Development Application for the redevelopment of the adjacent site;
- the upgrade of the northern and southern intersections of the Bevian Road with George Bass Drive. The upgrade will involve the introduction "seagull" controlled access points at the intersections. These will be designed top cater for traffic associated with the subject development but also that associated with the proposed development of the adjoining site.

Conclusion – DGR 9.3 Provision of Public Services

Marsim is committed to contributing to the provision of public infrastructure associated with the development of the subject site. In relation to the timing of the determination of the s94 contribution associated with the proposed development, it is proposed that this be deferred from the Concept Approval Stage to a subsequent stage to facilitate negotiations with Council. This proposal has the support of Council

2.9.4. Odour Management Study

DGR 9.4: Prepare an Odour Management Study to address the potential odour issues in conflict with the provisions of the POEO Act.

Eurobodalla Shire Council has a sewage treatment plant adjacent to the south-eastern portion of the site.

An Odour Management Study was undertaken in 2004 as part of the previous development proposal for the site. The then current development proposal had residences located within 200 metres of the sewage treatment plant.

The study found that "the predicted odour levels at the residences comply with the most stringent DEC 99th percentile two odour unit goal" and that "it is unlikely that odour would be a nuisance to the proposed residential development".

The development concept has now been amended such that residences are more than 400m from the Sewage Treatment Plant (STP) which conforms to the Department of Planning guidelines.

Also, Holmes Air, who undertook the odour management study in 2004, has reviewed their report content and the DEC November 2006 guidelines specified in the Director General's requirements (Issue 9.5). Their letter dated 14 June 2007 confirms that the 2004 report is still valid and the development concept conforms to the DEC November 2006 guidelines. The letter and 2004 report are attached in Appendix C. to the Patterson Britton Services and Infrastructure Report at **Attachment 25.**

Conclusion – DGR 9.4 Odour Management Study

An Odour Management Study has been prepared. The proposed setback of the development from the Sewerage Treatment Plant is 400m, in accordance with Department of Environment and Conservation Guidelines, and in excess of the recommended 200m setback of the Odour Management Study.

2.9.5. Buffer Distance to Sewerage Treatment Plant

DGR 9.5: ***An appropriate buffer distance should be identified in accordance with the Asset Management of Odour from Stationary Sources in NSW (Technical Framework and Supporting Technical Notes (DEC November 2006)).***

As noted above, the proposed buffer distance for development from the boundary of the Sewerage Treatment Plant is 400m. This conforms with the DEC technical Framework and Supporting Technical Notes (November 2006) as certified by Holmes Air Sciences in their letter dated 14 June 2007which states:-

"… Holmes Air Sciences can confirm that the odour impact assessment completed in April 2004 titled "Odour Impact Assessment using On-site Measurements – Rosedale development" complies with the current odour modelling guidelines issued in November 2006 by the NSW Department of Environment and Climate Change - "Assessment and Management of odour from Stationary Sources in NSW (Technical Framework and Supporting Technical Notes".

It has been confirmed with Mark Hankinson of Eurobodalla Shire Council that there have been no major changes to the sources and/or operations at the Tomakin Sewage Treatment Plant (STP) since April 2004 and that the proposed augmentation of the site would not differ significantly from that modelled. Therefore, the conclusion remains that the current and Stage 2 operations of the STP are unlikely to be a nuisance at the proposed residential development."

A copy of which is attached in Appendix C. to the Patterson Britton Services and Infrastructure Report at **Attachment 25.**

Conclusion – DGR 9.5 Buffer Distance to Sewerage Treatment Plant

The proposed buffer distance from the development to the Sewerage Treatment is 400m; in conformity with the Department of Environment and Conservation Guidelines.

2.10. Heritage

2.10.1. Aboriginal Heritage Impact

DGR 10.1: Address the draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation (DEC, July 2005).
The Department of Environment and Conservation released draft guidelines for Aboriginal cultural impact assessment of Part 3A Major Projects in July 2005. They form a guide for procedures to be included in Aboriginal heritage assessments that accompany Part 3A applications. The draft guidelines state that:

" all project applications must state whether or not the project is likely to have an impact on Aboriginal cultural heritage and must include information about how this assessment was made.

This assessment must demonstrate that input by affected Aboriginal communities has been considered, when determining and assessing impacts, developing options, and finalising the application. "

More specifically, the draft DEC guidelines outline the following steps that should be undertaken as part of the Aboriginal cultural heritage assessment process. These include:

• Undertaking a preliminary assessment to determine if the project is likely to have an impact on Aboriginal cultural heritage;

• Identifying the Aboriginal cultural heritage values associated with the area through consulting with Aboriginal people with cultural knowledge or responsibilities for country in which the proposed project occurs, written and oral research and field investigations;

• Understanding the significance of the identified Aboriginal cultural heritage values;

• Assessing the impact of the proposed development on Aboriginal objects and Aboriginal places;

• Describing and justifying the proposed outcomes and alternatives; and

• Documenting the Aboriginal cultural heritage impact assessment and the conclusion and recommendations to afford appropriate protection of Aboriginal cultural heritage

Navin Officer, Heritage Consultants have undertaken a Cultural Heritage Assessment (**Attachment 27).** The Cultural Heritage report documents the results of a cultural heritage assessment of the subject land. The assessment included background research, comprehensive archaeological field survey, consultation with the Mogo Local Aboriginal Land Council (MLALC), participation of a MLALC representative in the field survey, and an assessment of cultural heritage significance values for all sites and features identified.

As part of their analysis of the archaeological potential of the site, they have also undertaken a Heritage Impact Assessment of the proposed development on the significance of the archaeological items. A summary of Navin Officer's report is presented below:

Aboriginal Archaeological Potential
To date some ninety five Aboriginal sites are listed on the NSW NPWS Aboriginal Heritage Information System (AHIMS) as occurring in an 82 km^2 area around the Rosedale Urban Release Area. Site types include middens (60%), artefact scatters (27%), isolated finds (5%), scarred trees (5%) and burials (3%).

Typically for a coastal area, (shell) midden deposits are the most common site types to have been recorded. These sites are generally limited to the coastal and estuarine zone.

Further inland, scatters of stone artefacts (sometimes referred to as open campsites) are the most commonly occurring Aboriginal site types.

Most of the Aboriginal archaeological sites recorded along the NSW south coast and immediate hinterland occur at the boundaries of several ecological zones. This suggests that a key factor in site location was the efficiency of resource access and the optimum exploitation of more than one resource zone. Access to fresh water is often an important site location criterion, and many sites in this area are situated adjacent to creeks. Food resources associated with wetlands would also have been very important.

Available evidence points to a definite preference for locally elevated and well-drained ground. The large proportion of sites recorded as occurring in these contexts seems to reflect a cultural preference for areas away from low-lying, probably flood prone zones. Based on the local and regional site database, Aboriginal settlement models, and the results of studies both in the Batemans Bay/Rosedale area and elsewhere on the NSW South Coast, the following predictive statements regarding Aboriginal site location can be made for the Rosedale Urban Release Area:

- With the exception of resource-rich Bevian Swamp located in the southern part of the area, the Rosedale Urban Release Area represents a comparatively marginal coastal hinterland landscape.

- The concentration of Aboriginal occupation (both prehistoric and historic) and resultant deposits of cultural material in the Barlings Beach locale has ramifications for the Aboriginal archaeological potential of the Rosedale Urban Release Area. The Barlings Beach sites indicate that, although all landscape units were exploited by Aborigines in prehistory, longer-term, large campsites in the Rosedale area appear to be concentrated along the immediate coastal margin.

- Small sites may occur at varying densities in all broad topographic zones in the study area. However a range of micro-topographic variables can effectively predict topographies which are archaeologically sensitive. These include: relatively level ground without significant surface rock, proximity to a freshwater source, and locally elevated and well-drained ground.

- Sites will tend to be situated at, or close to, ecotones – the areas at which different environmental zones meet (for example around Bevian Swamp, near creeklines).

- Artefact scatters (also termed open campsites) are most likely to occur on level, well-drained ground adjacent to sources of freshwater and wetlands. They are likely to be the most common site types within the Rosedale Urban Release study area.

- Isolated finds can occur anywhere in the landscape and may represent the random loss or deliberate discard of artefacts, or the remains of dispersed artefact scatters.

- Burial sites are generally found in landforms characterised by a relatively deep profile of soft sediments such as aeolian sand and alluvium. Burials on the NSW south coast characteristically occur in the deposits of occupation sites such as middens. Burials have been found at Barlings Beach and the presence of burials in the study area cannot be discounted in the sandy deposits around Bevian Swamp.

- Scarred trees may occur in all topographies where old growth trees survive, either as isolated trees or as part of remnant or continuous forest.

- The survival of open sites dating to the Pleistocene and early Holocene appears to be rare. Those that have been located are characterised by a rapid sedimentary regime and subsequent protection from erosion by burial.

No Aboriginal sites have been previously recorded as occurring within the Rosedale Urban Release study area. However, subsequent to the Archaeological Subsurface Testing Program Navin Officer made the following findings:

- Two Aboriginal archaeological sites (RUR1 and RUR2, both scatters of lithic artefacts) and one isolated find (RURIF1, a single lithic artefact) were identified in the course of field survey, **Figure 12**.
- Eight areas of archaeological potential (PAD1-8) were also identified in the study area. Site RUR1 contains three recorded artefacts and has low potential for undisturbed archaeological deposit. Site RUR2 includes 22 recorded surface artefacts and has moderate potential to contain relatively undisturbed subsurface archaeological deposits. All of the PADs are situated along alluvial flats and basal slopes adjacent to tributary streamlines.

Navin Officer consider that Aboriginal site RUR1 has low significance within a local context. Site RUR2 is considered to have moderate significance within a local context. Site RURIF1 is not considered to have scientific, representative or educational value.

Navin Officer also state in their assessment that only one of the previously recognised potential archaeological deposits, will be substantially impacted directly by construction impacts associated with the Bevian Road Concept Approval Plans. This impact relates to the construction of an access road across **PAD 3**. This impact is considered to be minor, when considered in the broader context of the subsurface testing results for the whole project area.

Conclusion – DGR 10.1 Aboriginal Cultural Heritage Impact Assessment and Community Consultation

The impact of the proposed development on Aboriginal Heritage has been assessed. Two Aboriginal archaeological sites (RUR1 and RUR2) are considered to have low and medium significance and are in a location that will allow their retention. The proposed development has been designed to avoid the areas within which items of archaeological significance are located and therefore the development will not have any impact on these items.

However, an isolated find, being a single lithic artefact of no heritage significance (RURIF1), will be removed as part of the access road works adjacent to the southern section of the site adjacent to the Bevian Wetland

Sites of Potential Archaeological Deposits (PADs 1-8) are of low to moderate significance and will generally not be affected by the development. However, a minor portion of PAD 3 will be removed to facilitate the provision of an access road within the subdivision.

Navin Officer, the Heritage consultants, consider the impacts on RURF1 and PAD 3 to be acceptable.

2.10.2. Items of Heritage Significance

DGR 10.2 : Identify whether the site has significance in relation to Aboriginal cultural heritage and identify appropriate measures to preserve any significance.

Two Aboriginal sites RUR1 and RUR2 (scatters of lithic artefacts) and one isolated find (RURIF1; single lithic artefact) were identified in the course of field surveys of the Rosedale Urban Release Area. Eight areas of archaeological potential (PAD 1 to PAD 8) were also identified in the study area.

As noted in **section 1.5.13 Site RUR1 contains three recorded artefacts and has low potential for undisturbed archaeological deposit. Site RUR2 includes 22 recorded surface artefacts and has moderate potential to contain relatively undisturbed subsurface archaeological deposits. All of the PADs** are situated along alluvial flats and basal slopes adjacent to tributary streamlines and **have been assessed to be of low to moderate significance.**

Site **RURIF1, a single lithic artefact of no heritage significance, will be removed as part of the access road works** adjacent to the southern section of the site adjacent to the Bevian Wetland. And a **minor portion of PDA 3 will be removed to facilitate the location of a road. PAD 3 is approximately 70m x 40m and has been classified as being of low to moderate significance. The extent of excavation within this area is not considered significant by Navin Officer.**

RECOMMENDED MANAGEMENT STRATEGIES
Navin Officer recommend the following management and impact mitigation strategies:

Site Specific Strategies
1. Conserve Aboriginal site **RUR1** within an open space reserve. The objective of this strategy is to conserve as much as possible of the site according to the opportunities and constraints afforded by its location within a publicly accessible, open space, and multipurpose reserve. This could be realized within the context of the proposed buffer zone reserve around Bevian Wetland. Except for the existing vehicle track which cuts across this site, the ground deposits associated with this locality should be protected from disturbance (such as from pedestrian traffic, erosion, or landscaping and gardening impacts). Ground disturbance, such as from the installation of walking tracks, or other recreational facilities, would be permissible if placed within the existing vehicle track which traverses this site. This site should not be publicized, sign posted or otherwise identified in the field. The collection and permanent storage of the surface artefacts present at this site may need to be conducted in the event of a perceived threat from damage, loss or unauthorised collection.

2. Conserve Aboriginal site **RUR2** within an open space reserve. The objective of this strategy is to conserve as much as possible of the site according to the opportunities and constraints afforded by its location within a publicly accessible, open space, and multipurpose reserve. This could be realized within the context of planned open space around the associated creekline and dam.

Compatible landuses within such a reserve could include passive recreation and natural vegetation regeneration. Subsurface archaeological deposits should be protected from potential disturbance from erosion or the installation of services or recreational facilities.

3. Conserve Aboriginal archaeological deposits **AD1, 2, 4, 5, 6, 7 and 8** (formerly recorded as PAD1, 2, 4, 5, 6, 7 and 8), within open space reserves. The objective of this strategy is to conserve as much as possible of the deposits according to the opportunities and constraints afforded by its location within a publicly accessible, open space, and multipurpose reserve.

This could be realized within the context of planned open space around the associated creeklines and valley floor spaces. Compatible landuses within such a reserve could include passive recreation and natural vegetation regeneration. Subsurface archaeological deposits should be protected from potential disturbance from erosion or the installation of services.

4. A portion of Aboriginal archaeological deposit **AD3** will be directly impacted by construction of an access road. The area of the archaeological deposit to the east of the roadworks will be incorporated into an archaeological conservation area, as outlined in Figure 15.2.

5. Prior to the commencement of development impact to the recorded location of isolated find **RURIF1** an attempt should be conducted to collect any visible surface artefacts.

Archaeological Conservation Areas and Salvage
6. In order to conserve the scientific and Aboriginal cultural values of the known and predicted archaeological resource within the Bevian Road Concept Application Plan area, those areas nominated in **Figure 15.2 of Attachment 26** would be reserved as archaeological conservation areas and managed as open space according to a plan of management.

7. Consideration would be given to undertaking a limited-scope salvage excavation program prior to, or during construction, on selected spurline crests in basal slope and low valley contexts.

The areas in which salvage actions could be conducted are shown in **Figure 15.2 of Attachment 27**. Such a program could include a variety of excavation methodologies including grader scrapes and mechanical/by-hand pit excavations.

Aboriginal Stakeholder Requests and Requirements
8. The proponent should take into consideration the requests and requirements documented in the correspondence and report provided by the various Aboriginal stakeholder groups and reproduced in this report in Appendices 9 and 10.

General
9. In the event that human remains are encountered during construction works, the protocol identified in **Appendix 12 of Attachment 27** will be followed.

10. Where possible, development impact within the riparian zone around the Bevian Wetland basin should be avoided. It is considered likely that undetected Aboriginal archaeological sites occur within this zone (up to 100 m from the water edge).

11. Where appropriate, words and names derived from the ownership and landuse history of the study area would be used in the nomenclature of new streets and features forming part of the proposed development. Examples could be taken from both the local Aboriginal and English language.

12.. Any collected Aboriginal artefacts recovered during salvage or monitoring actions prior to or during construction works, should be recorded and analysed by a qualified archaeologist, prior to their return and curation according to the requirements of the local Aboriginal community. The planned Aboriginal cultural centre which will form part of the Barlings Beach development (currently under construction) would be an ideal keeping place for salvaged items of Aboriginal heritage significance.

13. One copy of this report should be forwarded to the Mogo Local Aboriginal Land Council for their information, at the following address:

Chairperson
Mogo Local Aboriginal Land Council Aboriginal
Princes Highway
MOGO NSW 2536

Conclusion – DGR 10.2 Aboriginal Cultural Heritage

The site has been assessed for items of Aboriginal Cultural Heritage. Two locations of scatters of lithic artefacts and 8 areas of archaeological potential were identified.

These are to be managed as noted in Section 2.10.2 of this report and as replicated in the Statement of Commitments for the subject development (Attachment 35).

2.10.3. Other Items of Heritage Significance

DGR 10.3: Identify any other items of heritage significance and provide measures for conservation for such items

Navin Officer, as part of their assessment of cultural heritage on the site, identified the following items of European Heritage:

- Seven European historic recordings were made as a result of archaeological survey within the study area (**Figure 13**). These consist of three prospectors pits (HS1-3), a series of agricultural ditches (HS4), a piece of disused farm machinery (HS7), the former Rosedale cheese factory building (HS5), and two unidentified circular pits (HS6).

- Three sites (HS8, HS9 & HS10) have been identified based on documentary sources and are yet to be confirmed or assessed in the field. These consist of the locations of selectors' huts or houses dating from the late 1870s.

- The Rosedale cheese factory was purpose built around 1934-35 by a Mr Aitkin, formerly of Moruya. Also known as Aitkin's Cheese Factory, it processed milk which was produced and delivered from the surrounding local dairy farms. The factory appears to have changed ownership in the late 1930s and was run by the Sebbens family, Joseph Sebbens being the cheese maker. The factory stopped production around 1940 when local dairy farm production became uneconomic. After a period of disuse the structure was converted first in 1958 into living quarters for share crop farmers, and subsequently as a family home by the Harrisons.

The Eurobodalla Rural LEP does not identify any items of Heritage Significance on the subject site.

Heritage consultants, Navin Officer, consider that European historic sites HS1, HS2 & HS3 (prospectors pits), and HS4 (agricultural drainage ditches), have low heritage significance within a local context.

The former Rosedale Cheese Factory (Site HS5) has high heritage value within a local context. Sites HS6, HS7and HS8 fall below the significance threshold. European historic sites HS1, HS2 & HS3 (prospectors pits), and HS4 (agricultural drainage ditches), have low heritage significance within a local context.
The proposed development will avoid all significant archaeological sites and retain the former Cheese Factory.

However, items HS1 (an agricultural ditch of low heritage significance), HS6 (two identified pits of no heritage significance) and HS8 (the location of an early settler's hut considered to be of no heritage significance) are also to be removed as part of the development of the site.

Conclusion – DGR 10.3 European Heritage Significance

An assessment of European heritage sites on the site has determined that the former Rosedale Cheese Factory has high heritage value within a local context and will be retained as part of the proposed development.

2.11. Noise

2.11.1. Potential Traffic Noise Impacts

DGR 11.1: Address potential road traffic impacts on future residents and identify appropriate mitigation measures
Acoustic Consultants, Heggies, have undertaken an assessment of Traffic noise impacts on residents within the development (**Attachment 28**).

Predicted noise levels for different road types throughout the development were calculated using computer modelling and are presented below in tabular form:

Table 12 - Predicted Noise Levels within Road Network

Predicted Noise Levels through Main Thoroughfare or Collector Road				
Residential Street Location	Daytime LAeq (1hr) (dBA)	Criteria	Night-time LAeq (1hr) (dBA)	Criteria
Main Street	64	60	60	55
Boulevard	65	60	61	55
Avenue	65	60	61	55

Predicted Noise Levels through Local Roads				
Residential Street Location	Daytime LAeq (1hr) (dBA)	Criteria	Night-time LAeq (1hr) (dBA)	Criteria
Road 1	57	55	54	50
Road 2	60	55	56	50

A review of the above Tables shows the daytime criterion exceeded by 4 dBA to 5 dBA at the collector road residences and by 2 dBA to 5 dBA at the local road residences. During night-time the criterion is exceeded by 5 dBA to 6 dBA at the collector road residences and by 4 dBA to6 dBA at the local road residences.

Road Traffic Noise - Available Mitigation Treatments
The above computer model predictions suggest that future noise levels at the potentially most affected residences collector and the main local roads within the development exceed the ECRTN noise goals.

This suggests that where feasible and reasonable, noise mitigation should be investigated during detailed design for affected residences in accordance with the project objectives. In broad terms, noise mitigation options available include the following:

Operational treatments
These would include an improved quieter road surface, limits on vehicle speed, etc. In this particular case, vehicle speed is already modest at 50 km/hr. Further more, quieter road surfaces are only considered effective when the speed exceeds 70 km/hr, and are not suitable for roads with intersections due to the high road surface wear incurred.

Noise walls.
Noise reductions are possible for noise walls devoid of large gaps. Fences nominally 2 m high at the residential boundary have the potential to attenuate noise at the residential facades. Earth berms can also form adequate noise barriers where aesthetic consideration precludes the use of a solid vertical wall. Earth berms require a relatively large footprint which is directly related to the batter and height of the berm. However,

solid fences and or earth berms are not in accordance with the urban design objectives for the project.

Housing Design
Location of habitable rooms to the rear of the residence, with non habitable areas such as bathrooms, laundries facing the road.

Architectural treatments.
These aim to ensure that satisfactory internal noise levels are achieved, as a minimum. Potential architectural treatments generally provided are limited to:

- Fresh air ventilation systems that meet Building Code of Australia requirements with the windows and doors shut.
- Standard glazing. (Note given the exceedances of the criteria are less than
- 10 dBA, standard glazing in conjunction with good seals is considered adequate).
- Quality window and door seals (ie no gaps).
- The sealing of wall vents and the underside of eaves.

Conclusion – DGR 11.1 Traffic Noise Impacts

Potential traffic noise impacts have been assessed and it is considered that a range of noise mitigation measures are available which are sufficient to adequately address the potential noise impacts.

2.11.2. Construction Noise Impacts

DGR 11.2: Address potential impacts of demolition, construction and operational noise.

Consultants, Heggies, in their acoustic report (**Attachment 28**) have assessed the likely acoustic impacts associated with construction activity on the subject site.

The proposal is conceptual at this stage and final (detailed engineering design) road plans have yet to be prepared. Accordingly details of specific construction plant and equipment, methodology or programming are unavailable at this early stage. Details of the construction program and activities will be formulated following approval of the project and following engagement of a contractor to carry out the works.

The total development is expected to be completed over a several year period, with initial earthworks, services and road construction followed by buildings. Earthworks and road construction is expected to take of the order of one year to complete. The following preliminary construction information is however provided:

- Earthworks for the development using the following equipment:
- Typical bulldozer and scraper;
- Grader and various vehicles including dump trucks and water tankers would also be involved;
- Excavator and backhoe for services
- Road construction using:
- Various vehicles including dump and concrete trucks;
- Vibrating rollers.
- Compressors

Typical maximum expected noise levels of construction plant measured at a distance of 7 m with the units operating at maximum load are shown in Table 12 below

Table 13 Noise Level of Construction Plant Items (LA_{max} at 7 m).

Plant Item	LA_{max} Noise Level at 7m (dBA)
Scraper	86
Bulldozer	85
Grader	84
Vibrating Roller	82
Backhoe	83
Excavator	80
Concrete Vibrators	87
Concrete Pumps	84
Dump Truck	83
Water Tanker	84
Compactor	85
Compressor	75
Hand Tools	68 to 73

The noise levels shown in the above Table are maximum noise levels. The difference between the LAmax and LA10 noise levels for large construction projects is generally between 5 dBA and 10 dBA depending on the intensity and type of operation. For the purpose of this assessment, a conservative noise reduction of 5 dBA has been applied to convert LAmax noise levels to LA10 levels for comparison with the LA10 construction noise objectives.

The following are three main groups of construction and excavation plant utilised in the ensuing calculations, for the purpose of assessment:

Group 1:
Bulldozer
Scraper
Grader
Dump truck

Group 2:
Excavator
Backhoe
Concrete Vibrator
Dump truck

Group 3:
Dump truck
Compressor
Water Tanker
Hand Tools

Construction Noise Predictions
There are a number of existing residences to the west, south east and north of the development. Calculations are for the worst case condition during road construction operations when closest to the assessment point which corresponds to the nearest residence in each direction.

Table 14 below presents the calculated LA10 noise emission at the potentially most affected noise sensitive receiver locations in comparison with the corresponding construction noise emission objectives.

Table 14 - Construction Noise Emission and Noise Emission Objectives

		LA10 Noise Emission (dBA)			LA10 Noise Objectives (dBA) Over 26 Weeks
Address or Location 1	Distance to Works	Group 1	Group 2	Group 3	
Closest Western resident	80 m	53	50	43	39
Closest Southern resident	160 m	43	40	33	
Closest Eastern resident	75 m	54	51	44	
Closest Northern resident	390 m	24	21	14	

Notes 1. Heggies have also assumed 5 dBA per 100 m ground absorption in addition to geometric spreading.

When reviewing the noise emission levels in the above Table it is necessary to consider that the receiver noise levels were calculated for the worst case condition of all plant and equipment operating at the closest potential location to the receivers.

This is conservative for the purpose of this assessment as for most of the time, equipment will generally be operated further away, resulting in lower noise emission at the receiver locations. For large periods of time, in particular when all plant items are not operating simultaneously, noise levels are likely to be lower than the calculated levels shown in above Table

Noise Mitigation of Construction Activities
Given the potential for the predicted noise exceedances indicated in Table 8, noise mitigation strategies should be implemented wherever feasible during the construction works. Wherever possible, subject to feasibility and reasonability, the quietest plant and equipment should be utilised in combination with management measures to minimise the noise impact on the local community.

Australian Standard AS 2436-1981 "*Guide to Noise Control on Construction, Maintenance and Demolition Sites"* sets out numerous practical recommendations to assist in mitigating construction noise emissions. Examples of strategies that could be implemented on this proposed upgrade are listed below, including the typical noise level reduction achieved, where applicable.

Operational Strategies:

- An important aspect of the mitigation of noise impacts during all construction phases would be adherence to the DEC's recommended standard daytime construction hours;
- Avoiding the coincidence of noisy plant working simultaneously close together and adjacent to sensitive receivers would also result in reduced noise emissions;
- Where practicable, the offset distance between noisy plant items and nearby noise sensitive receivers should be as great as possible;
- As far as possible, maintenance work on all construction plant should be carried out away from noise sensitive receivers and confined to standard daytime construction hours; and
- Regular compliance checks on the noise emissions of all plant and machinery used for the project would indicate whether noise emissions from plant items were higher than normal.

Source Noise Control Strategies:

- Engines and exhausts are typically the dominant noise sources on mobile plant such as bulldozers, cranes, graders, excavators, trucks, etc. In order to reduce noise emissions, more efficient silencers or exhausts could be fitted potentially providing additional attenuation;
- Low noise "silenced" generators should be used on the project where feasible; and
- Regular maintenance of all plant and machinery used for the project will assist in minimising noise emissions.

Conclusion – DGR 11.2 Construction Noise Impacts

Construction noise impacts have been assessed and it is considered that there are sufficient mitigation strategies available to address the construction noise activity. The precise permutation and combination of strategies will need to be determined by the developer, contractor and acoustic consultant as part of the subsequent development application for earthworks and construction.

2.12. Acid Sulphate Potential Soil and Contamination

DGR 12.1: Identify the presence and extent of acid sulphate soils on the site and outline appropriate mitigation measures. Identify areas of contamination on the site and appropriate mitigation measures. The level of assessment shall be consistent with the Acid Sulphate Soil Manual by ASSMAC.

2.12.1. Acid Sulphate Soils

This issue has been dealt with in **section 1.5.11** of this report

2.12.2. Contamination

This has been dealt with in **sections 1.5.11 and 1.6.2.4** of this report

Conclusion – DGR 12.1 Acid Sulphate Potential Soil and Contamination

In relation to Acid Sulphate Soils, core hole testing logs confirm that no evidence of potential sulphate oxidation exist within the test site zones.

In relation to Contamination of the site, an investigation of the site has determined that the subject site can be made suitable for residential development after the remediation of isolated areas of the site, deemed to be of environmental concern. As a consequence, the entire site would be suitable for residential development.

3. Consultation

3.1. Eurobodalla Shire Council

A series of meetings have been held with the Eurobodalla Council in 2006 and 2007. The Council is generally supportive of the development of the subject site and seeks to maximise the development potential on the site. It has an expectation that the Rosedale Urban Expansion Area will yield approximately 1,100 lots. Council has also supported the development of the subject site as part of the South Coast Sensitive Urban Land Review.

Council officers have raised the following issues in relation to the proposed development:

- Minimum lot size should be 450sqm

Comment:
The subject development now has a minimum lot size of 450sqm

- Lot density should be increased (above the then lot yield of 780 lots) but not by reducing lot size

Comment:
The subject development incorporates 806 lots with a minimum lot size of 450sqm. Any further increase in lot density, without reducing lot size, will reduce the amount of open space within the site. Such a reduction is not considered appropriate as it will diminish the amenity of the development.

- Style of the development should be sympathetic with that of Barlings Beach and should reflect the South Coast character;

Comment:
The subject development does not seek consent for the construction of dwellings. This will be the subject of a separate Development Application. However, as part of the Urban Design Guidelines for the site (**Attachment 16**), the design intent of future dwellings is provided which is considered to be consistent with both the South Coast style and the architectural styles proposed in the Barlings Beach development.

- The southern entry access off George Bass Drive needs to be reviewed by Traffic Engineer to ensure that adequate separation is provided between the access to the Rosedale development and that of the nearby Barlings Beach development.

Comment:
Colston Budd have assessed, as part of a preliminary design, and consider that the proposed access points between the Rosedale and Barlings Beach development and are adequately separated.

A further meeting was held with Council on 27 September 2007 in relation to a number of key issues associated with the proposed development. By letter dated 9 October 2007 (**Attachment 43**), the General Manager of Council provided a written response to the issues discussed. In summary the letter states that Council:

- Supports the proposed lot yield on the site and requests that consideration be given to the introduction of an element of dual occupancy sites in order to further increase the lot density;
- Supports, in principle, the provision of lot sizes less than that specified in the DCPs relevant to the site;
- Proposes to rezone the site, as part of a Shire wide review of its planning instruments in accordance with Ministerial direction, to appropriate urban zones in accordance with the new state-wide LEP template;
- Supports the location, alignment and upgrade of the Bevian Road as the southern access-way to the subject site;
- Supports the Bevian Road realignment through the body of the site and the acceptance of ownership of the new through-road once it has been completed;
- Supports the revision of intersection designs onto George Bass Drive, but supports a “CHR” type design rather than the “Seagull” design proposed by Marsim;

- Has no formal view on the proposed reduction of speed limits in the vicinity of the site. Notwithstanding this, the General Manager has expressed a personal view that the reduction of the speed limit from 100hph to 80kph has merit;
- Supports the deferral of the determination of the s94 contributions for the site until the subsequent detailed DA for the development.

Comment:
In relation to the request for the introduction of an element of duplexes in the development, Marsim has amended its design to incorporate a component in the southern portion of the site.

In relation to the "CHR" intersection design vs the "Seagull" design, Marsim's traffic consultant states that both designs are similar and that, as part of the consultation with the RTA, the Seagull type design was preferred by the RTA. If Council prefers the CHR design, Marsim is happy to amend the design to CHR subject to the concurrence of the RTA should this be required.

In relation to the proposed reduction of speed limits adjacent to the site, further consultation has occurred wit the RTA. Officers of the RTA have advised that

- The RTA has just reduced the speed limit in sections of GBD from Malua Bay to South Rosedale
- The RTA has received a number of requests for a reduction in the speed limit from Mossy Point to the Tomakin turnoff and are actively considering them;
- There is some sympathy within the RTA in relation to a reduction of the speed limit in the vicinity of the subject site; and
- Any formal request for a reduction in the speed limit should be made through the Wollongong office of the RTA.

3.2. NSW Department of Planning – South Coast Regional Office

The staff at the South Coast office have been briefed twice on the subject development. The most recent briefing was on 20 March 2007; subsequent to the publication of the report of the Minister's Expert Panel on the South Coast Sensitive Urban Lands Review. Officers were generally supportive of the proposed development subject to ecological and environmental issues being resolved. They were supportive of lot sizes less than 450sqm; down to a minimum of 350 sqm for a small proportion of the site in order to achieve higher lot density within the development.

3.3. NSW Department of Natural Resources

Mr Bob Britten of the DNR (now the Department of Water & Energy (DWE)) was consulted and visited the site in November 2006, March 2007 and was briefed in September 2007. He undertook a comprehensive inspection of the site. The two main issues raised during the inspection were:

- The determination of "top of bank"

Comment:
There is no definable 'top of bank' due to a history of erosion processes, which have formed steep and often wide gullies around channels. Key management issues in relation to these gullies are bank stability and water quality control.

- The determination of buffer widths and building setbacks

Comment:
All significant watercourses defined by DNR as Category 3, require a 10m core riparian zone. In the case of the subject site, core riparian zones will be much wider than this as they re to include the steep slopes of the eroded gullies. A buffer of up to 10m is required from the banks of the eroded gullies to the building setback.

The meeting also overlapped with that of the officer from the Department of Primary Industries, Mr Trevor Daly. This provided an opportunity for both officers to exchange views on the propose development whilst on-site.
Subsequently, Mr Britten (DWE) has, by letter (**Attachment 46**) formally agreed with:

- The Riparian Constraint Analysis prepared by Conacher Travers; specifically the mapping of Category 3 Watercourses across the site (**Figure 26**); and
- The extent of Riparian Buffers, as shown in **Figures 27 (a), (b), (c) and (d)**, to satisfy the objectives of Category 3 Watercourses in relation to the protection of water quality and bank stability.

3.4. NSW Department of Primary Industries

Mr Trevor Daley of the Department visited the site on 14 March 2007 and undertook an extensive site inspection. The issues raised initially related to the extent of the riparian buffers proposed and the potential for fish breeding stock to traverse to main northern dams from Salt Water Creek. Subsequent to the site inspection these concerns were allayed.

3.5. Department of Environment and Conservation

Two meetings were held with officers of DEC (Simone Stimpson, Michael Hood and Dominic) in Queanbeyan and on site. The main issues discussed were the extent of the buffer to the wetland, the access road along the edge of the Bevian Wetland, the buffers to the riparian corridors and EEC, the extent of threatened species habitat, the location and protection of aboriginal sites, and the extent of low condition EEC on site which required additional on-site testing by Conacher Travers (which has now been completed).

3.6. NSW Department of Education and Training

An officer of the Department, Mark Fraser of the Illawarra and South Regional Branch, was contacted by phone. He did not consider a meeting warranted but requested details of the development. A briefing paper was emailed to him.

Subsequently, Lesley Greenwood; A/Manager, Demographic Planning, of the Department responded by letter dated 24 April 2007 (**Attachment 38)**. She notes that the site is within the catchment of the Broulee public School and Batemans Bay High School; both of which are at capacity.

The proposed subdivision will “generate approximately 120 government primary school students and 130 government high school students. This would require the equivalent of five additional primary home-base and five additional secondary general learning spaces, plus associated spaces at each school”. She concludes by stating that the Department may seek developer contributions towards school infrastructure arising from the demand generated from the proposed development.

3.7. NSW Department of Health

Officers of the Department were contacted but no meeting was considered necessary. The same briefing paper as was forwarded to the NSW Department of Education and Training was emailed to them. No forma l response has been received on.

3.8. Roads and Traffic Authority

Officers of the RTA (Wollongong Branch), Chris Millet and Nicole Stephenson, were consulted in May 2007. They raised issues concerning the increased traffic load on the Princess Highway and Broulee Rd at Moruya and the detail of the design of the “seagull” access points at the northern and southern intersection of the Bevian Road and George Bass Drive. In particular, the separation distance of the access points between the subject site and the Barlings Beach site was raised a s a matter that would need particular attention. Discussions were also held in relation to the possible reduction of the speed limit of George Bass Drive in the vicinity of the access points to the subject site, the Barlings Beach development and the nearby caravan park.

3.9. NSW Rural Fire Service

The Rural Fire Service were contacted however they have no internal protocol for commenting on the application prior to lodgement.

3.10. NSW State Emergency Services

The NSW State Emergency Services were contacted however they have no internal protocol for commenting on the application prior to lodgement.

3.11. Relevant Aboriginal Land Council Contact

The following Aboriginal Community associations have been consulted on the proposed development consulted

1. Mogo LALC

Angela Nye, the Secretary of the Mogo LALC by letter dated 29th march 2007 (**Attachment 36**) states "*…… members of the Mogo L.A.L.C met on 20th March 2007 to discuss and consider the October 2006 Navin Officer Review of the proposed subdivision at Rosedale relative to the known cultural heritage constraints.*

We support the recommendations contained in the review in relation to Aboriginal sites but request in addition that the following be adhered to in regards to development of the site.
Mogo Local Aboriginal Land Council request that the following be adhered to in regard to your development:

1) That Marsim Pty Ltd has Sites /Heritage officers on site during all ground disturbing works.
2) That there be 2 Sites/ Heritage Officers per machine during all ground disturbing works.
3) That if any Aboriginal Heritage items are discovered that works cease immediately and the relevant authorities are contacted. Eg: Department of Environment & Conservation".

Comment :

The request of the Mogo LALC is noted and will be addressed as part of the subsequent DA which involves site works. The subject application does not seek any site works.

2. Yuin Elders Council

By letter dated 24th July 2007(**Attachment 36**), David Tout, Public Officer of the Yuin Elders Council states *"As in our previous letter dated 22 August 2003, the elders see no reason to oppose this development under its present state".*

3. Djuwin Women's Lore Council – Cabowra LALC

By letter dated 18th June 2007, Ms Mary Duroux , Chairperson of the Djuwin Women's Lore Council wrote:

"…… *having read the "Review of proposed subdivision for Rosedale Urban Expansion Zone relative to known cultural heritage constraints" prepared by Navin Officer Heritage Consultants, we make the following comments on behalf of the Djuwin\Women's Lore Council.*

We are satisfied that the current subdivision proposal provides better potential to avoid direct impact to known Aboriginal sites and establishes a more effective management regime for their management.

We support the recommendations of Navin Officer Heritage Consultants in relation to the Aboriginal sites but must insist that any and all ground disturbance, be monitored by Mogo LALC Heritage officers, with both male and female representation on site, at the expense of the developer.
In the event of further finds work is to cease and the representatives are to notify the appropriate agencies.

Thank you for including the Djuwin Women's Lore Council in the consultation process. We wish you success in your project but not at the expense of our sites. "

A copy of the letter is at **Attachment 36.**

3.12. Submission from a community group to the Department of Planning

A community group raised two issues with the Department of Planning (**Attachment 39)**:

(i) The appropriateness of the Southern Access Road

The submission states that the southern access road is unnecessary because there is a less damaging route available if the developers would purchase land which would facilitate more appropriate and less damaging access.

Although it is not stated which land is considered appropriate to purchase, it is assumed to be the land adjacent to the Sewerage Treatment Plant at the southern portion of the site.

This option has been considered and rejected because of the following reasons:

- The proposed southern access utilises an existing public road hence the clearing of vegetation communities is minimised (0.25ha of Swamp Oak Open Forest (EEC) and 0.25 ha of Spotted Gum Forest);
- The proposed alternative access via a new road access to the east of the Bevian Road would result in significantly greater environmental impacts than that currently proposed by virtue of :
    - The fact that the land is at a lower level than that of the Bevian Road and would require a significantly greater amount of earthworks to raise it to an appropriate level for road access;
    - A completely new road access would need to be created resulting in the clearing of a total of 1.16ha of endangered ecological communities (0.2ha Bangalow Sand Forest (EEC), 0.1ha Swamp Oak Open Forest (EEC), 0.05ha Swamp paperback Forest (EEC), 0.48ha Disturbed Swamp Oak Forest (EEC), 0.22ha Disturbed Red Gum Open Forest (EEC) 0.11ha Disturbed Swamp Paperbark Heath (EEC)
    - The traversing of the road through extensive areas of regenerating endangered ecological communities; and
    - The creation of a barrier to fauna movements accessing the wetland for water, foraging and breeding opportunities.

The issue of cost of the proposed alternative road access is relevant to the extent that , if the access route was feasible and appropriate, a commercial agreement would need to be reached.

Consulting Engineers, Patterson Britton, and Ecologists, Conacher Travers, have addressed the engineering and ecological issues associated with the upgrade of the existing Bevian Road access (**Attachment 44)**.

Patterson Britton consider that the proposed development will potentially result in the delivery of pollutants into the Wetland. However, **the Water Sensitive Urban Design Strategy prepared by Patterson Britton (Attachment 24) and incorporated into the proposed development will ensure that the balance between surface and subsurface flows would closely mimic for existing conditions for flows entering the Bevian Wetland and the runoff water quality would have pollutant loads up to 25% lower than existing conditions. This represents a significant contribution to the long term improvement in receiving water quality**.

Conacher Travers consider that the construction of the road along the western boundary of the Bevian Wetland will potentially impact on the extent and composition of the Freshwater Wetlands on Coastal Floodplains immediately adjacent to the road. The impact on Bevian Wetland will be minimised by careful alignment of the proposed road, minimising its overall

width and installing protective measures to contain sedimentation, vegetation removal and the release of contaminants.

Conacher Travers conclude that the proposed access route, as detailed in the subject application, provides the most ecologically sustainable access option due to the demonstrably reduced impact on endangered ecological communities (both good condition and regenerating disturbed habitats). The new proposed access road improves protection for the wetland by the installation of a stormwater treatment bio-swale that delivers runoff after filtration into the wetland and relocates the road as far as practical away from the foreshore of Bevian Wetland.

It is therefore considered that the upgrading of the Bevian Rd will be satisfactory in terms of its effect on water quality entering the Wetland and its effect on the extent and composition of the Freshwater Wetlands on Coastal Floodplains immediately adjacent to the road

(ii) The Building Setback from the Wetland
The Community Group states that the *"building setback (not the lot setback) from the Wetland is only 80m and the building setback from the Swamp Oak Forest is only 20m. This implies that the forest could extend onto private lots".*

Residential lots around Endangered Ecological Community (EEC) in south are a minimum 25 m for EEC edge, with further building setbacks in these areas ranging from 3m to 6m. Setback requirements to buildings will also be established (min 25m) to lots in South-west corner to the North of the EEC buffer. No Swamp Oak Forest is proposed to extend onto private land, and all high quality EEC (that is not affected by the new access road) is captured within the Conservation Zone that is to be rezoned as E2.

3.13. Community Consultation

Community participation was invited by advertisements in the Bay Post on 23, 28 and 30 March, and the Eurobodalla Independent on 22 and 29 March 2007. Adjoining neighbours were invited by letter to make an individual appointment or attend the community information sessions and discuss the proposal with project team.

The meeting was facilitated by Id Planning Pty ltd on behalf of Marsim.

The workshops took place at the Tomakin Community Centre on Friday 30 March 2007, from 3pm to 6pm and Saturday 31 March 2007 from 10am to 1pm. Over 60 community members attended the workshop, with the majority of participants living in Rosedale, Tomakin and Guerilla Bay.

Each participant was offered a 'tour' of the project by viewing the Display Panels with a member of the Project Team. The Display Panels provided information on a range of aspects including planning controls, environmental constraints, the project concept, social, access and character principles underpinning the concept plan. Project team members, including representatives of Marsim, the land owner and proponent, Candalepas Associates, the architect and Id Planning, the community consultation specialist, were available to explain the concept plan and respond to queries.

The participants were invited to provide feedback on four open ended questions:

1. What are your views about the concept?
2. Would you like to make specific comments about the following aspects – urban design, traffic and public transport, environmental and social aspects?
3. Is there any part of the concept plan that you would like to see further addressed by the project team? and
4. Any other feedback?

In response to a request made at the sessions, a second community information session was held as part of the Rosedale Association Annual General Meeting on Saturday 7 April 2007 from 11am to 12.30pm. Approximately 60 residents attended that presentation.

Community Feedback
Of the 14 submissions received, 9 provided responses to the open ended questions and 4 provided general comments which have been included in the relevant question area or as general comments. Detailed written comments were provided by 1 attendee which have been considered in the relevant question area.

Feedback from the Rosedale Association was provided at the meeting and summarised in the Rosedale Association Website "News" section dated April 18 2007.

The issues raised can be summarised as follows:

Traffic and Public Transport
- Majority support for access to the development from Bevian Road south
- Ability to widen Bevian Road south while minimising the impact on Bevian Swamp;
- Concern about the capacity of George Bass Drive for traffic generated by the development.

Environmental and Social Aspects
- Support for retaining the wetland and enhancing the natural values of the area;
- Support for the retention of wildlife near the Swamp;
- Concern that development is too large and too urban;
- Concern about smaller lot sizes;
- Concern about smaller lot sizes bordering the rural zoned neighbouring lots;
- Loss of scenic amenity of adjoining lots;
- Potential for visual and noise pollution to adjoining lots;
- Concern about the capacity of sewerage treatment plant;
- Creation of pollution from additional car trips; and
- Concern that the project would impact on Saltwater Creek ICOLL.

Project Name
- Support for the project to be called Barlings Beach rather than Rosedale.
- Concern that the name 'Rosedale' was being used for the development.

Sustainable Design & Hydrology
- Suggestions for sustainable design; and
- Suggestions for management of groundwater runoff.

A detailed response to the above issues raised by the community is provided in Section 3 and Appendix D of the Community Consultation Report at **Attachment 33.**

4. CONCLUSION

The proposed subdivision of the subject site for 806 residential lots represents the orderly and appropriate development of the land in accordance with the objectives of the Environmental Planning and Assessment Act and the strategic planning objectives of the State and Eurobodalla Council, as articulated in:

- The Eurobodalla LEP 1987;
- The site specific Eurobodalla DCP 160 – Rosedale
- The South Coast Regional Strategy; and
- The recommendations of the Expert Panel established by the Minister for Planning to review Sensitive Urban lands (2006) ; incorporating specific recommendations in relation to the subject site.

This site has been specifically identified for residential development in all the planning documents above.

The development will optimise the use of coastal land resources and existing infrastructure; particularly the sewerage treatment plant adjacent to the site which was constructed in anticipation of the development of the subject site for residential use.

It will also have beneficial social and economic impacts in terms of:

- providing housing to assist in satisfying the anticipated future housing demand;
- providing employment during the construction of the development (which will be phased over the next 10 to 15 years) as well as permanent employment on the site for the maintenance of site facilities;
- generating secondary employment opportunities for goods and services demanded by residents of the development;
- providing funds for the augmentation and provision of community facilities and infrastructure, by way of s96 contributions.

The development will protect the environmentally sensitive attributes of the site. In particular, the proposed development has been designed in response to the environmental and ecological constraints identified within the site. As a result, areas of conservation and open space have been integrated with development.

Key ecological protection and enhancement measures within the site include:

- Protection of habitat by the retention and fencing of existing native vegetation remnants;
- Buffering of Bevian Wetland and Watercourses; together with the restoration of associated vegetation;
- Revegetation of significant drainage lines to provide bank stability, create vegetation connectivity and improve habitat;
- Control of erosion of the existing access road by the upgrade of Bevian Road to a sealed surface carriageway;
- Provision of Bio-retention swales along roads to treat and slow down runoff from lots and roads to promote subsurface flows;
- Provision of bio-retention rain gardens on selected lots to infiltrate, treat and slow down runoff from paved areas on the lots;
- Provision of gross pollutant traps to remove sediment, debris, organic matter and litter
- Upgrading farm dams to improve runoff quality and provide more diverse aquatic habitat;
- Provision of retention basins to collect sediments and control runoff flows;
- Storage and infiltration promotion within bio-retention systems to balance surface and subsurface flows and slow down flows to maintain existing conditions;
- Creation of vegetation corridors, between native remnants and vegetation offsite, to improve vegetation connectivity;

- Maintenance of water flows together with the maintenance or improvement of water quality within the site, in order to protect downstream water bodies including Saltwater Creek ICOLL and Bateman's Bay Marine Park;
- Protection and conservation of items of environmental and archaeological and Aboriginal significance; and
- Minimising risks to life and property from flooding, bushfires and geological hazard.

The development will be low scale and restricted to 2 storeys. Consequently, the visual impact of the development from locations external to the site from which the development is visible, are considered to be minimal due to the physical separation of the development from these locations and the low scale of the development.

The character of the development will be drawn from the South Coast style of architecture in order to create an environment unique to the South Coast which continues to evolve a tradition of community-building. Building controls have been established for each precinct within the development to promote an environment of high urban design and architectural quality. In this regard, the development is intended to establish a benchmark for coastal development. Its visual amenity will be of the highest order as a result of the quality of the design of the public and the private domains.

The development has comprehensively addressed all environmental and ecological issues, has the written support of Council and will provide approximately 7.5% of the total demand for new housing over the next 25 years.

It is considered that the development will set a high standard in terms of urban design, architecture and environmental sensitivity**,** is consistent with the State and Council Planning Instruments and will provide significant social and economic benefits. The proposed development is therefore considered to be in the public interest and, as a consequence, should be approved.

FIGURES

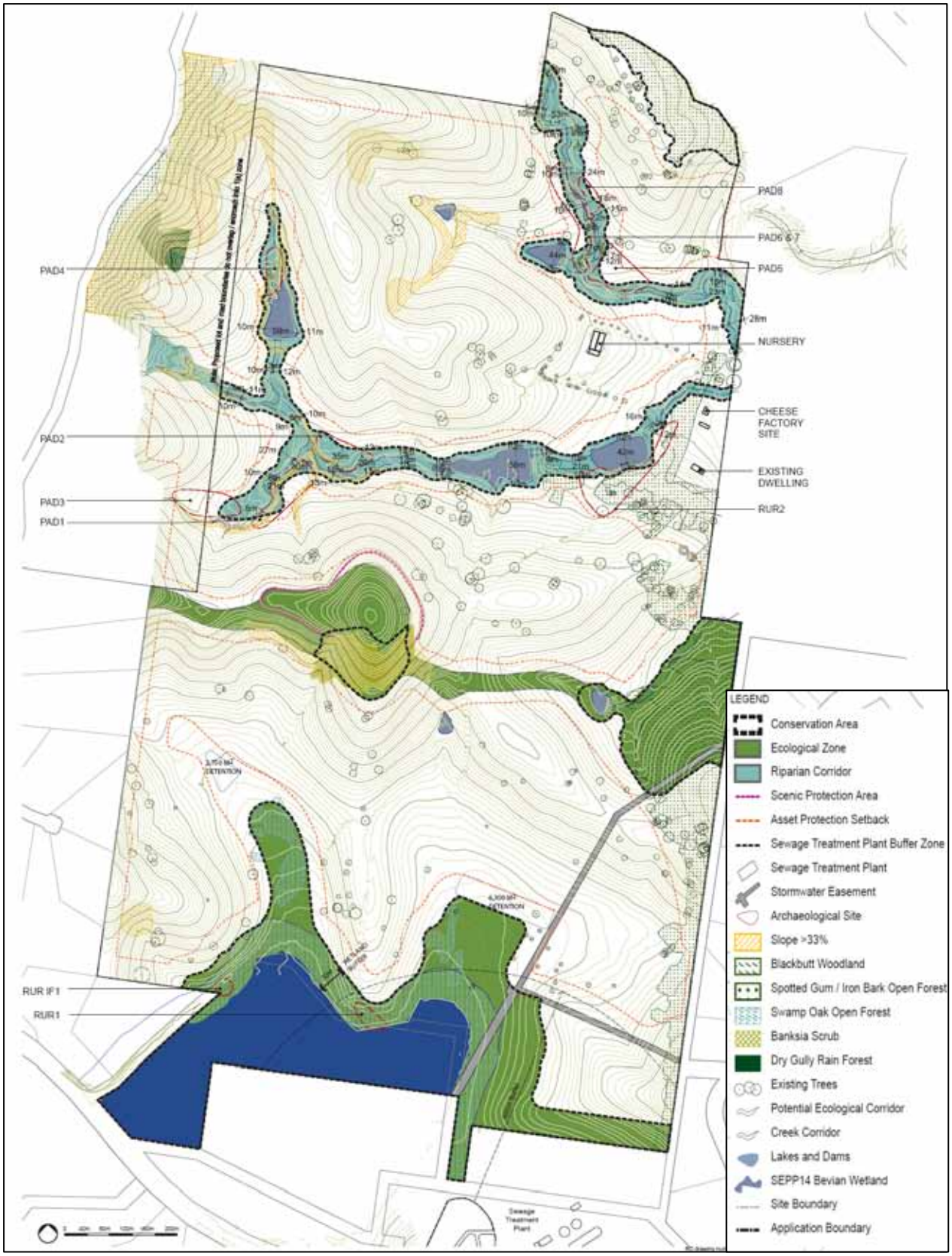


Figure 1 *– Constraints Plan*

Figure 2 *– Developable Land*

Figure 3 - *Concept Approval Subdivision Plan*

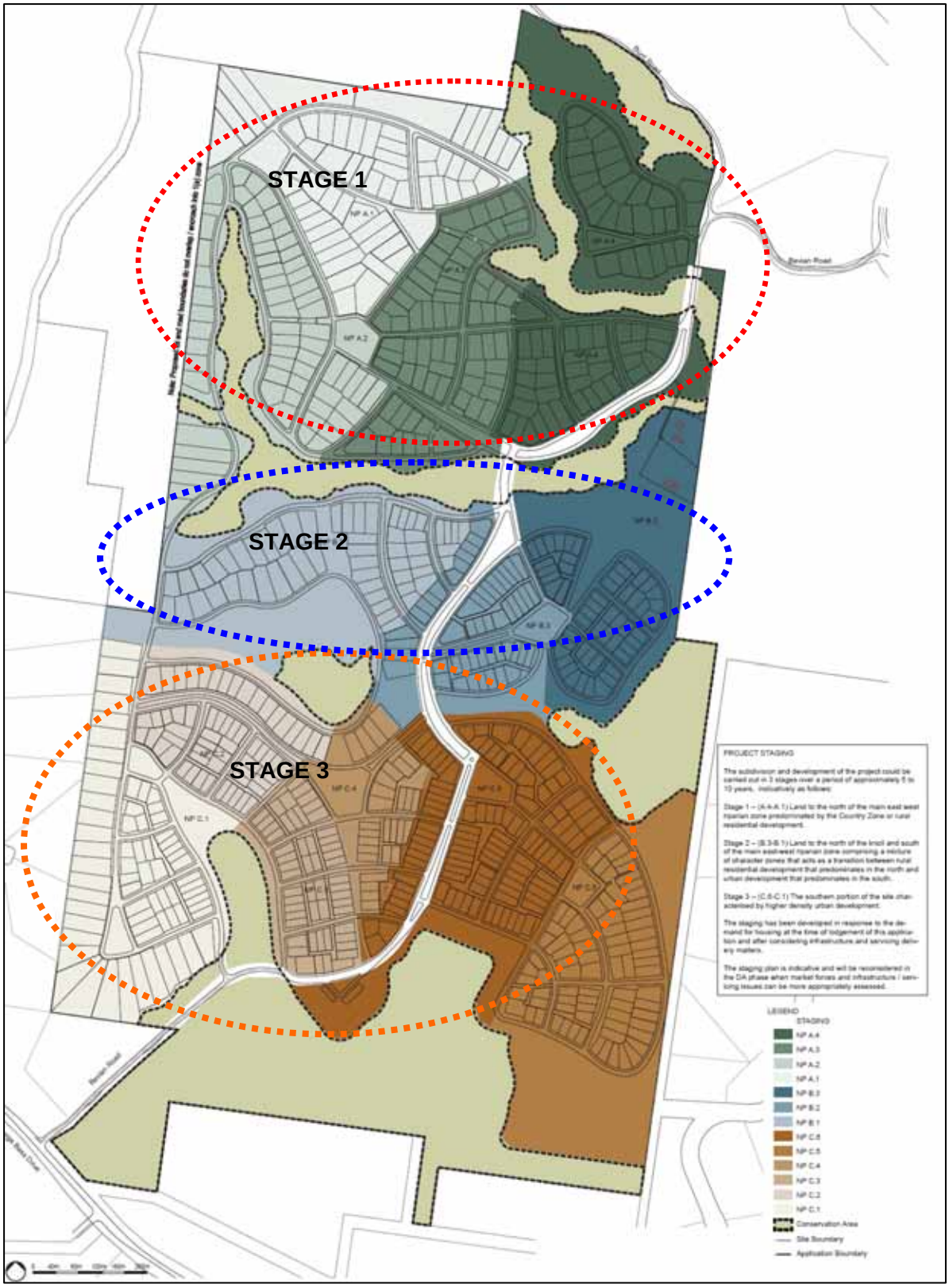


Figure 4 *– Indicative Staging of the proposed development*

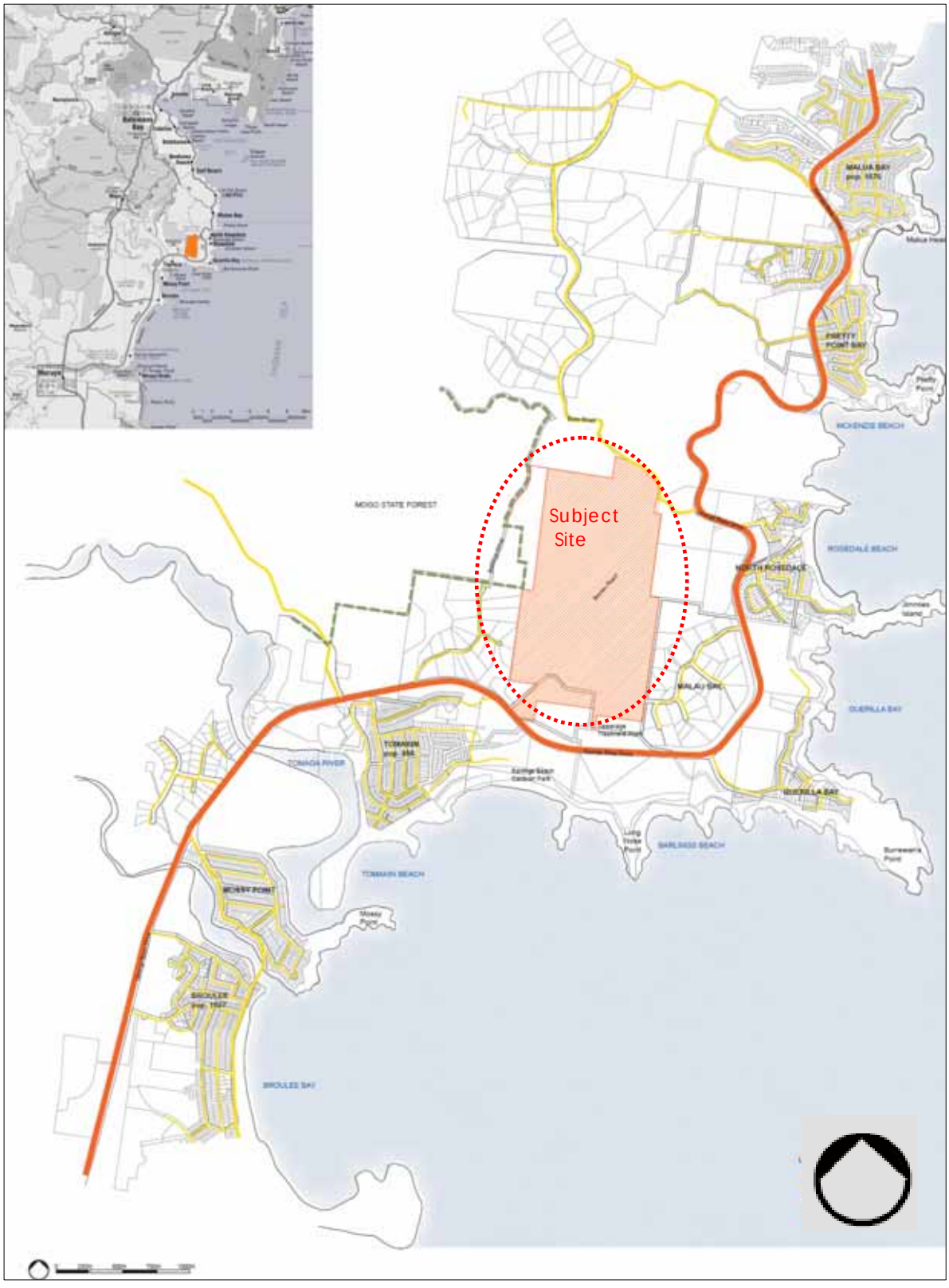


Figure 5 *– Location Map*

Figure 6 *- Aerial Photo showing location of subject site*

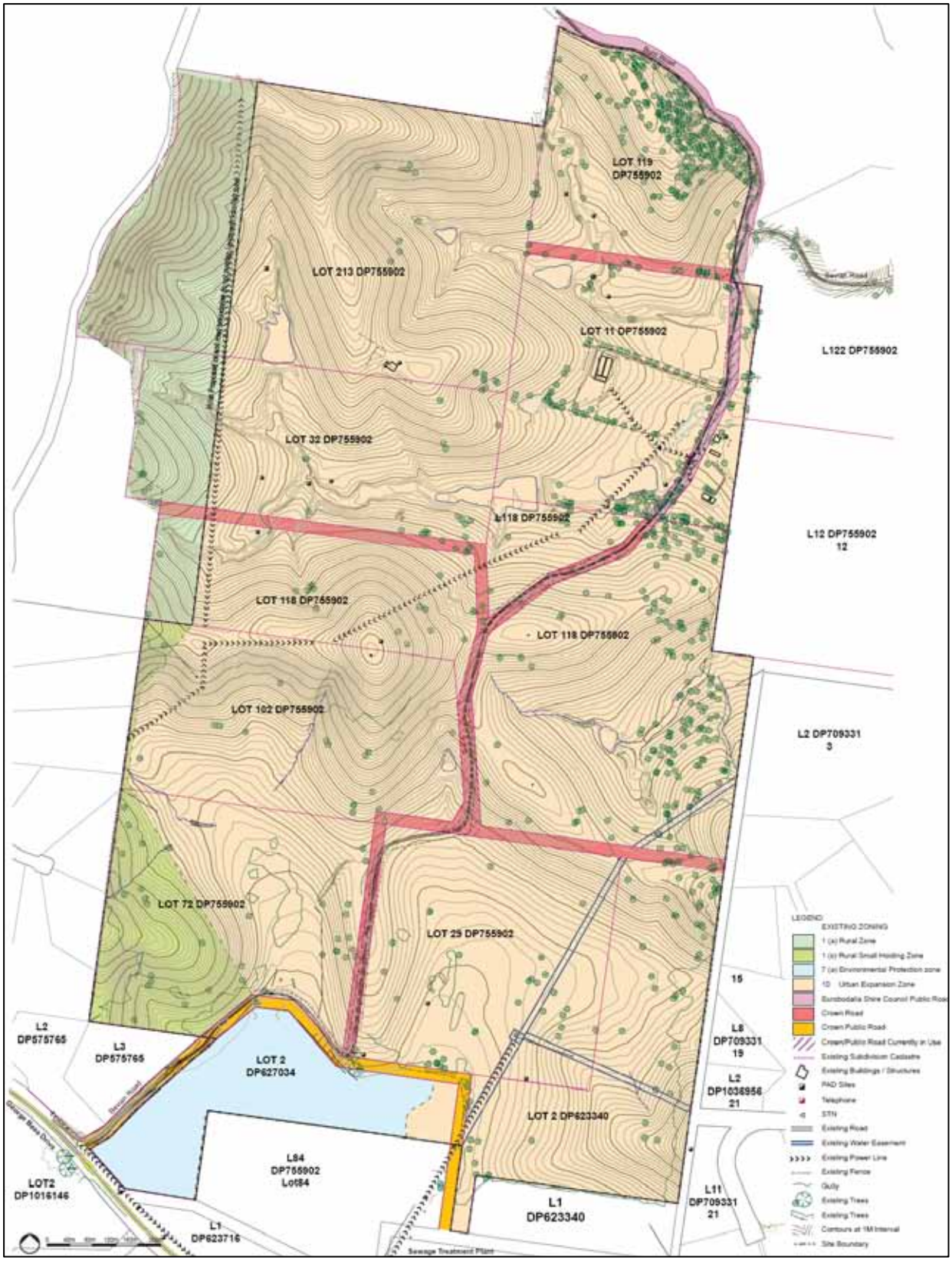


Figure 7 - *Plan showing Lot Boundaries and Descriptions*

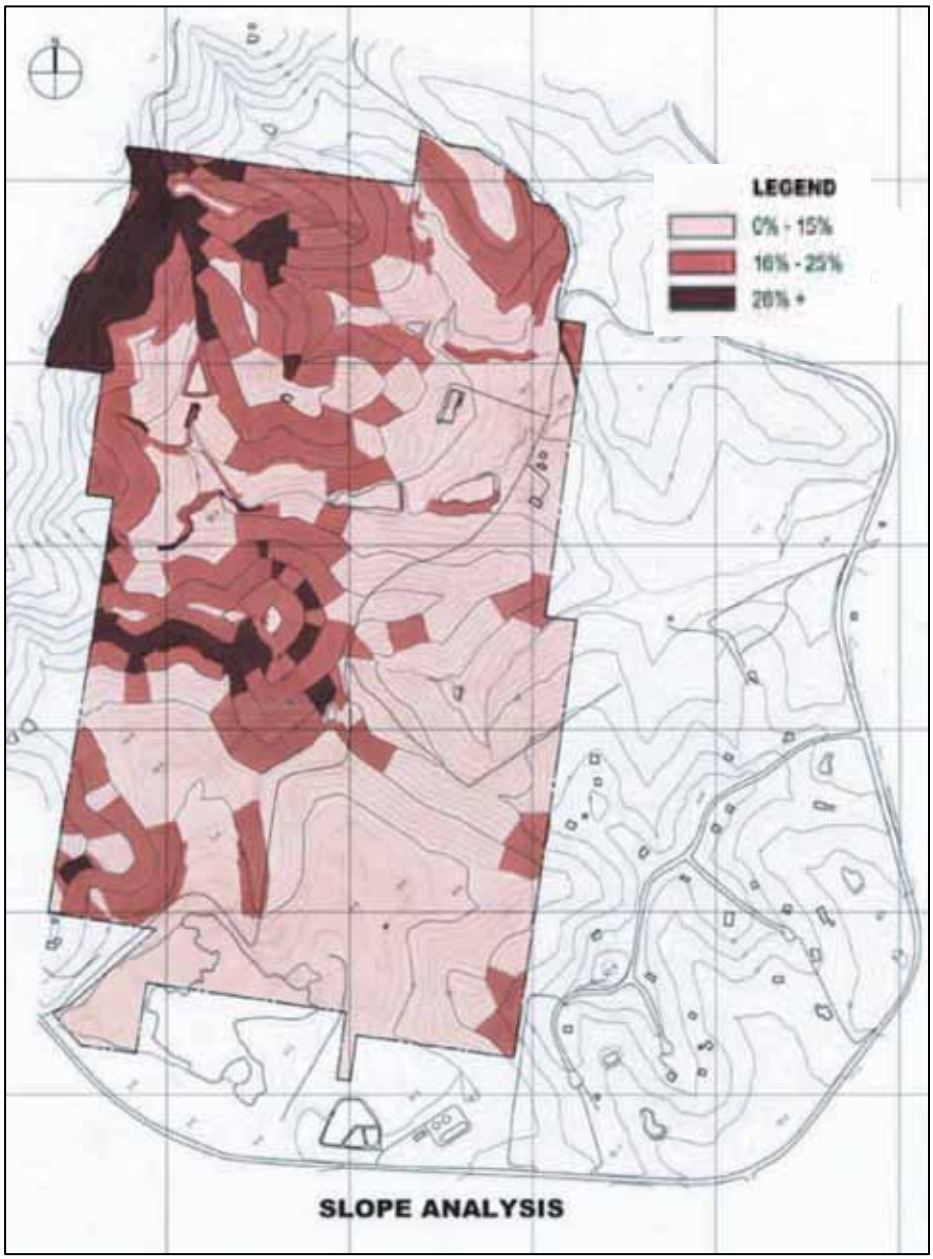


Figure 8 - *Site Slope Analysis*

Figure 9– *Aerial photo of the subject site showing the location of the Bevian Road*

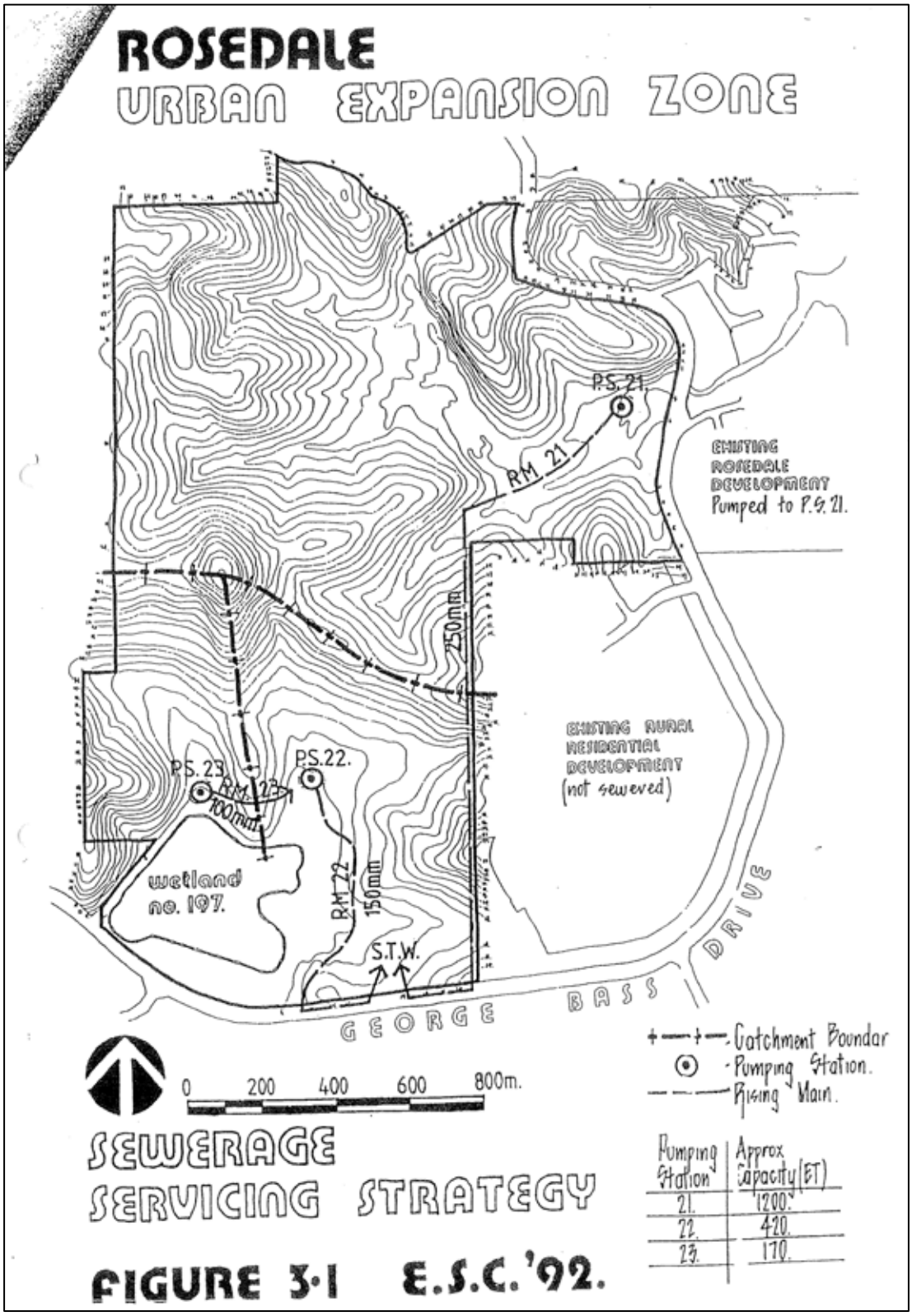


Figure 10 *– Sewerage Servicing Plan*

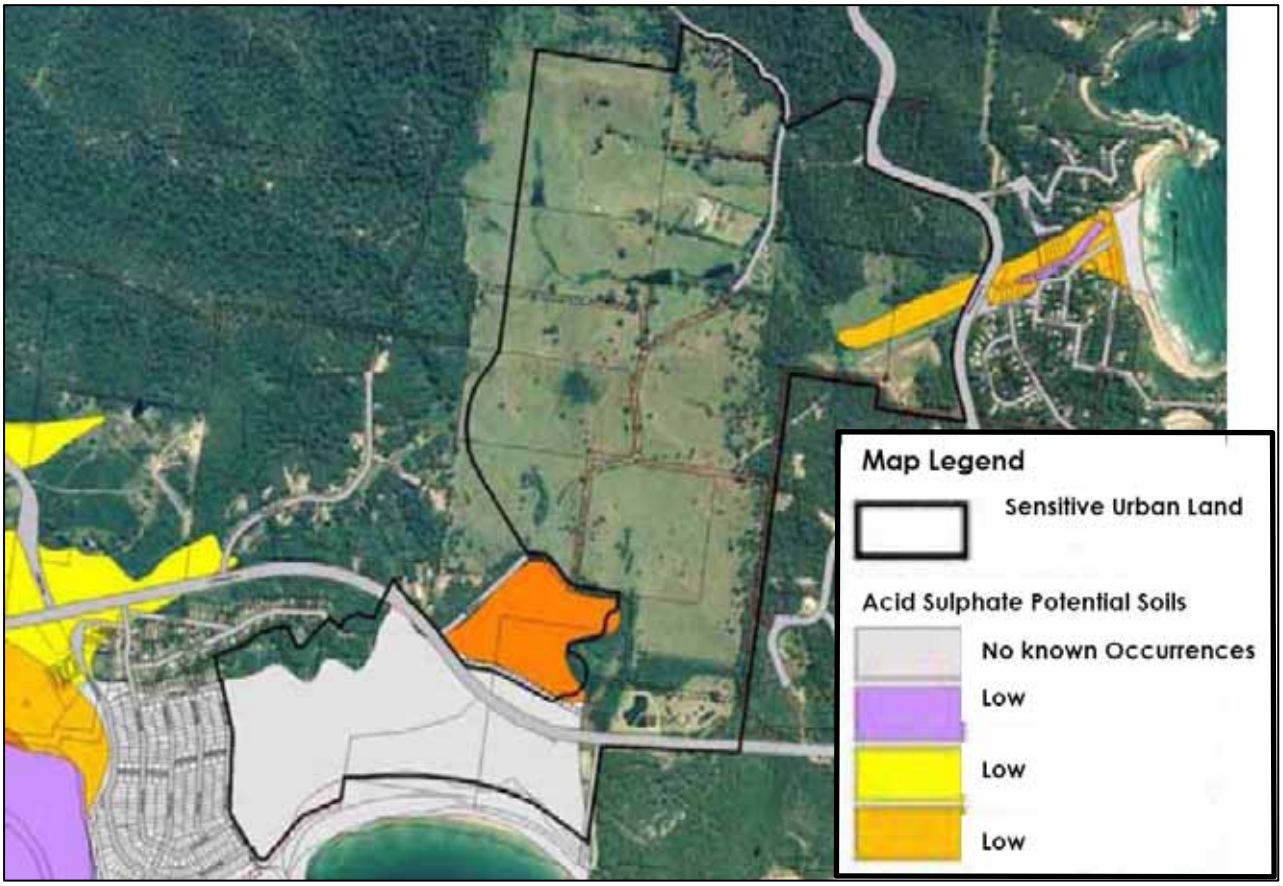


Figure 11 *– Acid Sulphate Potential Soils*

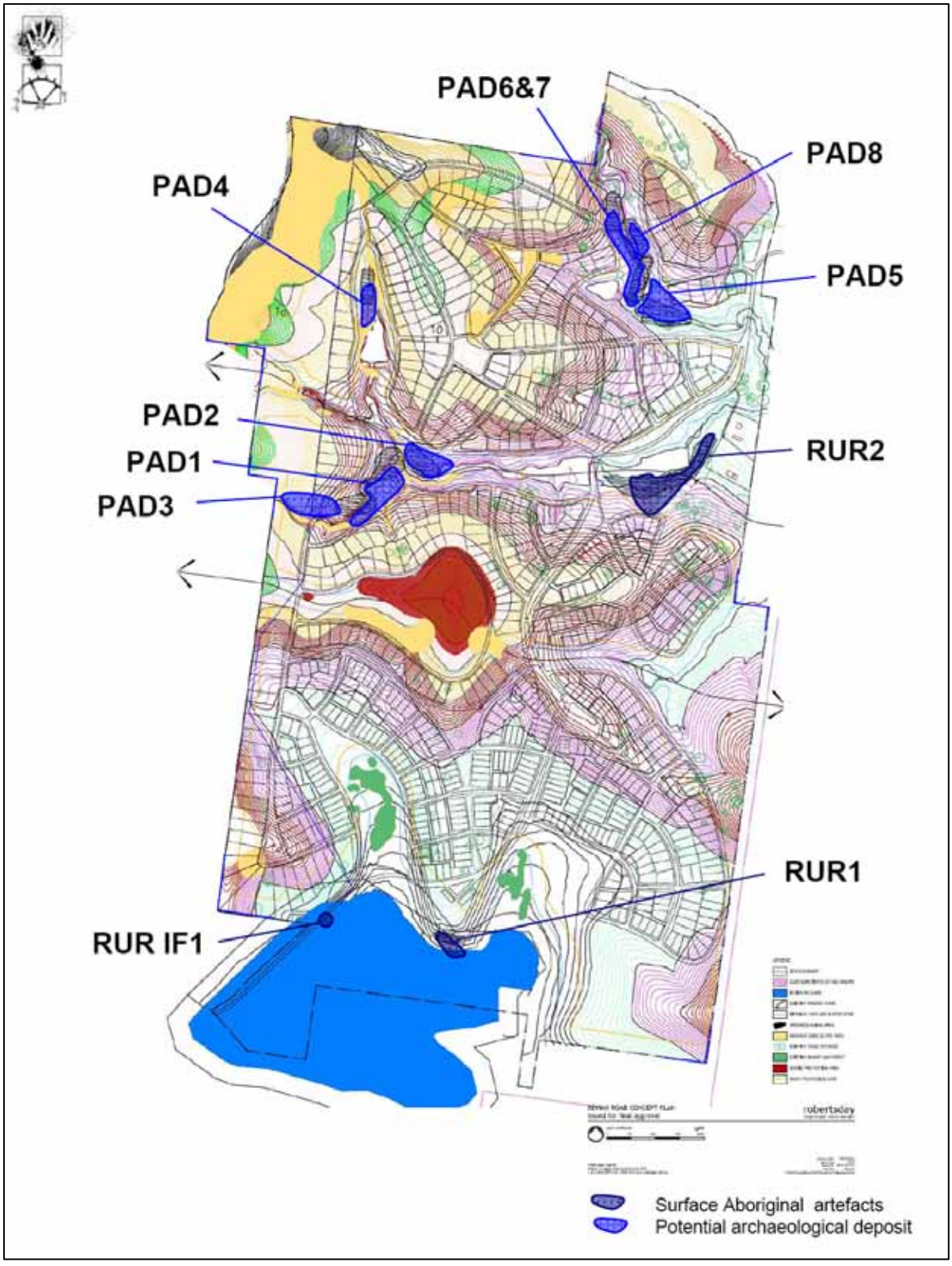


Figure 12 *– Plan of proposed subdivision showing locations of potential archaeological deposits (PAD), Artefact Scatter (RUR) and an Isolated Find (RUR IF)*

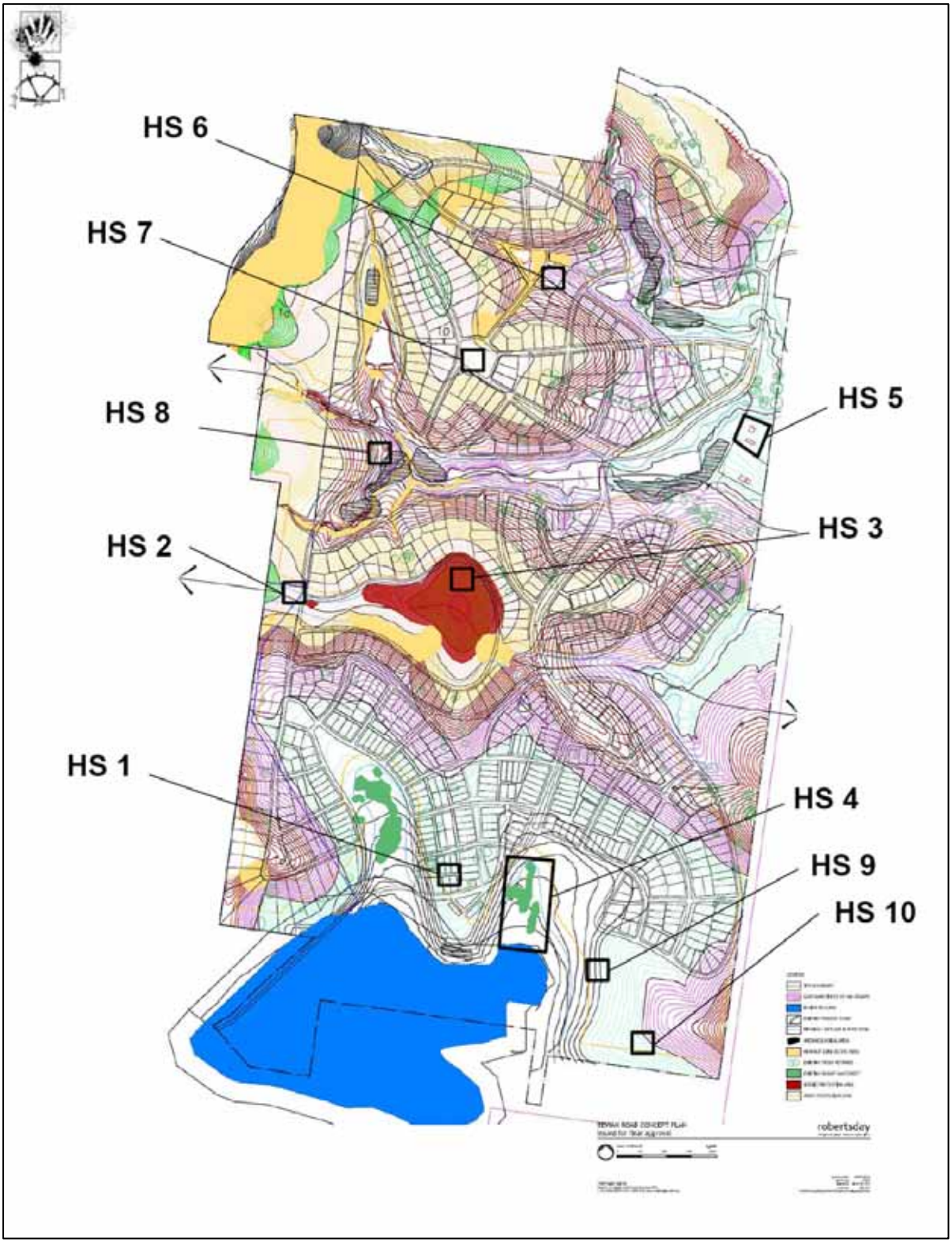


Figure 13 *– Plan of proposed subdivision showing locations of European Historic Sites (HS)*

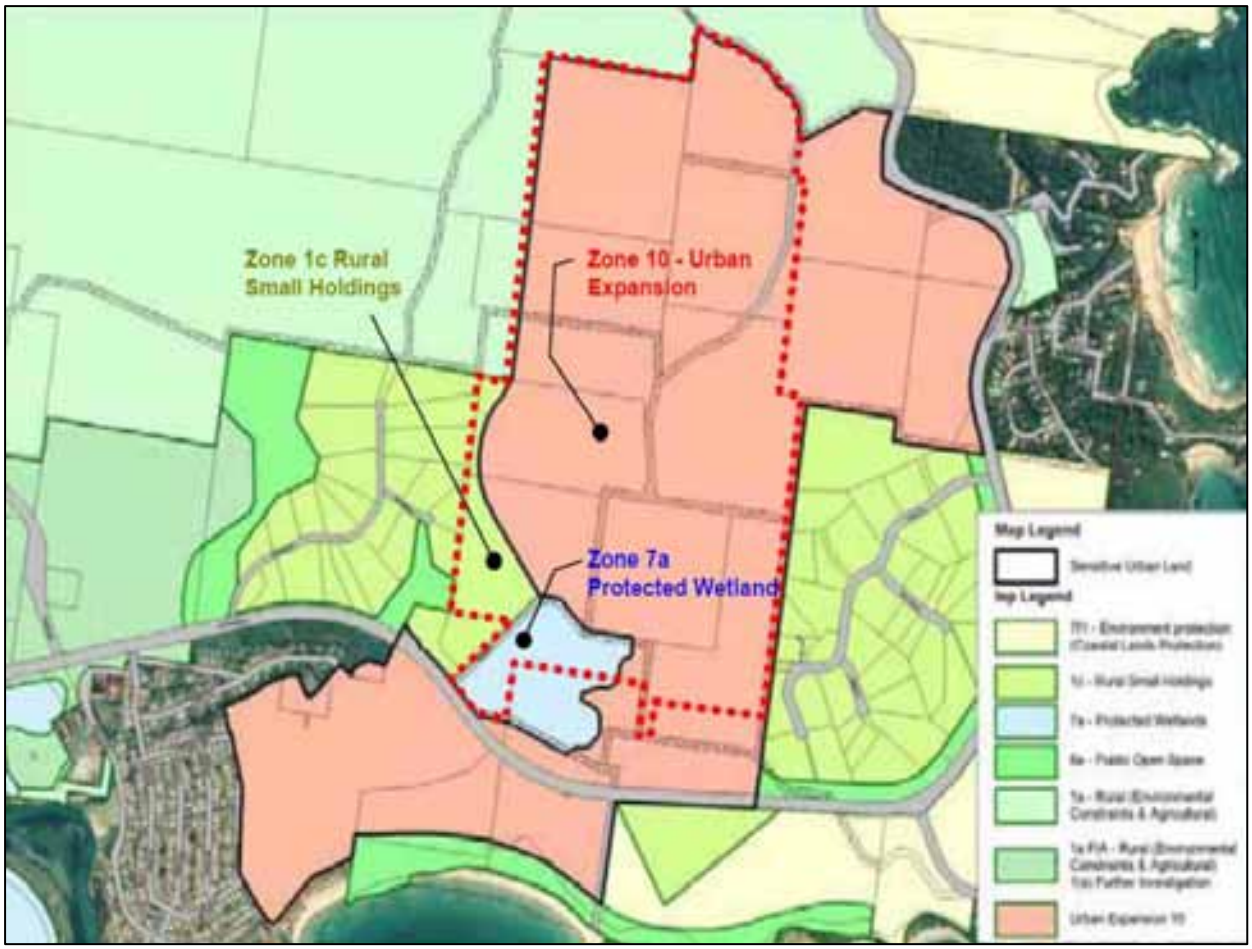


Figure 14 *– Showing subject site, delineated by red dashed line, and the various zones within the site*

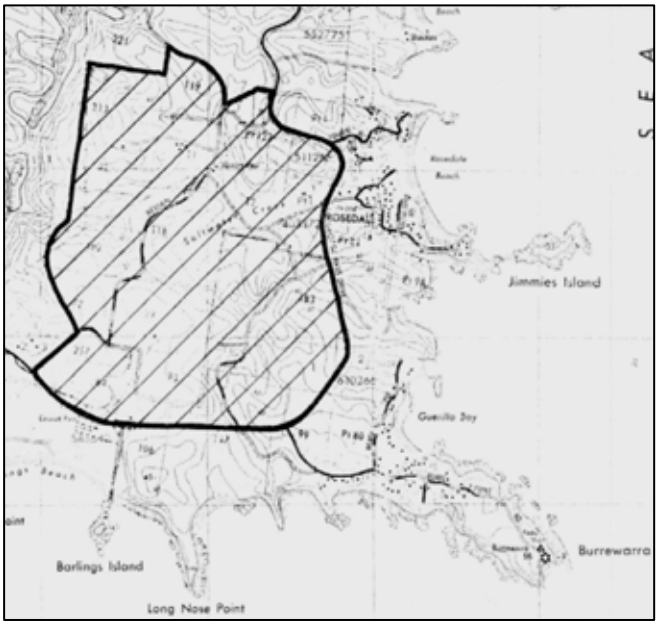


Figure 15 *– Urban Expansion Zone covered by DCP 160 - Rosedale*

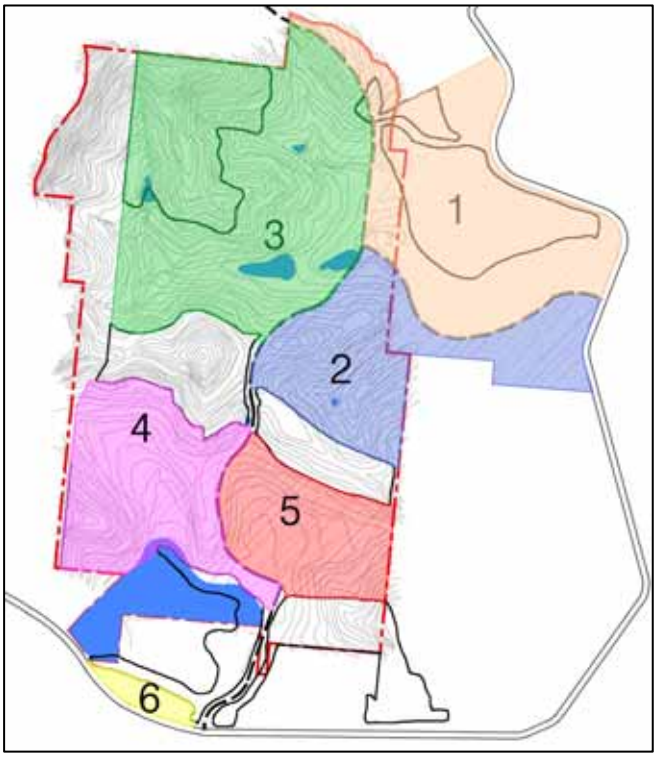


Figure 16 *– Precincts within DCP 160 - Rosedale*

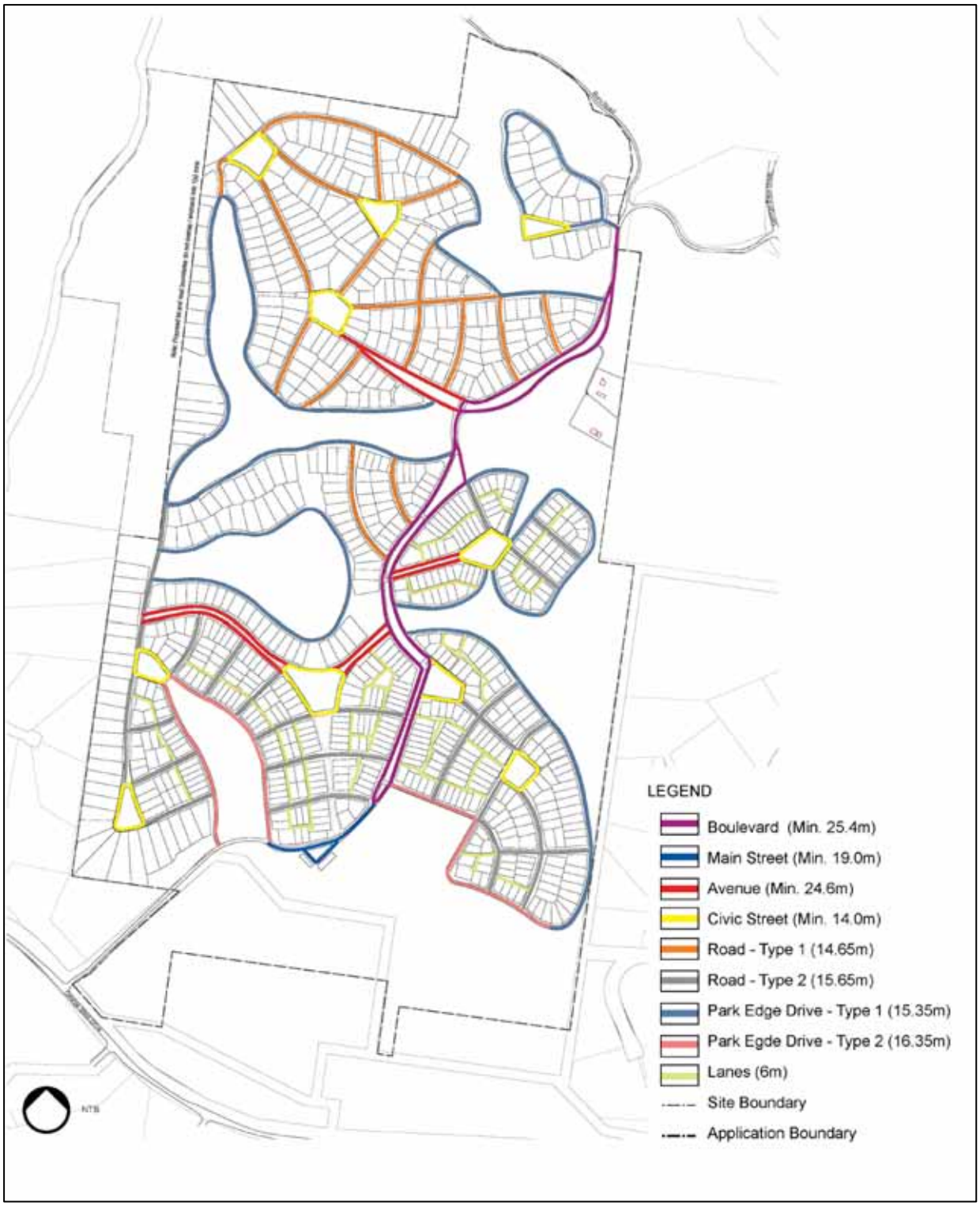


Figure 17 *– Road Hierarchy and Pedestrian Network*

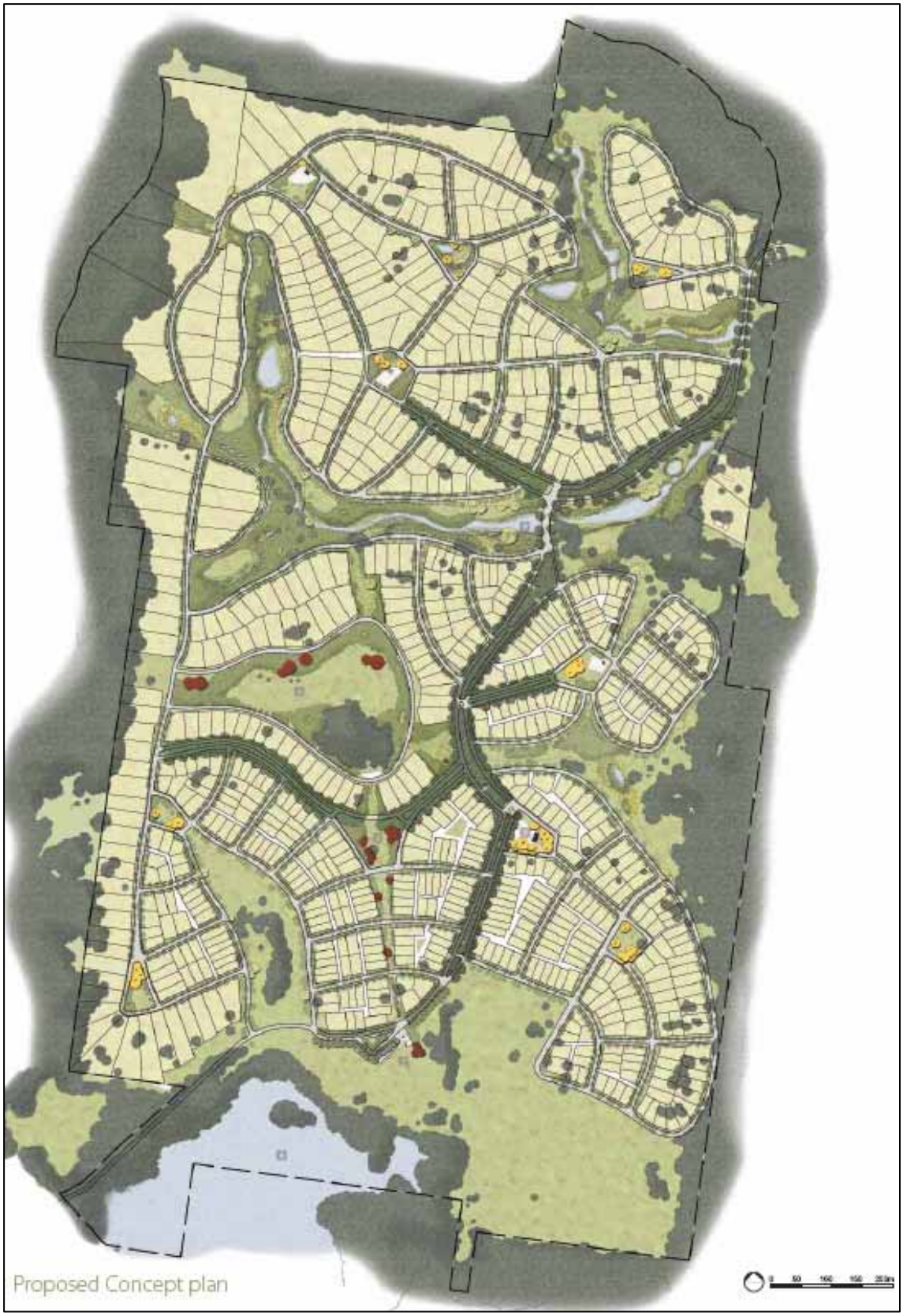


Figure 18 - *Plan of the subject site illustrating the relationship between the road and pedestrian network with the open space network*

5.13 Development Capability

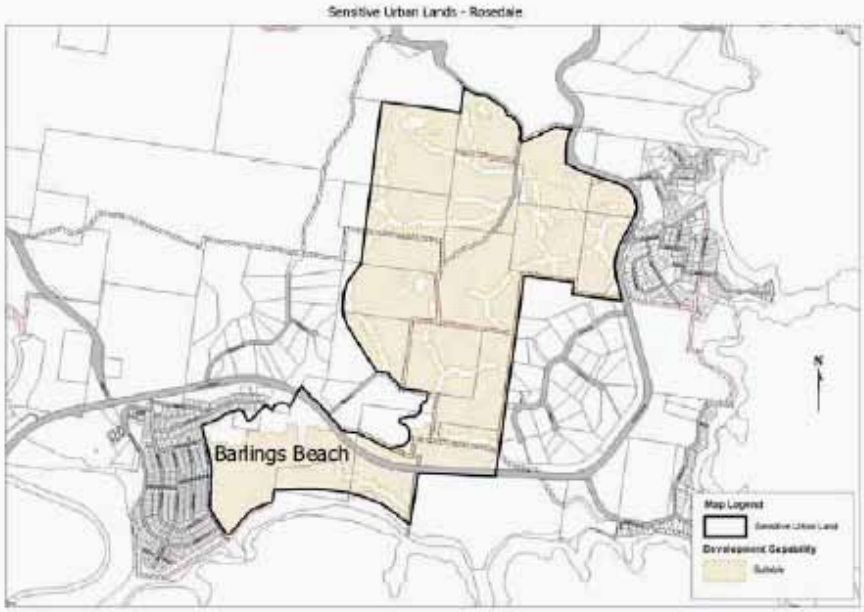


Figure 37 Development Capability for Rosedale sensitive urban land

Figure 35 shows the developable area for the Rosedale sensitive urban land. This suitable area is obtained by subtracting the absolute constraints from the total area of the land. From this we can get an approximate lot yield as shown below:

Total suitable area = Approx. 179 ha
Minus 25% for servicing (roads, easements etc) = Approx. 134.25 ha
Estimated Lot yield @ 1200sqm (locality average) = Approx. 1120 lots

Note that a DA has been approved for the Barlings Beach component of this UEZ. This area is excluded from the developable area and from the lot yield estimate.

Figure 19 *– Extract form Eurobodalla Council Submission to the Minister's Panel on Sensitive Land Review*

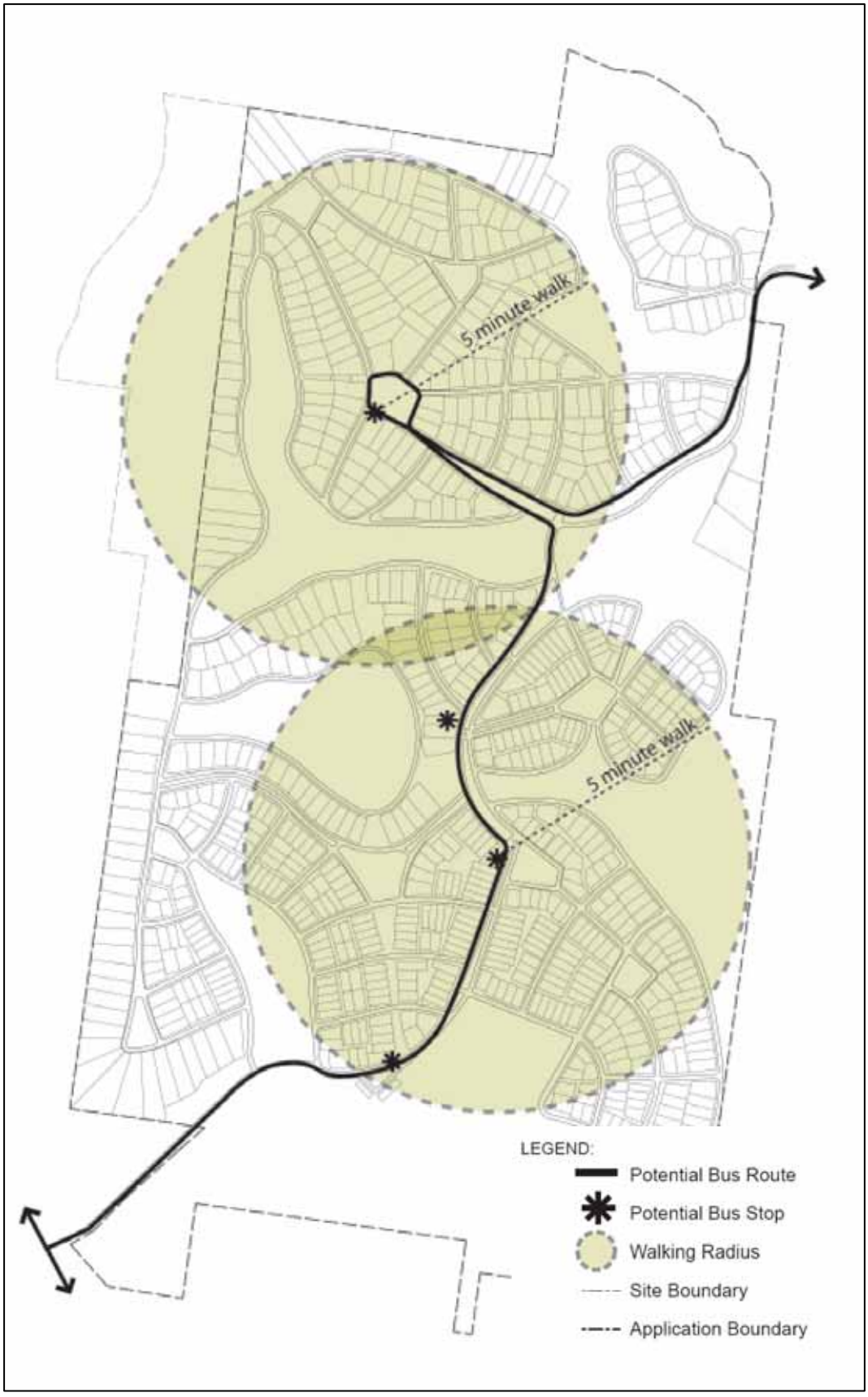


Figure 20 *– Potential Bus Route*

Figure 21 *– Bushfire Constraint Map*

Figure 22 *– Distribution of Open Space throughout the site*

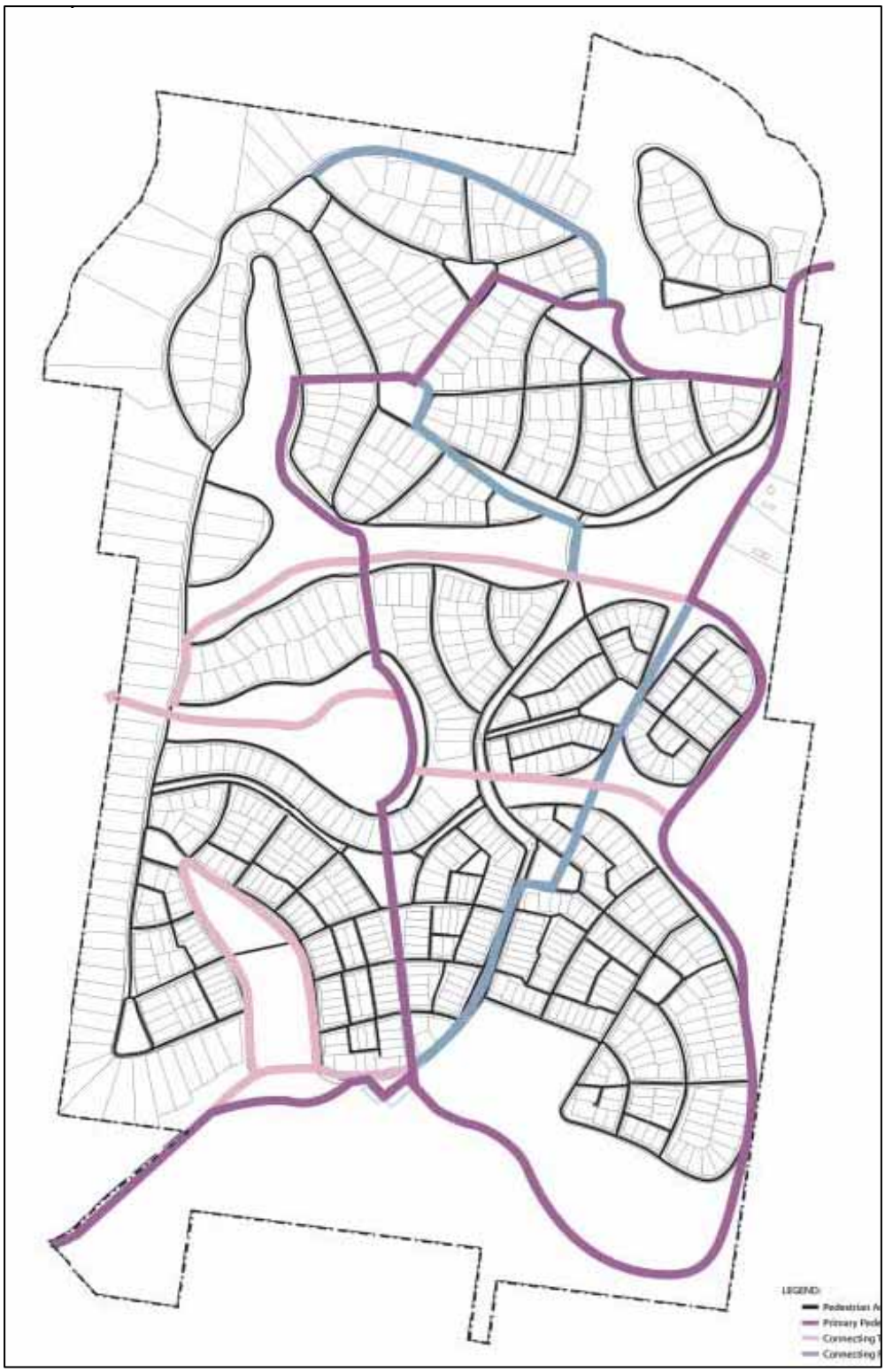


Figure 23 – *Pedes*

Figure 24 *– Landscape Concept Plan- Delineation between Public and Private Domain*

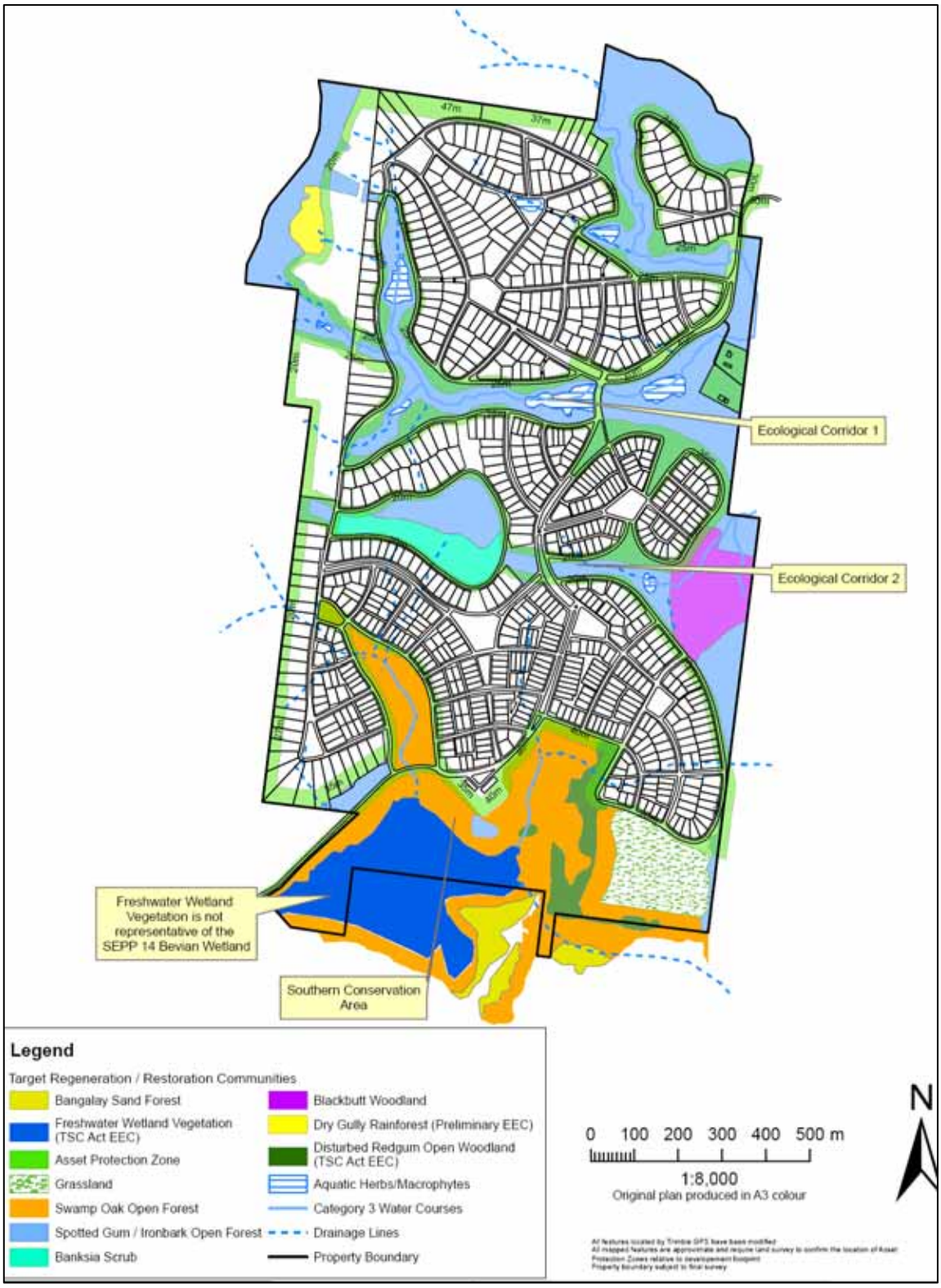


Figure 25 - *Restoration Management Plan*

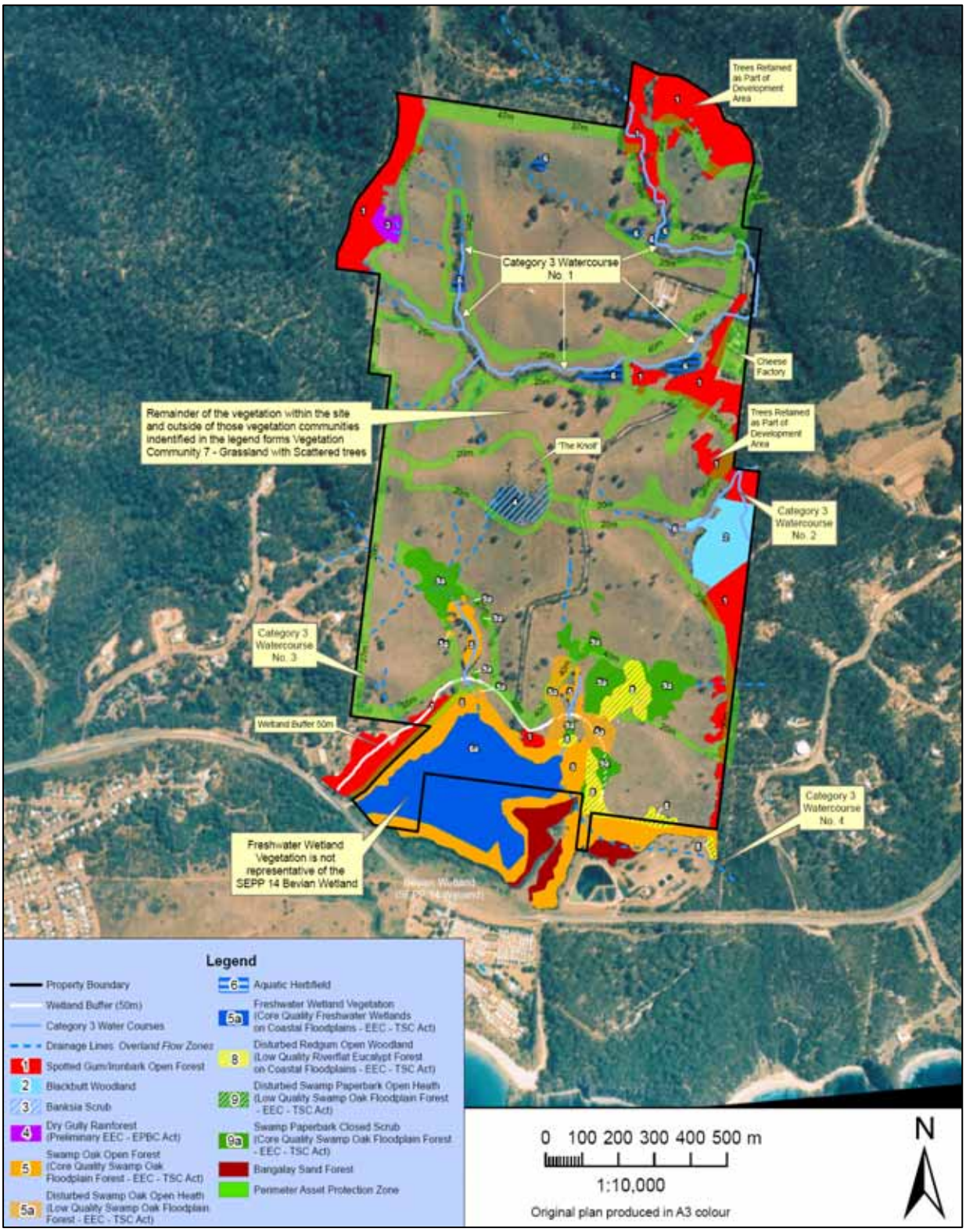


Figure 26 – *Ecological Constraints and Watercourses*

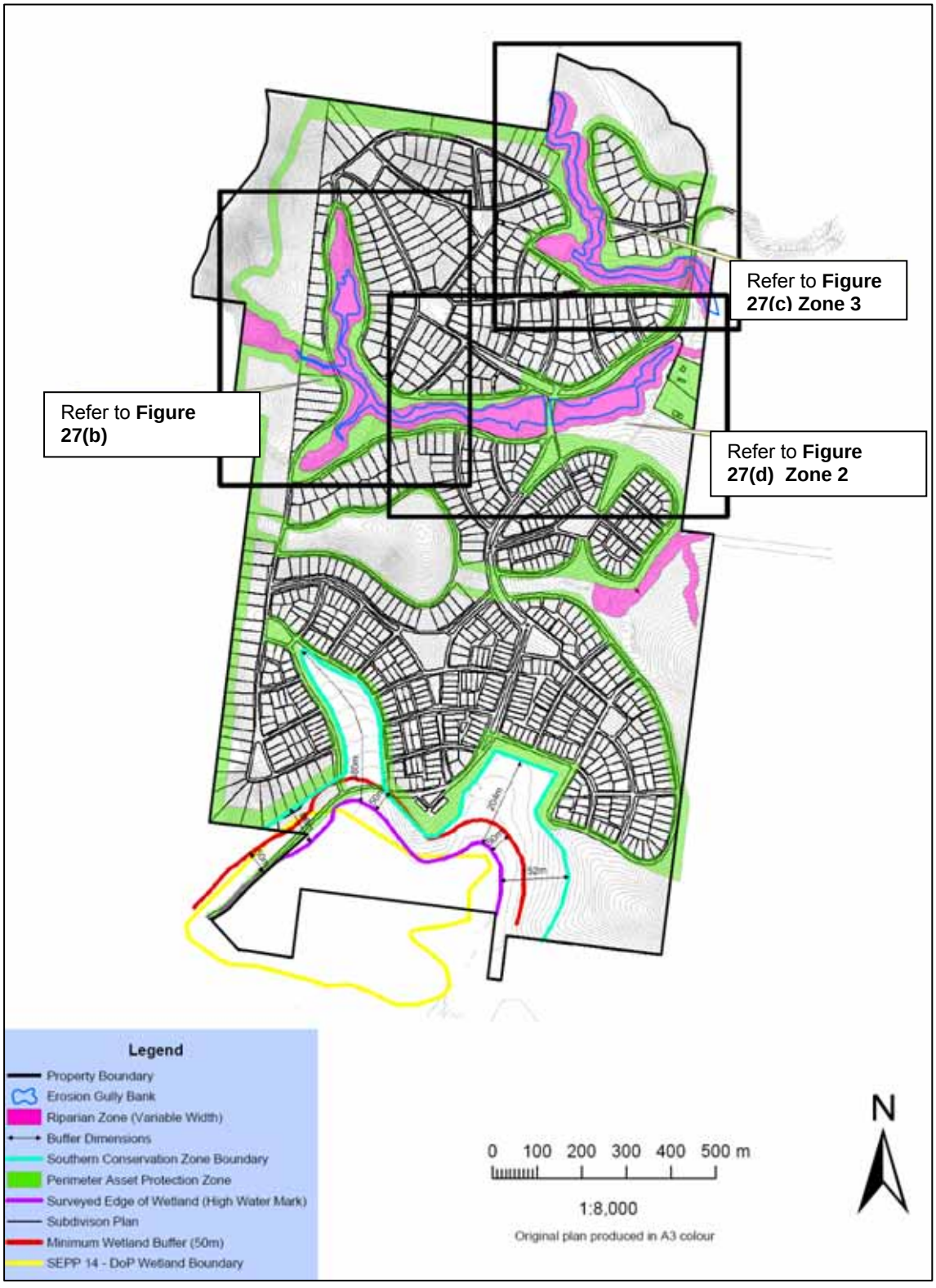


Figure 27 (a) – *Buffer Analysis*

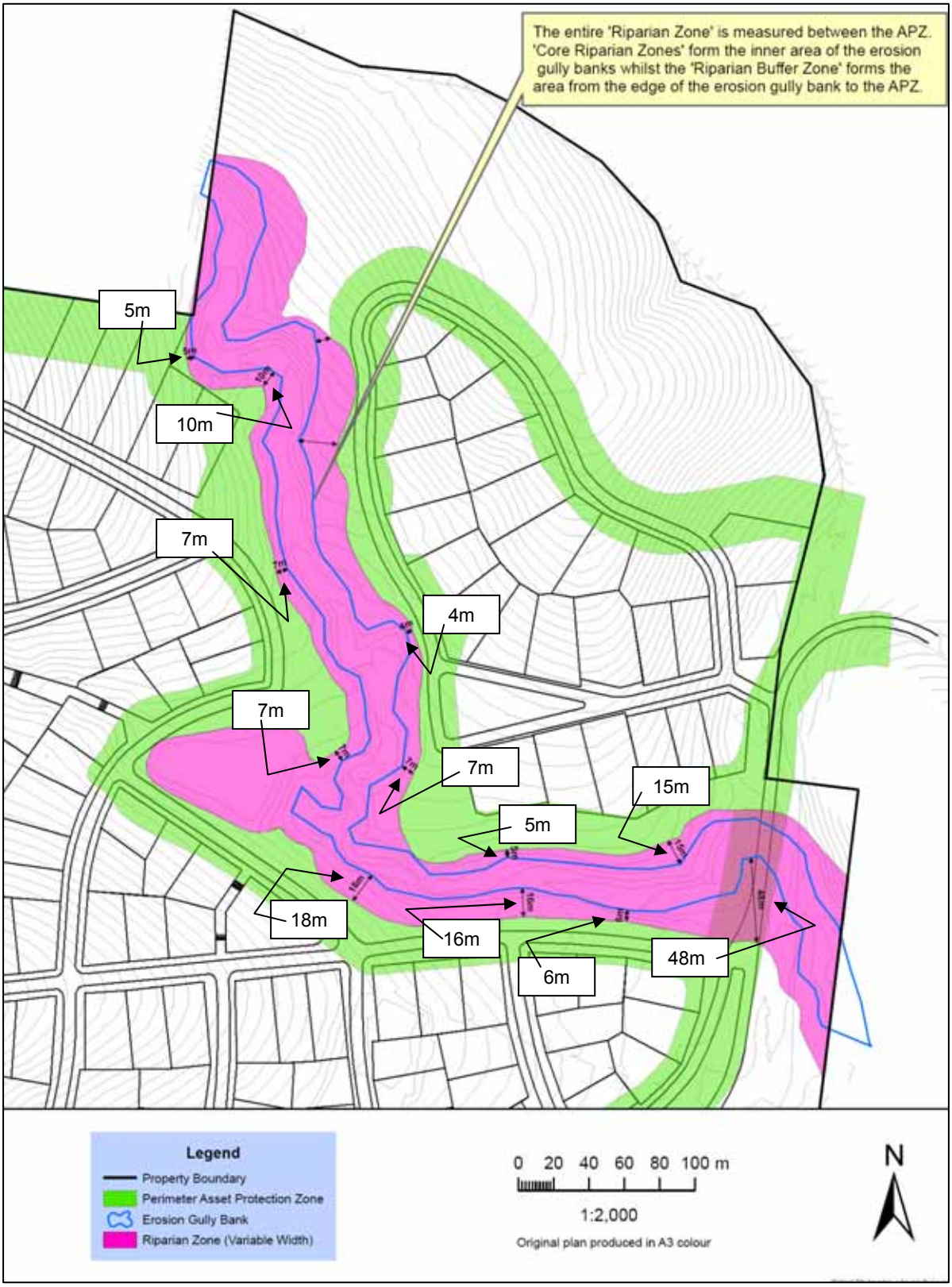


Figure 27 (b) – *Buffer Analysis – Zone 1*

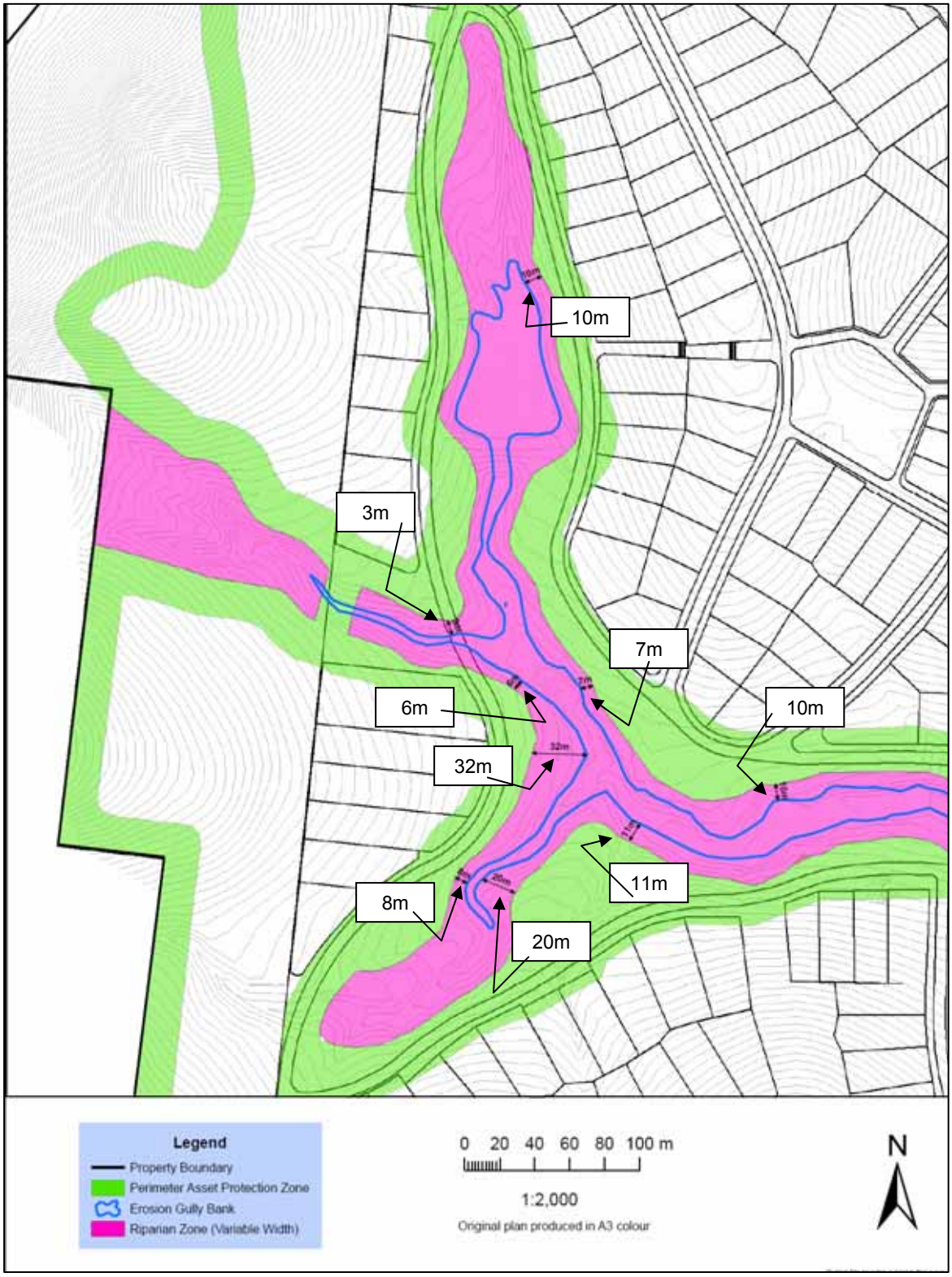


Figure 28 (c) – *Buffer Analysis – Zone 2*

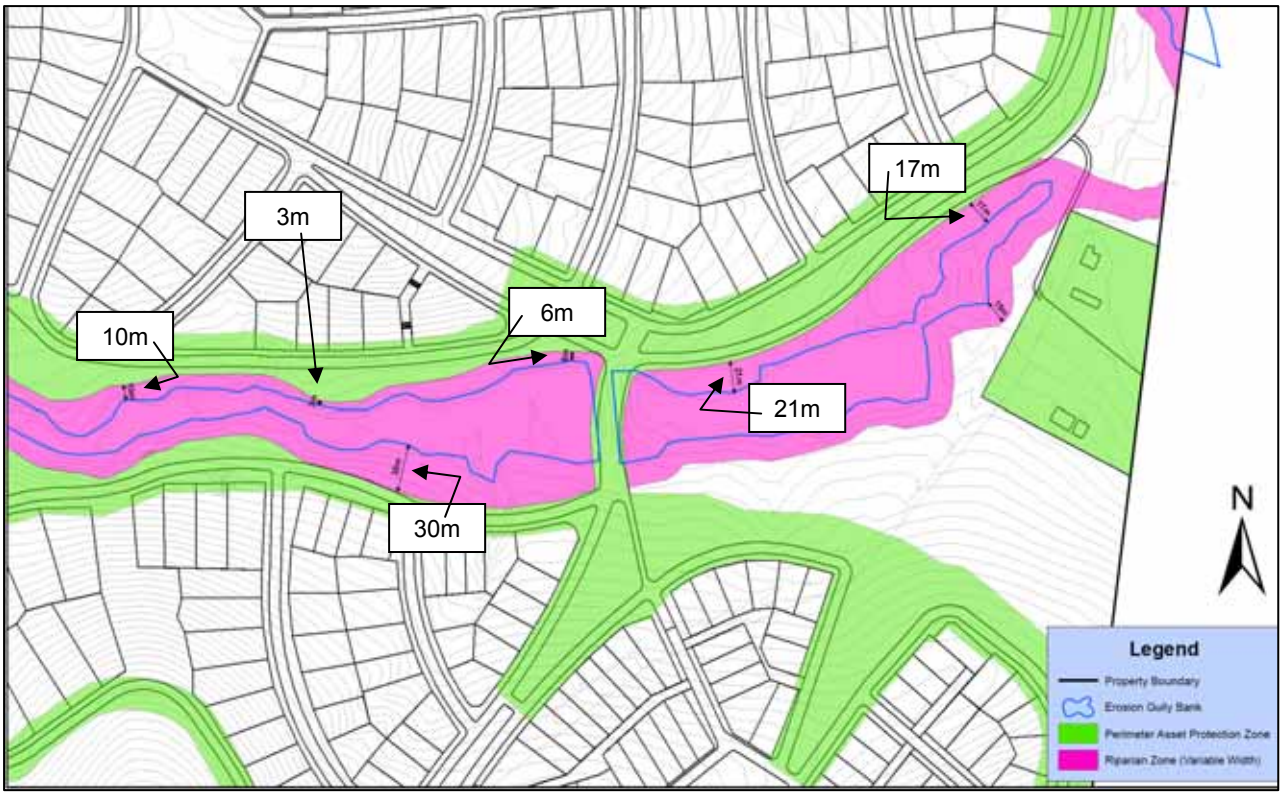


Figure 27 (d) – *Buffer Analysis - Zone 3*

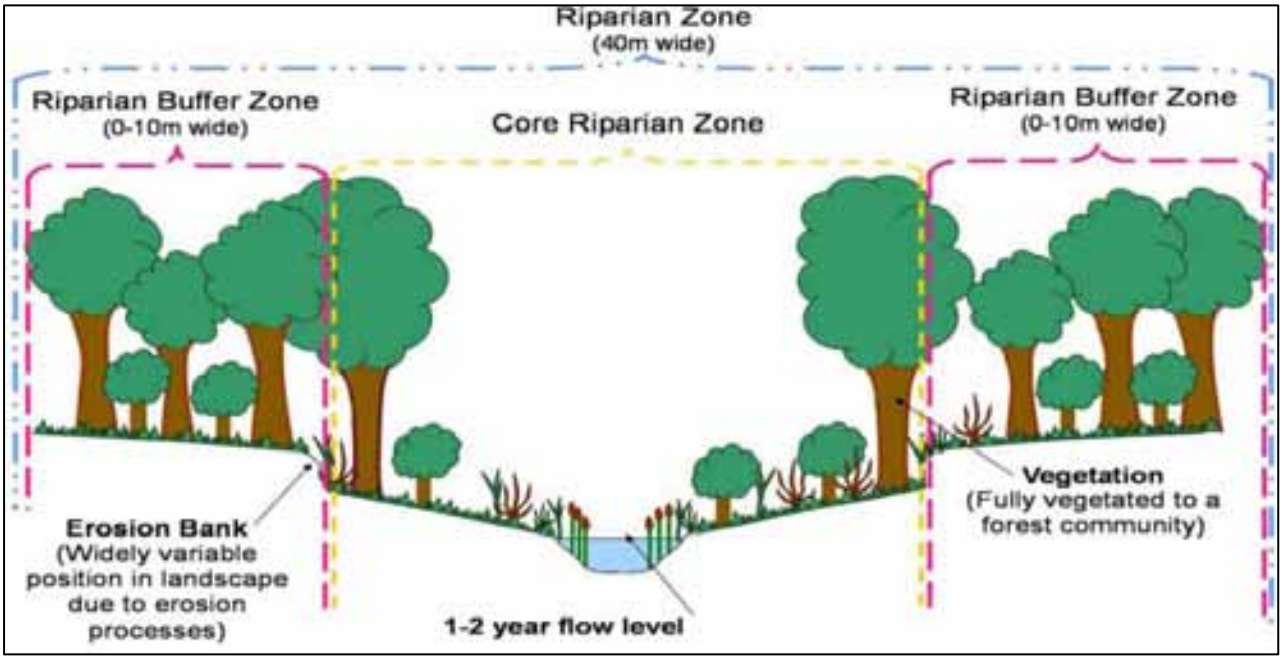


Figure 28 – *Proposed riparian management concept representing the minimum level of protection given to a category 3 watercourse. Dimensions may vary depending on the locality.*

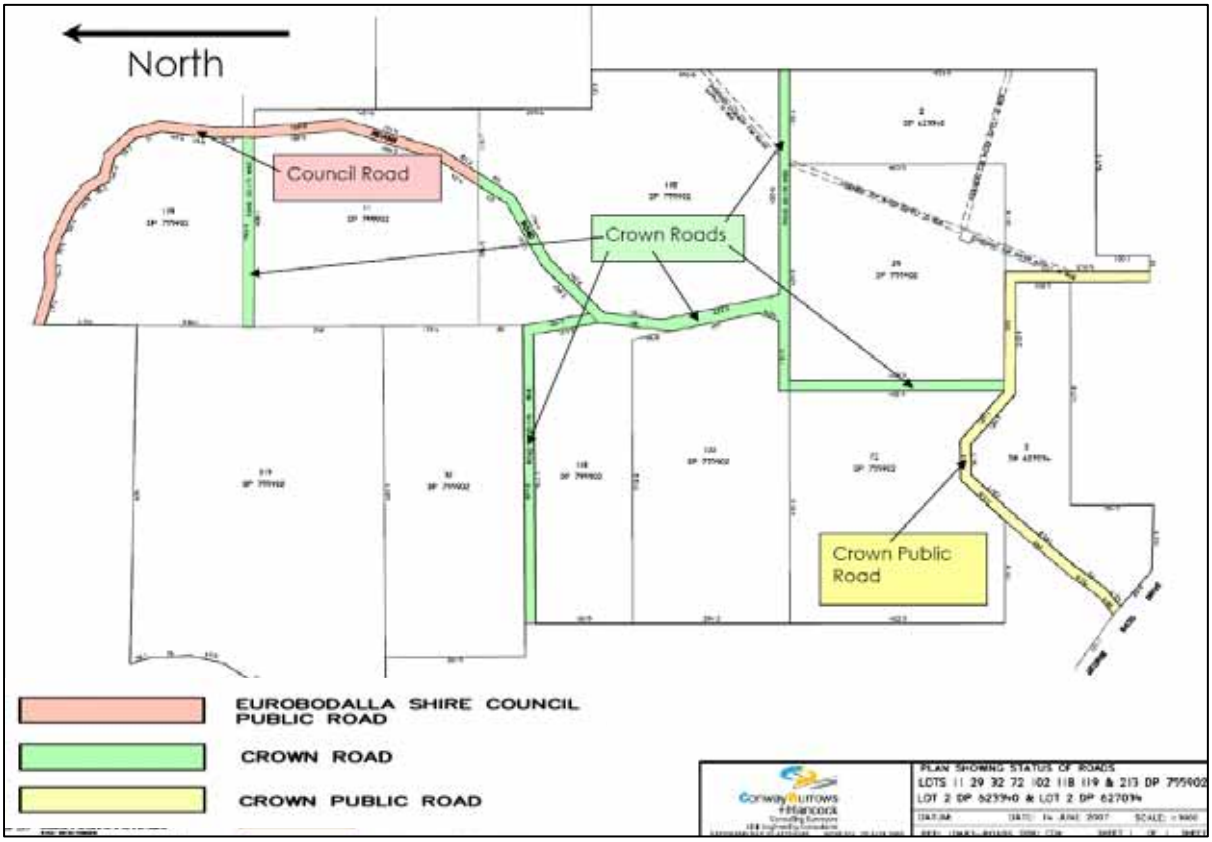


Figure 29 – *Ownership of Roads within the subject site*

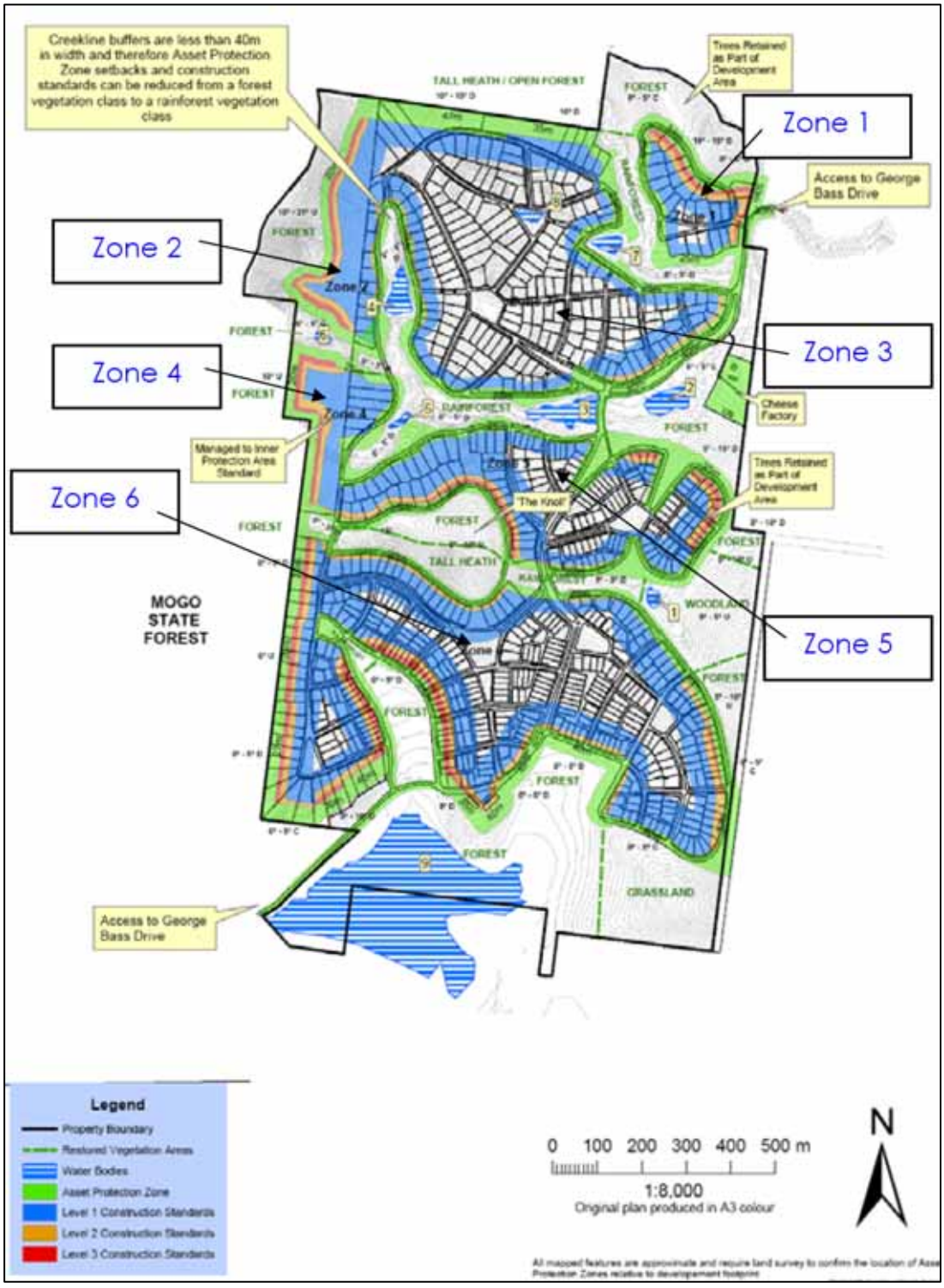


Figure 30 *- Bushfire Protection Map*

Figure 31 *– Aerial Photo showing Tributaries on the subject site*

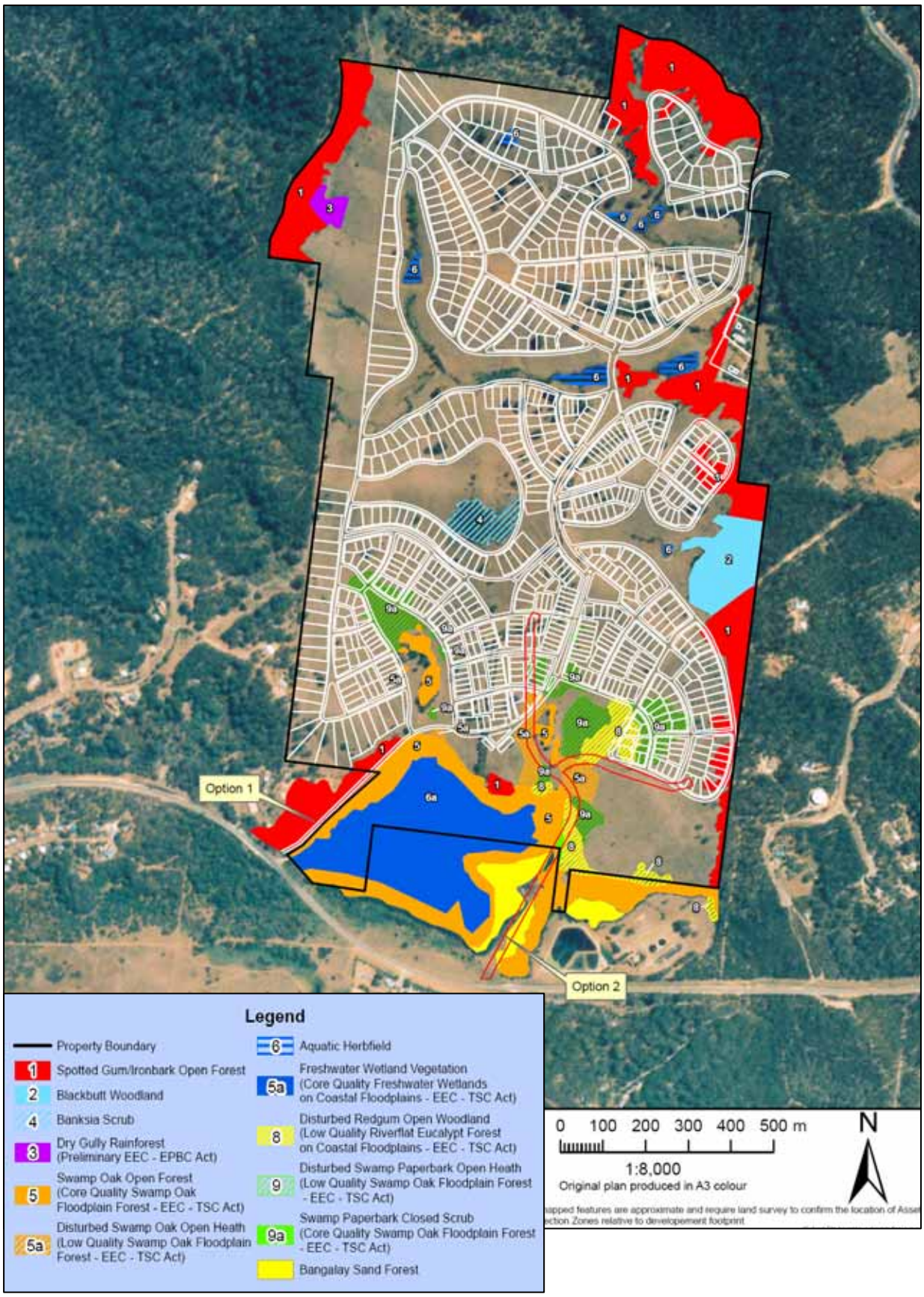


Figure 32 – *Ecological Assessment of South-Western Road Access Options*