



DARRYL ANDERSON CONSULTING PTY LTD

TOWN PLANNING & DEVELOPMENT CONSULTANTS

**ENVIRONMENTAL ASSESSMENT UNDER PART 3A OF THE ENVIRONMENTAL
PLANNING AND ASSESSMENT ACT, 1979 (AS AMENDED)
APPLICATION NO. 05_0198**

**PROPOSED RESIDENTIAL SUBDIVISION
AT LOT 1 DP 167380, LOT 1 DP 134787,
LOT 2 DP 961928 AND LOT 5 DP 1117326
WALMSLEYS ROAD AND STOTT STREET,
BILAMBIL HEIGHTS (SHIRE OF TWEED)**

PREPARED FOR:

WDLC PTY LTD, M WALMSLEY,
R WALMSLEY, H MABBUTT & D MILLER

PREPARED BY:

DARRYL ANDERSON CONSULTING PTY LTD

**NOVEMBER 2006
(REVISED JUNE 2009)**

Suite 7, Corporate House
8 Corporation Circuit
Tweed Heads South NSW 2486

Ph: 07 55233611
Fax: 07 55233612
Email: admin@daconsulting.com.au

TABLE OF CONTENTS

SECTION	PAGE
EXECUTIVE SUMMARY.....	6
1.0 BACKGROUND.....	7
1.1 Brief	7
1.2 Project Team.....	7
1.3 Director General's Environmental Assessment Requirements.....	8
1.4 Statement of Validity of this Environmental Assessment	12
2.0 DEVELOPMENT OBJECTIVES.....	12
3.0 SITE DESCRIPTION	13
3.1 Location and Context	13
4.0 DESCRIPTION OF THE PROJECT	14
5.0 DESCRIPTION OF EXISTING ENVIRONMENT AND SITE ANALYSIS.....	16
6.0 LIKELY ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES.....	17
6.1 Social and Economic Impacts	17
6.2 Bushfire Hazards	17
6.3 Landscape and Visual Impacts	20
6.4 Slope Analysis and Land Stability	20
6.5 Contamination	24
6.6 Cultural Heritage	24
6.7 Flora and Fauna.....	26
6.8 Access	34
6.9 Built Form.....	34
6.10 Acoustic Impacts.....	40
6.11 Air Quality	41
7.0 STATUTORY PLANNING	41
7.1 Environmental Planning and Assessment Act, 1979 (as amended) objects	41
7.2 Threatened Species Conservation Act.....	43
7.3 Environmental Protection and Biodiversity Conservation Act 1999 (Commonwealth)	43
7.4 Native Vegetation Act 2003.....	43
7.5 Tweed Local Environmental Plan 2000.....	44
7.6 North Coast Regional Environmental Plan 1988.....	48
7.7 State Environmental Planning Policy No. 14 – Coastal Wetlands.....	49
7.8 State Environmental Planning Policy No. 44 – Koala Habitat Protection	50
7.9 State Environmental Planning Policy No. 55 – Remediation of Land.....	50
7.10 State Environmental Planning Policy No. 71 – Coastal Protection.....	51
7.11 State Environmental Planning Policy – Major Projects	52
7.12 NSW Coastal Policy 1997	52
7.13 NSW Coastal Design Guidelines, February 2003	53
7.14 Tweed 2000+ Strategic Plan and Tweed Strategic Plan 4/24	59
7.15 North Coast Urban Planning Strategy, 1995.....	64
7.16 Tweed Shire Council Residential Development Strategy, 1991	64
7.17 Exhibited Draft Tweed LEP Amendment No. 21 – Vegetation Management	65
7.18 Section 94 Contribution Plans and Section 64 Contributions	65
7.19 Far North Coast Regional Strategy	67
7.20 Northern Rivers Farmland Protection Project.....	67

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165

Town Planning & Development Consultants

TABLE OF CONTENTS

SECTION	PAGE
8.0	DEVELOPMENT CONTROL PLANS67
8.1	Tweed Development Control Plan 2007, Part A2 - Site Access and Car Parking Code 67
8.2	Tweed Development Control Plan 2007, Part A3 - Development of Flood Liable Land 68
8.3	Tweed Development Control Plan 2007, Part A5 – Subdivision Manual..... 68
8.4	Tweed Development Control Plan 2007, Part A13 – Socio-Economic Impact Assessment..... 79
9.0	CONSULTATIONS AND THE PUBLIC INTEREST.....79
9.1	Community Consultation Strategy..... 83
10.0	ALTERNATIVES CONSIDERED AND STAGING83
10.1	Do Nothing Option 83
10.2	Medium Density Option..... 83
10.3	Low Density Residential Option 84
11.0	SUITABILITY OF THE SITE AND JUSTIFICATION FOR UNDERTAKING THE PROJECT...84
12.0	DRAFT STATEMENT OF COMMITMENTS85
13.0	CONCLUSION89

TABLES

TABLE 1 – DIRECTOR GENERAL'S ENVIRONMENTAL ASSESSMENT REQUIREMENTS.....	8
TABLE 2 – PROPERTY DESCRIPTION.....	13
TABLE 3 – RECOMMENDED PLANNING RESPONSES TO MATTERS REQUIRING CONSIDERATION FOR PURPOSES OF MITIGATING BUSHFIRE RISK	18
TABLE 4 – THREATENED FLORA SPECIES.....	28
TABLE 5 – NUMBERS OF RARE AND/OR THREATENED PLANT SPECIES	29
TABLE 6 – SUMMARY OF SURVEY EFFORT FOR FAUNA UNDERTAKEN DURING APRIL AND MAY 2008	30
TABLE 8 – ENVIRONMENTAL PLANNING AND ASSESSMENT ACT OBJECTS.....	41
TABLE 9 – SUMMARY OF PERMITTED DEVELOPMENT.....	45
TABLE 10 – CLAUSE 32B COASTAL LANDS	48
TABLE 11 – MATTERS FOR CONSIDERATION UNDER CLAUSE 8	51
TABLE 12 – COASTAL POLICY COMPLIANCE MATTERS	52
TABLE 13 – COASTAL DESIGN GUIDELINES (INLAND COASTAL CENTRES)	53
TABLE 14 – TWEED STRATEGIC PLAN 2004/2024	62
TABLE 15 – SECTION 94 CONTRIBUTION PLANS.....	65
TABLE 16 – CAR PARKING	67
TABLE 17 – TDCP 2007 PART A5 – SUBDIVISION MANUAL	68
TABLE 18 – URBAN DESIGN GUIDELINES.....	69
TABLE 19 – LAND FORMING	70
TABLE 20 – STORMWATER	72
TABLE 21 – URBAN STRUCTURE	75
TABLE 22 – SUBDIVISION INFRASTRUCTURE REQUIREMENTS.....	77
TABLE 23 – LOCAL PARKS - DEVELOPMENT STANDARDS.....	78
TABLE 24 – CONSULTATIONS	80
TABLE 25 – DRAFT COMMITMENTS.....	85

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

TABLE OF CONTENTS

SECTION	PAGE
<u>ANNEXURES</u>	
ANNEXURE 1	Locality Context Plan – Landsurv Pty Ltd, 17 February 2009
ANNEXURE 2	Site Analysis Plan – Landsurv Pty Ltd, 2 March 2009
ANNEXURE 3	Significant Farmland Plan – Landsurv Pty Ltd (Reference 35054), 2 March 2009
ANNEXURE 4	Existing Site Plan – Landsurv Pty Ltd, 2 March 2009
ANNEXURE 5	Plan of Constraints – Landsurv Pty Ltd, 2 March 2009
ANNEXURE 6	Plan of Local Environmental Plan Amendment No. 21 Overlay – Landsurv Pty Ltd, 2 March 2009
ANNEXURE 7	Plan of Proposed Staging – Landsurv Pty Ltd, 2 March 2009
ANNEXURE 8	Plan of Proposed Land to be Dedicated to Council – Landsurv Pty Ltd, 2 March 2009
ANNEXURE 9	Proposed Subdivision Plan Overlay on Aerial Photograph – Landsurv Pty Ltd, 2 March 2009
ANNEXURE 10	Proposed Subdivision Plans (3 sheets) – Landsurv Pty Ltd, 2 March 2009 and Draft Neighbourhood Management Statement and Community Title Subdivision Plan (12 Sheets)
ANNEXURE 11	Soil Contamination Assessment for Lot 1 DP 167380, Lot 2 DP 961928 and Lot 1 DP 134787, Walmsleys Road, Bilambil Heights – Gilbert and Sutherland Pty Ltd, September 2003 and Soil Contamination Assessment for Lot 4 DP 1054848 Stott Street, Bilambil Heights - Gilbert and Sutherland Pty Ltd, October 2003
ANNEXURE 12	Report on Slope Stability Assessment, Lot 5 of Proposed Subdivision of Lot 4 DP 1054848 Stott Street, Bilambil Heights for J & L Dickinson – Maiden Geotechnics, December 2003/January 2004; Report on Slope Stability Assessment, Proposed Residential Subdivision, Lot 1 DP 167380 Walmsleys Road, Bilambil Heights for Peter Walmsley – Maiden Geotechnics, June/July 2004; Slope Stability Assessment Report Update Proposed Residential Subdivision, Lot 1 DP 167380, Lot 1 DP 134787 and Lot 2 DP 961928 Walmsleys Road, Bilambil NSW – Maiden Geotechnics, May 2009
ANNEXURE 13	Ecological and Bushfire Planning Assessment – Biolink Pty Ltd, June 2008
ANNEXURE 14	P Walmsley and J & L Dickinson Infrastructure Impact Assessment Proposed Residential Subdivision Lot 1 DP 134787, Lot 1 DP 167380 and Lot 2 DP 961928 Walmsleys Road and Lot 5 DP 1117326 Stott Street, Bilambil Heights NSW, Revision 7 – Opus Qantec McWilliam Pty Ltd , 22 April 2009
ANNEXURE 15	Socio-Economic Impact Statement – Darryl Anderson Consulting Pty Ltd, November 2006 (Revised February 2008)
ANNEXURE 16	Preliminary Cultural Heritage Assessment of Indigenous Values, Lot 1 DP 167380, Lot 1 DP 134787, Lot 2 DP 961928 and Part Lot 4 DP 1054848, Walmsleys Road and Stott Street, Bilambil Heights – Davies Heritage Consultants Pty Ltd, September 2007; Correspondence from Department of Planning, Dated 8 October 2007 and Accompanying Letter from Gold Coast Native Title Group, Dated 21 September 2007; Cultural Heritage Processes for the Bilambil Heights Subdivision – Eastern Yugambeh Ltd, February 2008; Correspondence from Eastern Yugambeh Limited – Regarding Cultural Heritage for Bilambil Heights Subdivision, Dated 13 February 2008;

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

TABLE OF CONTENTS

SECTION	PAGE
ANNEXURE 16 (Cont'd)	Cultural Heritage Processes for the Bilambil Heights Subdivision – Eastern Yugambeh Ltd, April 2008; Correspondence from Eastern Yugambeh Limited – Regarding Cultural Heritage for Bilambil Heights Project, Dated 18 August 2008
ANNEXURE 17	Future Residential Character and Built Form Report – BDA Architecture, 18 October 2007
ANNEXURE 18	Landscape Strategy – Ambrosia Contractors, November 2006
ANNEXURE 19	Environmental Noise Impact Report – CRG Traffic and Acoustics Pty Ltd, 30 October 2007
ANNEXURE 20	Agency Consultations <ul style="list-style-type: none"> • Minutes of the Development Assessment Panel, Dated 17 January 2003 • Meeting Notes – Planning Focus Meeting, Dated 11 May 2004 • Comments by Mr Pradesh Ramiah – Department of Infrastructure, Planning and Natural Resources, Dated 20 July 2004 • Correspondence from Telstra, Dated 14 April 2005 • Correspondence from Country Energy, Dated 7 April 2005 • Correspondence from the Department of Primary Industry, Dated 7 April 2005 and (Email) 1 August 2007 • Correspondence from the Department of Natural Resources, Dated 31 October 2006 • Correspondence from Department of Planning, Dated 18 December 2006 • Correspondence from the Roads and Traffic Authority, Dated 19 September 2007 • Correspondence from the Department of Environment and Climate Change, Dated 23 July 2007 • Correspondence from the Rural Fire Service, Dated 10 January 2007 • Correspondence from the Department of Planning (Grafton Regional Office), Dated 12 July 2007 • Correspondence from Tweed Shire Council (Email), Dated 19 September 2008 Regarding Acceptance of Roads, Tweed Shire Council Resolution of 19 June 2007 – Kennedy Drive Traffic Capacity and Email of 28 March 2008 Confirming that MP05_0198 has been included in the Kennedy Drive Traffic Management Catchment • Correspondence from the Department of Planning (Email), Dated 10 March 2008 • Correspondence from the Commonwealth Department of the Environment, Water, Heritage and the Arts (Email), Dated 1 September 2008

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

**DRAFT ENVIRONMENTAL ASSESSMENT UNDER PART 3A
OF THE ENVIRONMENTAL PLANNING & ASSESSMENT ACT, 1979 (AS AMENDED)
APPLICATION NO. 05_0198**

EXECUTIVE SUMMARY

Darryl Anderson Consulting Pty Ltd has been commissioned by the owners of the land to prepare this Environmental Assessment to accompany a Major Project Application for a residential subdivision of the subject land.

The land to which the application relates is located approximately 3km southeast of the NSW/Queensland state border. The site forms part of the Bilambil Heights Release Area which is identified in the Tweed Shire Council Tweed 2000+ Strategic Plan, the Tweed Development Program, 1996, the North Coast Urban Planning Strategy 1995 and the Draft Far North Coast Regional Strategy as an urban release area for up to approximately 8000 people.

Major Project Application No. 05_0198 and a Draft Environmental Assessment Report were originally lodged on 1 December 2006. Following consideration of the Draft Environmental Assessment, the Department advised on 18 December 2006 that supplementary information and a revised Statement of Commitments are required addressing various matters in the Schedule attached to the Department's letter (**Annexure 21**). Those matters were addressed in a revised Environmental Assessment (February 2008) which was submitted to the Department on 15 February 2008.

On 10 March 2008 the Department advise that following a review of the revised Draft Environmental Assessment, a number of matters need to be addressed. A copy of the schedule containing the matters is contained at **Annexure 21**.

On 11 March 2008 the Department of Planning issued updated Director General's Environmental Assessment Requirements. The updated Director General's Environmental Assessment Requirements are reproduced in Section 1.3. This revised Environmental Assessment addresses the issues raised by the Department on 10 March 2008 and the updated Director General's Environmental Assessment Requirements.

The site has a total area of approximately 13.62 hectares of which approximately ten hectares is zoned 2(c) Urban Expansion. This Major Project application proposes the creation of 83 residential allotments plus one public reserve allotment and one sewer pump station allotment over that part of the land zoned 2(c).

Following detailed identification and analysis of the site's opportunities and constraints it has been concluded that the most appropriate form of development for the site is a conventional low density residential subdivision, consistent with the existing and desired future character of existing residential areas adjacent to the site.

All normal urban infrastructure will be provided to facilitate development of the allotments including the connection of Walmsleys Road and Stott Street such that alternative traffic routes for existing and future residents will be available and a through bus route will also be created.

Dedication of a suitable area of embellished passive open space on the site is proposed to satisfy demand generated by the development and contributions towards the augmentation of existing structured open space areas located to the northeast of the site are also proposed.

The site is conveniently located in relation to existing neighbourhood shopping facilities at Panorama Drive/Scenic Drive and also to the existing Seagulls Club complex.

Having regard to all relevant statutory planning considerations, the site's opportunities and constraints and the established ongoing demand for residential property in this neighbourhood it is concluded that development of the land as proposed is both sustainable and justifiable in the public interest.

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

1.0 BACKGROUND

1.1 Brief

The owners of the land have commissioned Darryl Anderson Consulting Pty Ltd to prepare this Environmental Assessment to accompany a Part 3A application for a residential subdivision. The site is located within the Bilambil Heights Release Area and is zoned 2(c) Urban Expansion.

The location and zoning of the site is shown on **Figure 1**.

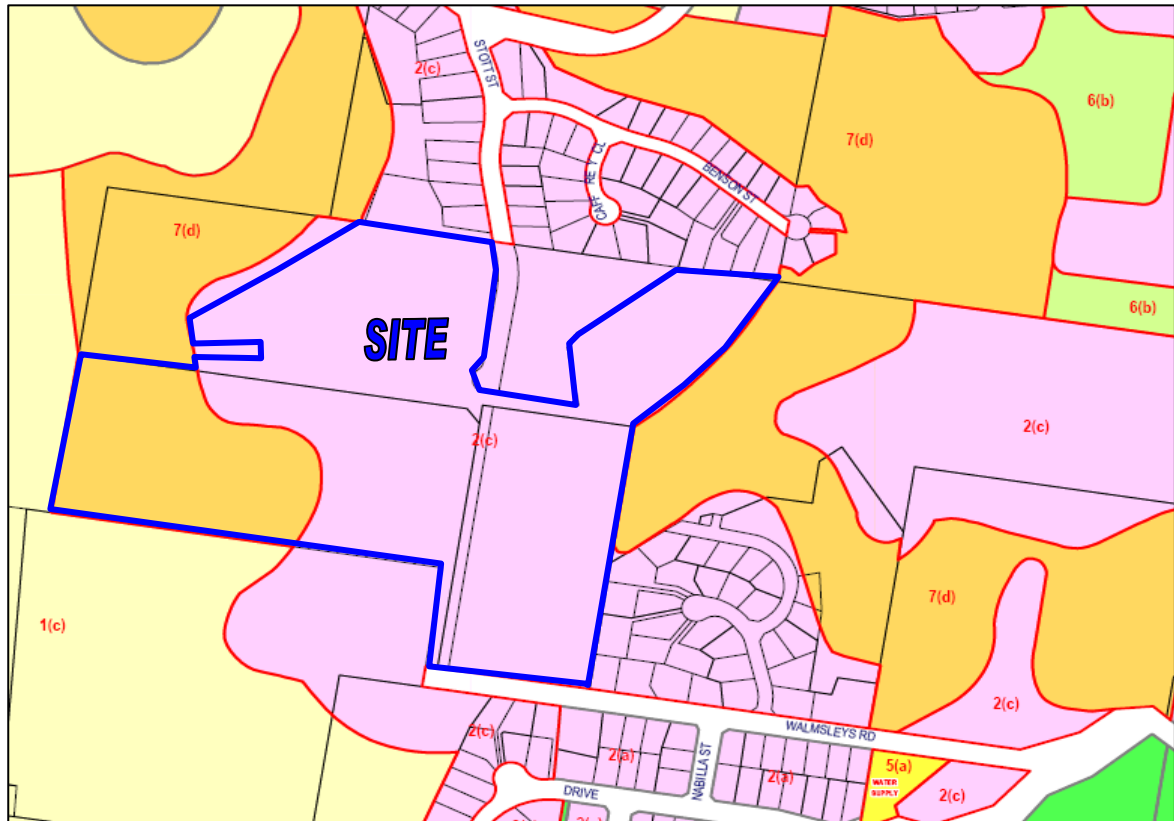


Figure 1 – Site Location and Zoning

The proposal reflects the site's opportunities and constraints and is consistent with all relevant statutory planning considerations as demonstrated in this Assessment.

1.2 Project Team

The following consultants comprise the Project Team:

Darryl Anderson Consulting Pty Ltd

- Town Planning and Development Consultants
- Statutory Planning
- Environmental Assessment Report Compilation

Eastern Yugambah Ltd

- Cultural Heritage Assessment

Burns Design Architecture

- Urban Design

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165

Town Planning & Development Consultants

Maiden Geotechnics
• Land Stability Report

BlueLAND Engineering
• Infrastructure Assessment

Gilbert and Sutherland Pty Ltd
• Contamination Assessment

Biolink Pty Ltd
• Flora and Fauna and Bushfire Assessment

McLauchlan Surveying
• Survey
• Urban Design

1.3 Director General's Environmental Assessment Requirements

The Director General's updated Environmental Assessment Requirements (issued on 11 March 2008) are contained in Table 1. The table indicates where each of the relevant matters is addressed in this Report.

A draft Statement of Commitments is contained at Section 12.0.

TABLE 1 – DIRECTOR GENERAL'S ENVIRONMENTAL ASSESSMENT REQUIREMENTS 11111	
REQUIREMENT	SECTION
General Requirements	
The Environmental Assessment (EA) must include:	
1. An executive summary;	Page 6
2. A description of the proposal including: <ul style="list-style-type: none">• description of the site and surrounds;• suitability of the site for the proposed development;• likely environmental, social and economic impacts;• justification for undertaking the project; and• outline of the staged implementation of the project;• alternatives considered	Section 3.0 Section 5.0 Section 6.0 Section 11.0 Section 4.0 Section 10.0
3. A thorough site analysis and description of the existing environment;	Section 5.0
4. Consideration of any relevant statutory and non-statutory provisions and identification of any non-compliances with such provisions, in particular relevant provisions arising from environmental planning instruments, Regional Strategies (including draft Regional Strategies) and Development Control Plans.	Section 7.0
5. Consideration of the consistency of the project with the objects of the <i>Environmental Planning and Assessment Act 1979</i> .	Section 7.0
6. Consideration of impacts, if any, on matters of National Environmental Significance under the Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i> ;	Section 7.0
7. An assessment of the potential impacts of the project and a draft Statement of Commitments, outlining environmental management, mitigation and monitoring measures to be implemented to minimise any potential impacts of the project;	Sections 6.0 and 12.0
8. The plans and documents outlined in Attachment 2 ;	See Attachment 2

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

TABLE 1 – DIRECTOR GENERAL'S ENVIRONMENTAL ASSESSMENT REQUIREMENTS 11111	
REQUIREMENT	SECTION
9. A signed statement from the author of the Environmental Assessment certifying that the information contained in the report is neither false nor misleading; and	Section 1.4
10. A detailed assessment of the key issues specified below and a table outlining how and where in the EA document these key issues have been addressed.	Sections 6.0, 7.0, 8.0, 9.0
Key Issues	
The Environmental Assessment must address the following key issues:	
1. Subdivision Design, Layout and Desired Future Character	
1.1 Assess the suitability of the proposed development with the surrounding area; visual impacts from public locations; subdivision design; pedestrian & bicycle movement to, within and through the site:	Section 6.9, Annexure 17
1.2 Provide details of proposed staging and assessment of implications in terms of impact on subdivision design and infrastructure provision.	Annexures 5, 14
1.3 Address consistency with the character of existing development in terms of the locality, street frontage, scale, building envelopes & future built form controls, aesthetics, energy & water efficiency and safety .	Annexure 17
1.4 Consider the <i>Coastal Design Guidelines for NSW</i> and SEPP 71 - Coastal Protection	Sections 7.10, 7.13
1.5 Address appropriate subdivision layout/s (including the appropriateness of battle-axe blocks) taking account of steep land (>20%) and the need for vegetation clearing having regard to the Tweed Shire Council Development Control Plan 2007 -Section A5 - Subdivision Manual.	Section 6.9, Annexure 17
2. Stormwater	
2.1 Submit a Water Cycle Management Plan which demonstrates the means and adequacy of managing stormwater within the site, in particular detailing measures to show that the quality and quantity of stormwater from the developed site will not adversely affect the downstream receiving environment (Cobaki and Terranora Broadwaters and SEPP 14 Coastal Wetland to the north of the development) and the existing stormwater drainage patterns/regime.	Annexure 14
2.2 Demonstrate how water will be re-used on-site (e.g. rainwater tanks, greywater recycling) and how the principles of Water Sensitive Urban Design will be incorporated into the development.	Annexure 14
3. Flora and Fauna	
3.1 Provide an assessment of all threatened or vulnerable flora and fauna species, specifically <i>Lepiderema Pulchella</i> and <i>Amiophospermum Whitei</i> , which occur on the site or within 5km of the subject site. Information on threatened species and Recovery Plans can be obtained from the BioNet website (www.bionet.nsw.qov.au) or the DEC threatened species website (www.environment.nsw.aov.au/threatspec/index).	Section 7.0, Annexure 13
3.2 The Cobaki Broadwater has great ecological significance in the Lower Tweed Catchment area. The EA must consider the <i>Cobaki Broadwater Management Plan</i> .	Annexure 14
4. Aboriginal and Cultural Heritage	
4.1 Identify whether the site has significance to Aboriginal cultural heritage and identify appropriate measures to preserve any significance (Aboriginal community consultation should be undertaken in accordance with DEC's <i>Interim Community Consultation Requirements for Applicants</i>).	Section 6.6, Annexure 16
4.2 Identify any items of European heritage significance and, where relevant, provide measures for the conservation of such items.	Section 6.6
5. Contamination and Remediation of Site	
5.1 Identify any areas of contamination on site and provide details of measures to ensure these can be managed.	Section 6.5, Annexure 11
5.2 Consider the <i>Managing Land Contamination: Planning Guidelines – SEPP 55 – Remediation of Land</i> .	Section 7.9

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

TABLE 1 – DIRECTOR GENERAL'S ENVIRONMENTAL ASSESSMENT REQUIREMENTS 11111	
REQUIREMENT	SECTION
6. Geotechnical	
6.1 Submit a geotechnical assessment report that details appropriate geotechnical investigations to establish certainty in terms of site stability and suitability for the proposal.	Section 6.4, Annexure 12
7. Agriculture	
7.1 Consider the <i>Northern Rivers Farmland Protection Project</i> in relation to regionally significant farmland within 1km of the site.	Section 7.20, Annexure 3
8. Bushfire	
8.1 Demonstrate compliance with the relevant provisions of <i>Planning for Bushfire Protection (PBP) 2006</i> and <i>Australian Standard 3959 – Building in Bush Fire Prone Areas..</i>	Section 6.2, Annexure 13
9. Traffic & Access	
9.1 Provide an appropriate traffic report addressing site access, internal traffic movement I hazards, the road system capacity, local traffic speed environment and facilities for pedestrians, cyclists (internal and external connections) and public transport. In particular, the Environmental Assessment should demonstrate how issues associated with the capacity of Kennedy Drive at the Cobaki Bridge will be addressed.	Section 6.8, Annexure 14
9.2 Consider Tweed Shire Council's Tweed 2000+ Strategic Plan Policy and Action Statement 114 when assuming adequate road infrastructure IS available for the proposed development. In particular, note that the construction of the Cobaki Parkway has not yet commenced and is subject to the construction schedule of private developers.	Section 7.14, Annexure 14
10. Noise	
10.1 Demonstrate that the proposal will be designed, constructed, operated and maintained so that there are no adverse impacts from noise (including traffic noise) on amenity in the locality.	Section 6.10, Annexure 19
11. Provision of Public Service and Infrastructure	
11.1 Address the existing capacity and requirements of the development for electricity, waste disposal and telecommunications. Identify staging, if any, of infrastructure works.	Annexure 14
11.2 Demonstrate how the disposal of effluent will be achieved, in particular, the ability of those allotments to the west of the site (Lot 5 DP 1117326 and Lot 2 DP 981928) to be serviced without the provision of pumping stations or access to the adjacent land.	Annexure 14
Consultation	
During the preparation of the Environmental Assessment, you should undertake an appropriate and justified level of consultation with the following:	
<i>(a) Agencies or other authorities</i>	
<ul style="list-style-type: none"> • Commonwealth Department of the Environment, Water, Heritage and the Arts; • Tweed Shire Council; • Department of Environment and Climate Change; • Department of Primary Industries; • NSW Rural Fire Service; • Department of Water and Energy (Department of Natural Resources); • Roads and Traffic Authority; • Department of Lands; • NSW Police Service; • State Emergency Service; • Northern Rivers Catchment Management Authority; 	Section 9.0, Annexure 20 Section 9.0, Annexure 20 Section 9.0, Annexure 20 Section 9.0, Annexure 20 Section 9.0, Annexure 20 Section 9.0, Annexure 20 Section 9.0, Annexure 27 Not Consulted Not Consulted Not Consulted Not Consulted

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

TABLE 1 – DIRECTOR GENERAL'S ENVIRONMENTAL ASSESSMENT REQUIREMENTS 11111	
REQUIREMENT	SECTION
<ul style="list-style-type: none"> Local Aboriginal Land Council/s and other Aboriginal community groups; and Infrastructure providers 	<p>Section 9.0</p> <p>Annexure 14</p>
<p>(b) <i>Public</i></p> <p>Document all community consultation undertaken to date or discuss the proposed strategy for undertaking community consultation. This should include any contingencies for addressing any issues arising from the community consultation and an effective communications strategy.</p>	Section 9.0
The consultation process and the issues raised should be described in the Environmental Assessment.	
Deemed Refusal Period	
60 days	
ATTACHMENT 2 – PLANS AND DOCUMENTS TO ACCOMPANY THE APPLICATION	
Plans and Documents of the Development	
The following plans, architectural drawings and diagrams of your proposal as well as the relevant documents will be required to be submitted:	
<p>1. The existing site survey plan is to be drawn to 1:500 scale (or other appropriate scale) and show:</p> <ul style="list-style-type: none"> the location of the land, the measurements of the boundaries of the land, the size of the land and north point; 	<p>Annexure 4</p> <p>Annexure 4</p>
<ul style="list-style-type: none"> the existing levels of the land in relation to buildings and roads; location and height of existing structures on the site. 	<p>Annexure 4</p> <p>Annexure 4</p>
<p>2. A Site Analysis Plan must be provided which identifies existing natural elements of the site (including all hazards and constraints), existing vegetation, property dimensions, footpath crossing levels and alignments, existing pedestrian and vehicular access points and other facilities, slope and topography, natural features such as watercourses, rock outcrops, utility services, boundaries, orientation and view corridors.</p>	Annexure 6
<p>3. A locality/context plan drawn to 1:500 scale (or other appropriate scale) should be submitted indicating:</p> <ul style="list-style-type: none"> significant local features such as parks, community facilities and open space, water courses and heritage items; the location and uses of existing buildings, shopping and employment areas; and traffic and road patterns, pedestrian routes and public transport nodes; and 	Annexure 2
<p>4. Subdivision plans are to show the following:-</p> <ul style="list-style-type: none"> the location, boundary dimensions, site area and north point of the land, and names of roads fronting the land; title showing the description of the land with lot and DP numbers etc; existing and proposed subdivision pattern including all measurements and sites areas of existing and proposed allotments; location and details of all proposed roads and footpaths; location of all structures proposed and retained on site; cross sections of roads, including gradients, widths, road names, footpaths etc. existing and proposed finished levels in relation to roads, footpaths and structures; location and details of access points to the subdivision; existing vegetation on the land and vegetation to be retained; location of services and infrastructure, and proposed methods of draining the land; 	Annexures 7, 9, 10

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

TABLE 1 – DIRECTOR GENERAL'S ENVIRONMENTAL ASSESSMENT REQUIREMENTS 11111	
REQUIREMENT	SECTION
<ul style="list-style-type: none"> any easements, covenants or other restrictions either existing or proposed on the site; type of subdivision proposed (Torrens, strata and/or community title). 	
5. Water Cycle Management Plan - illustrating the concept for stormwater management from the site and must include details of any major overland flow paths through the site and any discharge points to the street drainage system. Where an on-site detention system is required, the type and location must be shown and must be integrated with the proposed landscape design. Site discharge calculations should be provided;.	Annexure 14
6. Landscape Concept Plan - plan or drawing that shows the basic detail of planting design and plant species to be used, mature height and spread, number of plants to be utilised and surface treatments (i.e. pavers, lawn etc).	Annexure 18
Specialist advice	
<p>Specialist advice, where required to support your Environmental Assessment, must be prepared by suitably qualified and practising consultants in relation to issues including, but not limited to, the following:</p> <ul style="list-style-type: none"> Planning; Flora and Fauna; Bushfire; Traffic; Landscaping; Geotechnical and/or hydrogeological (groundwater); Stormwater/drainage; Urban Design/Architectural; Contamination; On-site effluent disposal; BCA compliance. 	<p>Darryl Anderson Consulting Pty Ltd Biolink Pty Ltd Biolink Pty Ltd CRG Traffic & Acoustics Pty Ltd Ambrosia Contractors Maiden Geotechnics Opus Qantec McWilliam BDA Architecture Gilbert and Sutherland Pty Ltd Opus Qantec McWilliam BDA Architecture</p>

1.4 Statement of Validity of this Environmental Assessment

This Environmental Assessment has been compiled by Darryl Anderson of Darryl Anderson Consulting Pty Ltd based on input from a number of other specialist consultants as identified in Section 1.2.

Major Project Application No. 05-0198

I certify that I have prepared the content of this Environmental Assessment and to the best of my knowledge:

- It is in accordance with the Environmental Planning and Assessment Act and Regulation.
- It is true in all material particulars and does not, by its presentation or omission of information, materially mislead.

Yours faithfully
Darryl Anderson Consulting Pty Ltd


Darryl Anderson
Director

2.0 DEVELOPMENT OBJECTIVES

The development site is located within the Bilambil Heights Release Area which is identified in the Tweed Residential Development Strategy 1991, Tweed 2000+ Strategic Plan, Tweed 2024 Strategic Plan, Tweed Development Program (17 December 1996), North Coast Urban Planning Strategy 1995 and Draft Far North Coast Regional Strategy (2006) as an urban release area. In this context, the objectives of the proposal include:

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

- To provide suitable residential lots to meet ongoing demand;
- To implement the provisions of the various land release strategies applicable to the site;
- To provide a range of lot sizes and housing choices;
- To provide appropriate infrastructure and services.

3.0 SITE DESCRIPTION

3.1 Location and Context

The land to which this Major Project Application relates is described as follows:

TABLE 2 – PROPERTY DESCRIPTION				
LOT	DP	AREA	OWNER	ZONING
1	134787	9 ha	M Walmsley	Part 2(c) Urban Expansion 5.28 ha. Part 7(d) Environmental Protection Scenic Escarpment 3.7 ha
1	167380		P Walmsley	
2	961928		H Mabbutt D Miller	
5	1117326	4.62 ha	WDLC Pty Ltd ATF Dickinson Superannuation Fund	2(c) 4.62 ha
TOTAL		13.62 ha		

The location of the site is shown on **Figure 2**.



Figure 2 – Aerial Photograph

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165

Town Planning & Development Consultants

Annexure 4 shows the configuration, areas and dimensions of the existing lots and their real property descriptions. Vehicular access is provided from the Pacific Highway via Kennedy Drive, Scenic Drive, Walmsleys Road, Piggabeen Road and Stott Street.

Located approximately 3km southeast of the NSW/Qld state border and Coolangatta airport, the development site forms part of the Bilambil Heights Release Area, which is identified in the Tweed Shire Council's Tweed 2000+ Strategic Plan and the Tweed Development Program (Tweed Shire Council 17 December 1996) as an urban release area for up to 8000 people.

Annexure 1 indicates the spatial relationship between the site and other key facilities within the Tweed Heads area. Beaches, schools (primary and secondary) local and subregional shopping centres, sporting facilities and industrial precincts are located within approximately 5km of the site. A local shopping centre and the Seagulls Club are located on Scenic Drive approximately 1.5km by road east of the site.

To the southeast of the site is the existing Tweed Pacific residential estate comprising mainly detached dwelling houses on lots of approximately 700 m² to 800 m² in area. The density of this estate is approximately ten dwellings per hectare. To the north is the Tweed Highlands residential estate comprising lots of 700m² to 800m² and an aged care complex. This estate also achieves a density of approximately ten dwellings per hectare. Land to the east and west of the development site is currently vegetated and is not used for any purpose.

Annexure 2 comprises an Aerial Photograph showing the land in its local context, together with broad site opportunities and constraints. **Annexure 2** also shows the juxtaposition of the subject site and adjacent land. In summary, land to the south and east is used for urban purposes and is zoned residential.

To the northeast the adjoining land is forested and zoned 7(d) Environmental Protection Scenic Escarpment. This land is not used for any economic purpose and given its physical characteristics its highest and best use is probably limited to apiary.

To the north, part of the adjoining land is used for urban purposes and is zoned residential. The remaining adjoining land to the north is zoned Rural and Environmental Protection and is currently used for grazing.

Land to the west of the development site is zoned 1(c) Rural Living and is currently used for cattle grazing. The adjoining land to the south of the site is zoned part 1(c) and part 2(c) and is used for grazing and other agricultural purposes. A dwelling exists adjacent to the southern boundary of the site on Lot 2 DP 748915.

Part of the site was previously used for small cropping (passionfruit plantations) and is currently used for grazing. However this use will, of course, cease when the urban development proceeds. The existing small farm shed located on Lot 4 DP 1054848 (south eastern corner of the western part of the lot) is the only building on the site.

Apart from normal bushfire hazard buffers, the nature of the current and likely future uses of adjoining and adjacent land do not give rise to a need for any agricultural buffers.

4.0 DESCRIPTION OF THE PROJECT

The proposed Subdivision involves the creation of 78 conventional lots and 6 community title lots. Details of the proposed development are summarised as follows:

- Construction of a connector road (Road 1) connecting Walmsleys Road and Stott Street which has been designed with an 11m carriageway to accommodate buses.
- Construction of local access streets to service each lot (Roads 2, 3, 4 and 5).

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165

Town Planning & Development Consultants

-
- Carry out bulk earthworks and land forming on the site.
 - Dedication and embellishment of approximately 3645m² of casual open space (local park). Embellishment will include playground equipment, turfing, landscaping and seating (proposed Lot 13).
 - Upgrade Walmsleys Road.
 - Establishment of a bushfire asset protection zone on the perimeter of the site adjacent to hazard areas.
 - Construction of reticulated water and sewer to each lot.
 - Construction of a sewer pump station on Lot 58.
 - Provision of all normal urban infrastructure including underground power and telephone services.
 - Creation of 83 residential lots.
 - Creation of 1 public reserve lot (Lot 13).
 - Creation of 1 sewer pump station lot (Lot 58).
 - Proposed Lot 81 will be created as a conventional lot and then further subdivided to create 6 community title lots including Lot C1 as common property for the private access road.
 - Roads 1 to 4 will be dedicated to Tweed Shire Council as public roads. Council has advised that it will accept dedication subject to construction of the streets to Council standards (**Annexure 20**). Road 5 will be a private accessway under the Community Scheme applicable to Lots C1 to C6.

The proposed development would be implemented in seven stages. Stages 1,2,3 and 4 could be supplied by the existing downstream gravity sewer networks. Due to the low levels of the allotments in Stages 5, 6 and 7, construction of either individual pumping systems for the lots or construction of a Council sewer pumping station would be necessary in order for connection to the Council mains. If Council recommends construction of a public sewer pump station, the pump station and related upstream gravity and pressure mains would be required to be constructed before completion of either Stage 4 or Stage 5.

Staging:

- Stage 1 – construct Road 1 (Walmsleys Road to Stott Street), part of Road No. 2 and Lots 1 to 13.
- Stage 2 – construct Road 2, Lots 14 to 31 and Lot 81.
- Stage 3 – subdivide proposed Lot 81 to create 6 community title lots and construct private access (proposed Lot C1) and provide services.
- Stage 4 – construct part of Roads 3 and 4 and Lots 32 to 38.
- Stage 5 – construct Road 3 and Lots 39 to 55.
- Stage 6 – create Lots 56 to 62.
- Stage 7 – create Lots 64 to 80.

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

Proposed Lot 81 is to be subdivided under the Community Land Development Act because it is a discrete parcel with a difficult shape. In addition the provision of compliant public road access is difficult and a sewer pump station will be required to service the 6 community title lots. As the lot yield is below Council's normal requirement of 50 lots minimum for a public sewer pump station a private sewer pump station operated by the Body Corporate is proposed. Road 5 (Lot C1) will be neighbourhood property under the Community Scheme.

The consent authority is requested to structure the Part 3A Major Project approval to enable a separate construction certificate and subdivision certificate to be issued for each stage. Details of the proposal including staging are contained in the Application Plans at **Annexures 7, 9 and 10**.

5.0 DESCRIPTION OF EXISTING ENVIRONMENT AND SITE ANALYSIS

Site elevations range from approximately RL 80m AHD at the south western and northern parts of the site to RL 50m AHD in the western part of the site. **Annexure 14** provides a slope analysis of the development site and surrounding areas based on 5% increments up to 20% slope; 20% to 33% and greater than 33%.

As a general principle, those parts of the site with slopes of less than 10% do not pose significant design and development constraints. Slopes in excess of 10% are a relative constraint in relation to road gradients and allotment accesses and slopes greater than 20% are also a relevant constraint in relation to allotment access and building footprints.

The majority of the 2(c) zoned land is cleared comprising of grassland and scattered trees. With the exception of several specimens on and adjacent to the 2(c)/7(d) zone boundary, there are no threatened plant species within the 2(c) land.

Threatened species of flora and fauna do not impose significant constraints on the development potential of the 2(c) zoned land. However, appropriate management and mitigation measures will be required at the zone boundaries/vegetation interface and in proximity of identified threatened species. With the exception of relatively small areas in the northern and southern parts of the site, the whole of the site is mapped as bushfire prone land.

Subject to appropriate subdivision design and incorporation of feasible mitigation measures it is considered that bushfire hazards do not impose an absolute constraint on the development potential of the 2(c) zoned land.

The occurrence and concentration of arsenic, cadmium, copper, lead, zinc, mercury and organochlorin compounds in the natural surface soils of the investigation area has been assessed. The results conclude that, of these potentially contaminating substances, none are present in concentrations exceeding the NEPC's Level A, Health Investigation Levels for frequently occurring substances. The site is therefore considered to be uncontaminated and in relation to soil contamination issues is suitable for the proposed residential development.

The land to which this application relates is mainly in the Cobaki district having medium scenic quality. The site is not located on a visually prominent ridge and is screened from views by existing vegetation and topography.

Land to the south and east is used for urban purposes and is zoned residential.

To the northeast the adjoining land is forested and zoned 7(d) Environmental Protection Scenic Escarpment. This land is not used for any economic purpose and given its physical characteristics is highest and best use is probably limited to apiary.

To the north, part of the adjoining land is used for urban purposes and is zoned residential. The remaining adjoining land to the north is zoned rural and environmental protection and is currently used for grazing.

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

Land to the west of the development site is zoned 1(c) Rural Living and is currently used for cattle grazing. The adjoining land to the south of the site is zoned part 1(c) and part 2(c) and is used for grazing and other agricultural purposes. A dwelling exists adjacent to the southern boundary of the site on Lot 2 DP 748915.

Part of the site itself is used for small cropping, however this use will, of course, cease when the urban development proceeds. The existing small farm shed located on Lot 4 DP 1054848 (south eastern corner of the western part of the lot) is the only building on the site.

Apart from normal bushfire hazard buffers, the nature of the current and likely future uses of adjoining and adjacent land do not give rise to a need for any agricultural buffers.

Predominant wind direction in the summer is from the northeast and in the winter is from the southwest. Annual average rainfall for this area is 1722 mm. The monthly minimum of 60mm occurs in September and the monthly maximum of 270 mm occurs in March. The November summer maximum is 30°C and the summer minimum is 15°C.

In winter, the maximum in August is 23°C and the minimum in July is 5°C. The Walmsley and Roberts families have owned the land for approximately 50 years. During this period they have observed frosts on the low-lying swamp areas. The remaining elevated land is frost free. As the site is elevated (up to RL 80) and enjoys exposure to prevailing winds it is not generally subject to fog impacts.

6.0 LIKELY ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Potential environmental impacts have been identified by undertaking detailed site investigations to establish baseline data relating to the site's geophysical and biophysical constraints.

Investigations undertaken include geotechnical, slope analysis, bushfire hazards, archaeological values, threatened species of flora and fauna and contamination considerations. In addition, a detailed site inspection has been undertaken and Tweed Shire Council has been consulted in the preparation of the application. Potential impacts are addressed in the following sections.

6.1 Social and Economic Impacts

The Socio-Economic Impact Statement at **Annexure 15** contains details of the potential social and economic impacts of the project.

This Statement concludes that the proposed development is unlikely to result in any significant socio-economic impact in the locality or the Tweed generally, subject to appropriate mitigation and management measures identified in Section 8.0. Development of the site will provide housing choice, based on a range of lot sizes, in a location that is suitably serviced and conveniently located in relation to existing community facilities. Approval of the development would be consistent with Council's Urban Land Release Strategy (as reflected in the current zoning of the site) and would generate contributions towards additional community infrastructure based on the additional demand generated. An estimated twenty full time equivalent employment positions will be generated during the construction phase (estimated at twelve months). Indirect employment opportunities are estimated at fifty positions based on the employment multiplier for the northern rivers construction industry of 2.3 (CARE, 1997). The development has been designed to achieve social cohesion, high levels of amenity, ecologically sustainable outcomes and positive socio-economic impacts for the community.

6.2 Bushfire Hazards

With the exception of relatively small areas in the northern and southern parts of the site, the whole of the site is mapped as bushfire prone land.

A Bushfire Hazard Assessment prepared in accordance with the publication "Planning for Bushfire Protection, NSW Rural Fire Service, 2006" is contained at **Annexure 13**.

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165

Town Planning & Development Consultants

The greater proportion of the northern and southern boundaries of the proposed development precinct are adjoined by lands that are both cleared and zoned for residential purposes. Towards the western property boundary, the existing 2(c) Urban Expansion zoning changes to 7(d) Environmental Protection – Scenic/Escarpment; the slope in excess of 15° and evidencing a transition from grassland to rainforest (Table 7, Fig. 2, Fig. 4). Similarly, the eastern property boundary abuts rainforest, similarly zoned 7(d) Environmental Protection – Scenic/Escarpment, the land sloping thereafter to the east-northeast averaging 14°.

For the purposes of assessing bushfire hazard, the predominant vegetation group surrounding the development precinct is Rainforest with an effective slope of 15 – 18° down slope vegetation for purposes of bushfire planning. This categorisation necessitates provision for development setbacks or Asset Protection Zones of a minimum of 25m from managed vegetation. The locations of remnant vegetation communities thus dictates that the primary focus for bushfire planning purposes be primarily directed towards the eastern and western site boundaries.

Western boundary

The longitudinal gradient along the 2(c)/7(d) interface exceeds the maximum slope of 15 in some areas, with slope perpendicular to the 7(d) boundary (on average also in the range of 12 – 15 degrees potentially dictating the need for extensive battering and cut and fill type earthworks in order to establish either a trafficable trail for fire-fighting purposes or a perimeter road. Because of these considerations and the need to consider the potential for impact upon both the adjoining eec and threatened flora species, neither is recommended, thus mandating that a 25m wide APZ be imposed from the agreed 7(d) boundary into any adjoining lots.

Eastern boundary

Approximately 60% of the eastern portion of the site is bordered by a 7(d) zone interface approximately 300m in length, beyond which the predominant vegetation type is rainforest, again extending over an effective slope of 15 – 18 degrees down slope for bushfire planning purposes of. Both the vegetation group and effective slope determination again dictates a minimum APZ of 25m. While the longitudinal gradient would theoretically permit either a fire trail or a perimeter road to be constructed, placement becomes problematical in the north eastern corner of the development precinct where existing development has constrained design flexibility. Accordingly, a design response incorporating a combination of larger allotments and perimeter road elements should enables APZ requirements to be met as detailed above.

Table 3 (below) details other recommendations for the purposes of bushfire planning based on required performance criteria specified in Chapter 4 of Planning for Bushfire Protection (2006).

TABLE 3 – RECOMMENDED PLANNING RESPONSES TO MATTERS REQUIRING CONSIDERATION FOR PURPOSES OF MITIGATING BUSHFIRE RISK	
Performance Criteria	Solution
a) Asset Protection Zone	
(i) Radiant heat levels at any one point on a proposed building will not exceed 29kW/m ²	- a minimum 25m APZ must be located wholly within boundaries of 2(c) area.
(ii) APZs are managed and maintained to prevent the spread of a fire towards the house	- a Sec 88b covenant mandating that the APZ area must be maintained as mown lawn with any plantings restricted to endemic lowland rainforest species such that no more than 20% of APZ area is covered by tree canopy OR tree crowns to be separated by minimum distance of 2 – 5 metres, and - where canopy thinning is required, tree removal must be restricted to Camphor Laurel trees only, and

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

TABLE 3 – RECOMMENDED PLANNING RESPONSES TO MATTERS REQUIRING CONSIDERATION FOR PURPOSES OF MITIGATING BUSHFIRE RISK	
Performance Criteria	Solution
	<ul style="list-style-type: none"> - rear fencing of residential allotments backing onto 7(d) areas must incorporate/include gate that allows access by personnel for fire fighting purposes.
(iii) APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is negated	<ul style="list-style-type: none"> - majority of the proposed APZ is located on land(s) where slope does not exceed 18 degrees.
b) Public Roads	
(i) Firefighters have safe, all weather access to structures	<ul style="list-style-type: none"> - all internal roads must be 2-wheel drive, hard sealed and provide all weather access.
(ii) Public road widths and design that allow safe access for firefighters while residents are evacuating an area	<ul style="list-style-type: none"> - all internal two-way roads must have a minimum width (kerb to kerb) of 7.5m and otherwise comply with AS2890.2 - 2002. - any no through roads must be no more than 200m in length, incorporate a minimum 12.5m outer radius turning circle and be clearly signposted as a dead end.
(iii) Capacity of road surfaces is sufficient to carry fully loaded firefighting vehicles	<ul style="list-style-type: none"> - see above - the average grade of all internal roads must be less than 15 degrees - a minimum vertical clearance of 4m above road must be maintained.
(iv) Roads that are clearly signposted and buildings/properties that are clearly numbered	<ul style="list-style-type: none"> - all roads must be named and properly signposted. - property numbers must be painted on kerbside guttering.
- There is clear access to reticulated water supply	<ul style="list-style-type: none"> - all internal roads must be designated "No Parking" on one side, and have hydrants located thereby (i.e. opposite the parking side).
(v) Parking does not obstruct the minimum paved width	<ul style="list-style-type: none"> - any parking bays must have a minimum width of 2.6m from kerb edge to road pavement. - no hydrants can be located in parking bays.
c) Property Access	
(i) Access to properties is provided in recognition of the risk to fire fighters and/or evacuating occupants	<ul style="list-style-type: none"> - no individual dwellings in the subdivision design can be located more than 200m from a through public road.
(ii) Capacity of road surfaces and bridges is sufficient to carry fully loaded firefighting vehicles	<ul style="list-style-type: none"> - see above
(iii) Road widths and design enable safe access for vehicles	<ul style="list-style-type: none"> - see above
d) Services	
(i) Reticulated water supply	<ul style="list-style-type: none"> - a reticulated, ring main system must service the proposed subdivision.
- Water supplies are easily accessible and located at regular intervals.	<ul style="list-style-type: none"> - fire hydrant spacing must conform to AS 2419.1 – 1994. - all above ground water service pipes external to buildings must be metal, including and up to any taps.

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

TABLE 3 – RECOMMENDED PLANNING RESPONSES TO MATTERS REQUIRING CONSIDERATION FOR PURPOSES OF MITIGATING BUSHFIRE RISK	
Performance Criteria	Solution
(ii) Electricity services	
- Location of electricity services limits the possibility of ignition of surrounding bushland or the fabric of buildings	- transmission and telecommunication lines must be located underground.
(iii) Gas services	
- Location of gas services will not lead to ignition of surrounding bushland or the fabric of buildings	- reticulated or bottled gas must be installed and maintained in accordance with AS1596. - any fixed gas cylinders must be kept clear of all flammable materials and shielded on the hazard side of the installation.

Annexure 10 illustrates the subdivision design response to each of the preceding recommendations.

Section 88B easements for asset protection zones within private property will be created on the final Plan of Subdivision. Individual lot owners will be responsible for maintaining the asset protection zone.

6.3 Landscape and Visual Impacts

The development site extends from approximately RL 50m AHD to approximately RL 80m AHD and is largely cleared of vegetation. The site is well screened by existing topographic features including ridges and vegetation. In November 1995, Katherine Brouwer (Landscape Architect) prepared a Scenic Evaluation Report for Tweed Shire which assessed the land to which this application relates as mainly in the Cobaki district having medium scenic quality and located in Scenic Landscape Management Zones B and C, as best can be determined from the maps accompanying the report.

Some disturbance of the existing landscape will be required to create the proposed allotments and future dwellings. Existing trees will be retained where possible and earthworks are limited to that required to achieve compliant road and lot grades. The site is not located on a visually prominent ridge and is screened from views by existing vegetation and topography. Generous lot sizes are proposed to facilitate landscaping to screen dwellings. In addition, private title restrictions will regulate the type of dwelling which may be erected on the lots and restrict foundation types such that minimal disturbance results. These measures are consistent with the scenic management zone objectives for Zones B and C. Landscaping of the proposed future lots will also assist in mitigating any potential short term adverse visual impacts.

6.4 Slope Analysis and Land Stability

Site elevations range from approximately RL 80m AHD at the south western and northern parts of the site to RL 50m AHD in the western part of the site. Slopes on the site range from level up to generally approximately 20% with several small areas up to 33%.

As a general principle, those parts of the site with slopes of less than 10% do not pose significant design and development constraints. Slopes in excess of 10% are a relative constraint in relation to road gradients and allotment accesses and slopes greater than 20% are also a relevant constraint in relation to allotment access and building footprints. **Annexure 14** contains details of proposed earthworks, including an Existing Grades Analysis Plan.

Slope Stability Assessments (**Annexure 12**) have been prepared for the site. Insofar as Lot 5 DP 1117326 is concerned the December 2003/January 2004 Report addresses stability issues.

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

Stability of Site A

Outside the organic fill (area of test pits 6, 6A & 7) the minimum factor of safety is in excess of 2.0. Across the organic fill, the minimum factor of safety for the long-term is below unity. However, the long-term factor of safety can be brought to 2.0 or higher if the organic fill is replaced with compacted clayey fill. For the short term analysis, the minimum factors of safety are also in excess of 2 outside the "organic-fill" area.

Stability of Site B

The minimum factors of safety for Site B is in excess of 3.0 for the short term conditions, and greater than 2.0 for the long-term.

General

The factors of safety against failure of the existing slopes are generally in excess of 2.0 and hence, adequate for the proposed development to proceed. The following specific issues, however, need to be addressed to ensure adequate stability of the entire site.

Organic fill – Site A

The organic fill identified at the areas of test pits 6, 6A & 7 should be removed and replaced with compacted clay fill. The imported fill shall be of low to medium plasticity clays/gravelly clays/sandy clay, and should be compacted to dry density ratio of not less than 100% (standard).

Stockpile – Site B

The existing stockpile between the subject site and the aged care facility is not likely to be stable in the long-term. It is, however, understood that the entire stockpile shall be removed upon completion of the age care facilities. It is recommended that this office be contacted for the inspection of the excavation works to ensure that adequate stable batter slopes are maintained.

The June/July 2004 report addresses stability issues relating to Lot 1 DP 167380.

Ground Improvement Techniques – eastern depressions

The existing ground conditions at this area can be rectified as follows:

- Excavate the colluvium and stockpile the material.
- Remove cobbles, boulders and oversize rocks from the stockpile.
- Backfill with sorted material (less the oversize rocks, cobbles and boulders).

The backfill shall be placed in layers not exceeding 0.5m (uncompacted) and compacted to at least 100% standard dry density ratio.

Each layer should be tested. Full-time supervision of the earthworks operation is strongly recommended.

Along the top of the slope, the construction of the proposed road should involve removal of the colluvium. The new pavement should be established over the bedrock.

The Southern Slopes

Buildings should be limited to lightweight pole homes. Foundations should be either steel posts or reinforced concrete piers. They should extend at least 1.0 metre past the toe of the slope, or be socketed into bedrock. The rock socket length shall not be less than 50% of the total post or pier length.

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165

Town Planning & Development Consultants

The Deep Gully Area

The existing colluvium at the deep gully should be removed. The area may be backfilled with suitable material to the design formation level. The fill shall be placed at slopes of not steeper than 1 in 2.5, and compacted to standard dry ratio of at least 100%.

Other Areas

The ridge crest and adjacent slopes are adequately stable for normal residential development. Independent soils tests and site classifications are recommended for the individual allotments.

A further Assessment addressing stability issues was undertaken over Lot 1 DP 167380, Lot 1 DP 134787 and Lot 2 DP 961928.

The presence of colluvium on steep slopes generally signifies potential slope instability. For shallow-seated colluvium with strongly bonded matrix, however, potential for slope instability is significantly reduced. Such sites can be engineered to reduce risk of long-term slope failure to acceptable level for development.

For the present site, the risk of long-term slope instability varies between the various from sections. The following discussions examine the risks of instabilities of the main identified sections of the site.

Stability Assessment: The Southern Steep Slope

For the sub-surface characteristics revealed at this section, the naturally occurring surface gradient is considered as being excessive for long-term stability. Though no obvious signs of potential slope instability could be identified due to lack of trees and other features that are sensitivity to minor ground movements.

Stability Assessment: The Ridge Crest and Adjacent Slopes

This section includes the access road reserve and the western trending ridge along the northern boundary, west of Scott Street. The sub-surface stratification consist, mostly of stiff residual clay to depths of 2.0 to 2.6 metres, grading to weathered shale thereafter. No obvious signs of potential instability were noted at the time of the investigation.

Existing colluvium (up to 1.0m thick) immediately above the eastern depression can pose potential instability to building foundations. These materials must be removed from the building envelopes prior to foundation construction. Such excavations should be conducted under engineering supervision.

Stability Assessment: The Eastern Depression

The eastern depression contains significant depths of colluvium, which are unsuitable for use as structural foundation. The deposits are not, however, expected to affect or worsen the stability of the adjacent slope. Some ground improvement measures are recommended for this area.

Stability Assessment: The Previous Dam Site

The earlier investigation identified significant amount of fill at a previous dam site. It was noted that the fill overlaid soft organic clays, and could undergo significant settlement with time. It was, however, noted that majority of the area was to be developed into a recreational park and could accommodate minor settlements.

The proposed road alignment may extend over sections of the poor formation. Any section within the road alignment should be excavated to the natural and competent formation, and the excavated area backfill with suitable material.

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165

Town Planning & Development Consultants

Stability Assessment: The Gully

Proposed subdivision Lots 37 to 42 are located within inadequately compacted fill along the gully. The long-term stability of the area is currently doubtful due to the presence of fill. The area can, however, be engineered to improve the long-term stability.

CONCLUSIONS AND RECOMMENDATIONS

It can be concluded from the foregoing discussions that, while the site is generally suitable for the proposed development, special measures are required at certain areas to improve on their long-term stability. These areas and the specific measures required are discussed in the following sections.

Ground Improvement Techniques: Eastern Depressions

It is recommended that existing colluvium over the area identified as the "eastern depression" should be removed. The material may be excavated and discarded or stockpiled for re-use, following removal of the boulders, cobbles, and oversize materials.

The backfill shall be placed in layers not exceeding 0.5m (uncompacted), and compacted to at least 100% standard dry density ratio. Bulk earthworks, including road works, are to be conducted under engineering supervision by this office.

Preparation of the proposed access road subgrade should include an excavation of, at least, 1.0m of the existing formation. The subgrade replacement shall comply with Tweed Shire Council specification. The material shall be placed and compacted to, at least, 100% standard dry density ratio.

Ground Improvement Techniques: The Southern Slopes

Buildings over the designated Southern Slopes should be limited to lightweight pole homes. Foundations should be either steel posts or reinforced concrete piers. They should extend at least 1.0 metre past the toe of the slope and be socketed into bedrock. The rock socket length shall not be less than 1.0m

Ground Improvement Techniques: The Filled Gully

The existing sections of the site situated within the gully are considered unsuitable for residential building construction due to presence of fill. The proposed subdivision allotments 37 to 42 are mostly affected. The area can, however, be engineered to improve on the stability and, consequently, its suitability for residential development.

As part of the re-engineering exercise, existing fill should be removed, and the area presented for re-assessment. It is unlikely that existing fill shall be suitably for re-use as structural fill. The excavated material may, however, be stockpiled for further assessment. Certification of the suitability of the re-engineered site for residential development by an experienced geotechnical engineer should be required, prior to the issue of a subdivision certificate.

Ground Improvement Techniques: Ridge-tops & Adjacent Slopes

The ridges and adjacent slopes are adequately stable for normal residential development. Footings for these buildings should be adequately socketed into bedrock. Each subdivision allotment should be independently engineered for the intended structure. Full geotechnical investigation should be insisted. Routine "soil test" for the classification of the site, as defined in AS2870-1996, may be inadequate.

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165

Town Planning & Development Consultants

In summary, having regard to the findings of the geotechnical investigations it is concluded that geotechnical and slope constraints are relative and subject to appropriate design and mitigation measures they do not preclude residential development from any part of the land zoned 2(c).

6.5 Contamination

Gilbert and Sutherland have investigated the land use history of the land, including soil sampling and testing for contaminants. In summary their reports conclude that:

Soil Contamination Assessment for Lot 1, Lot 2 and Lot 1 (September 2003)

"This Soil Contamination Assessment examined the occurrence and concentration of arsenic, cadmium, copper, lead, zinc, mercury and organochlorin compounds in the natural surface soils of the investigation area.

The results conclude that, of these potentially contaminating substances, none are present in concentrations exceeding the NEPC's Level A, Health Investigation Levels for frequently occurring substances. Based on this finding, Gilbert and Sutherland consider that no additional sampling analysis is required. In relation to soil contamination issues, Gilbert and Sutherland consider that the site is suitable for the proposed residential development.

Soil Contamination Assessment Lot 4 Stott Street, Bilambil Heights (October 2003)

"This Soil Contamination Assessment determined the occurrence and concentration of arsenic, cadmium, copper, lead, zinc, mercury and organochlorin compounds existing in the natural surface soils of the investigation area.

The analytical results confirm that none of these potentially contaminating substances were present in the site soils in concentrations exceeding the NEPC's Level A, Health Investigation Levels.

The site is therefore considered to be uncontaminated and in relation to soil contamination issues is suitable for the proposed residential development. Based on this finding, it is considered by Gilbert and Sutherland, that no additional sampling or analysis is required."

A copy of the Soil Contamination Assessments are contained at **Annexure 6**.

6.6 Cultural Heritage

In September 2007 Davies Heritage Consultants Pty Ltd prepared a Preliminary Cultural Heritage Assessment in respect of the subject land. A copy of that Assessment is contained at **Annexure 16**.

Subsequently, the Gold Coast Native Title Group, representing the stakeholder, wrote to the Department of Planning expressing concerns in relation to the manner in which the developer's Heritage Consultant is conducting the assessment of the site's prospective cultural heritage values. A copy of the letter to the Department of Planning and the Department's response to the proponent's consultant is also attached at **Annexure 16**.

Eastern Yugambeh Limited were commissioned on 21 December 2007 to prepare a new Cultural Heritage Assessment in respect of the subject land. A copy of their early Draft Cultural Heritage Report dated February 2008 and accompanying letter dated 13 February 2008 in relation to collaboration with the stakeholder is also attached at **Annexure 16**.

Following a review of the initial draft report, Eastern Yugambeh Limited submitted an amended report dated April 2008. That report was reviewed by the Department of Planning and the Department advised (email from Sally Munk dated 16 April 2008) that the report appears to address the requirements of the Department of Environment and Climate Change Guidelines subject to the following:

-
- In relation to the discussion of the National Parks and Wildlife Act on Page 12 – Section 87 and Section 90 permits are not required for projects being assessed under Part 3A of the Environmental Planning and Assessment Act, once the DGRs have been issued.
 - The report should be clear to state that the Registered Stakeholder Ms McDonald, has reviewed the final report and concurs with the recommendations.
 - There is no reference list. This should be included. Ms Davies report should be listed.

Eastern Yugambeh Limited were requested to amend their report to address the issues raised by the Department, however despite lengthy negotiations and a number of requests, the report has not been amended. On 18 August 2008, Eastern Yugambeh Limited wrote to Mr Les Dickinson (one of the owners of the subject land) and proposed that amendments to the report would be made following payment of the outstanding amount of \$3500.00 following which a Cultural Heritage Management Plan would be required for which an additional \$3500.00 would be payable immediately on the parties signing the Management Plan (a copy of that letter is attached at **Annexure 16**). The outstanding \$3500.00 for the Cultural Heritage Assessment Report as detailed in the Eastern Yugambeh Limited fee proposal was paid on 16 October 2008, however to date the report has still not been finalised despite a number of efforts to contact Eastern Yugambeh Limited. In the circumstances, the Department is therefore requested to assess the revised Environmental Assessment on the basis of the information currently available, as further delays cannot be tolerated by the proponents. A copy of the most recent Cultural Heritage Report dated April 2008 is attached at **Annexure 16**.

The report presents the findings of a study of the prospective Cultural Heritage values and management processes for the “Bilambil Heights development.” The development area is a 25 hectare site, approximately 3km southeast of New South Wales/Queensland state border and Coolangatta airport.

In line with the *National Parks and Wildlife Act 1974*, Darryl Anderson Consulting contracted Eastern Yugambeh Limited (EYL) in November 2007 to carry out a desktop study to determine the prospective cultural heritage values of the project site.

A public notice was inserted in the *Daily News*, a publication with broad readership in the project area, on Friday 27 July, 2007. The only response received by the closing date was from Ms Jacqueline McDonald, an Aboriginal person with traditional links to the area. Ms McDonald was involved in initial discussions with the proponent and also was closely involved in the preparation of this report. A search of the Aboriginal Heritage Information Management System (AHIMS) was conducted for this project and returned no recorded sites located specifically within the project site. Although three sites are located in the vicinity of the study area no sites are under threat of impact from the proposed development.

This report has been compiled on the basis of reports and knowledge held by members of the Gold Coast Native Title Group, as represented by EYL. EYL have conducted a desktop assessment of the land form of the project site as well as the nature and extent of proposed works.

Owing to the site's location and proximity to recorded sites of Aboriginal significance, it can be assumed the area will reveal cultural material. While this site forms an important part of the cultural landscape, it is lacking in geographical features that are commonly associated with sites of cultural significance. Therefore we conclude that it is not necessary to further investigate the site through a detailed field assessment.

There are no recommendations for further on-site activity by the Gold Coast Native Title Group in the lead up to or during construction.

The developer anticipates the NSW Department of Planning will include a condition on the project approval to the effect that if any cultural heritage material is discovered during construction the Department of Environment and Conservation must be notified and appropriate approvals/studies must be undertaken.

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165

Town Planning & Development Consultants

If this condition is included in the approval and also the developer agrees to contact EYL and the GCNTG in the first instance in the event of cultural heritage finds; then EYL accepts this as acceptable to cover contingencies during construction.

In the event such a condition is not included, the developer and the Gold Coast Native Title Group may enter into an agreement for the management of cultural heritage material in the event of an unusual or significant find during construction. The Cultural Heritage Management Plan is to reflect contingencies for significant and substantial finds.

6.7 Flora and Fauna

In June 2008 Biolink Pty Ltd prepared an Ecological and Bushfire Planning Assessment of the site. A copy of that report is attached at **Annexure 13**.

The potential presence of flora and fauna species, populations and ecological communities currently listed under the *EPBC Act* and Schedules 1 and 2 of the *TSC Act* was determined on the basis of several inspections and formal assessments for threatened flora undertaken between December 2003 and May 2008. Additionally, the NSW National Parks and Wildlife Service Wildlife Atlas and Australian Museum database records for threatened flora and fauna species were obtained for a 5km radius of the site on 16th April 2008. Fauna records compiled by local resident Mr. Chris Roberts from lands adjoining the subject site were also referred to. Fauna sampling and additional threatened flora surveys were undertaken during April and May 2008.

Flora survey

Vegetation community boundaries within the study area were initially delineated using 1:25,000 colour aerial photography, while ground traverses were used to determine their extent and species composition; vegetation community descriptions followed that of McDonald *et al.* (1990).

A random-meander census technique was initially used to determine the presence of rare and/or threatened plant species and/or ecological communities, followed by a more formal, systematic plot-based survey to quantify population parameters for each threatened flora species. To this end threatened flora sampling plots were arranged on a 100m regularised grid and located where they intersected patches of regenerating forest. At each sampling point the abundance and size class of each threatened tree and/or shrub species within a 25m radial plot was recorded.

Fauna survey

The subject site is essentially devoid of native vegetation with the exception of some regenerating native vegetation along the western boundary and in the southwestern corner of the development precinct. Consequently, habitat attributes such as hollow-bearing trees were noticeably absent. Such considerations precluded the application of sampling effort at the level recommended by the draft Threatened Biodiversity Survey & Assessment guidelines (NSWDEC 2004b) for some fauna sampling techniques (e.g. harp trapping for microchiropterans). However fauna survey effort was applied consistently with these guidelines wherever possible. Survey work was undertaken over a 2 week period from 28th April – 12th May 2008, and included adjoining landholdings to the east and northwest. Survey techniques were as follows:

Amphibians and Reptiles

Herpetofauna were recorded opportunistically and through active searches throughout the course of the survey, augmented by use of dry-pitfall traps (see below) and in the case of amphibians, by way of targeted acoustic sampling at waterbodies on the site.

Avifauna

Avifauna was recorded opportunistically throughout the course of the survey with species identified by either direct observation using field binoculars and/or by call.

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165

Town Planning & Development Consultants

Mammals

a) Terrestrial mammals

Terrestrial mammals were censused using the following techniques:

- (i) Two transects collectively deploying 50 Type A Elliotts at ~ 10-15m intervals, each baited with a mixture of rolled oats, honey, peanut butter and truffle oil, checked daily and maintained for 4 (eastern trapline) or 5 (western trapline) consecutive nights.
- (ii) Six cage traps, three each at ~60m intervals along each of the two Elliot transects, baited with a mixture of rolled oats, peanut butter, honey and truffle oil, similarly checked daily and maintained for 4 - 5 consecutive nights as detailed above.
- (iii) Six 20-litre dry-pitfall traps, three each at ~60m intervals along each of the three Elliot transects, checked daily and also maintained for 4 - 5 consecutive nights as detailed above.
- (iv) Sixteen hair funnels baited with a mixture of rolled oats, peanut butter, honey and truffle oil, located at 100m grid-cell intervals and maintained for five to seven nights.

b) Koalas

In addition to both daylight searches and spotlighting effort (see below) koala activity was assessed through a targeted faecal pellet search beneath known koala food trees Tallowwood *E. microcorys* and Grey Gum *E. propinqua*.

c) Microchiropterans

Microchiropteran bats were censused via all-night recording sessions at four stationary sampling points utilising an Anabat II detector coupled with a CF-ZCAIM. The detector was set prior to dusk in areas considered likely to be utilised by foraging bats.

Due to the nature of the vegetation communities within the study area (either largely open or dense), there was limited opportunity to sample microchiropterans using harp trapping. One harp trap was set prior to dusk at one location in the west of the study area, checked once during the evening and again after dawn and maintained for one night.

Other survey techniques

Spotlighting by 2 observers equipped with a hand-held, adjustable-output 100w spotlight was undertaken on two non-consecutive nights, the distance traversed approximately 500m in each instance and for 60 minutes per night.

Results

Flora

Database records

Records for 16 threatened flora species within a 5km radius of the study area were obtained from the NSWNPWS Wildlife Atlas database. Threatened species that were not associated with subtropical and/or lowland rainforest on basalt/volcanic soils were considered to have a low likelihood of occurrence within the study area and were excluded from further assessment. Listings under relevant Commonwealth and/or State legislation and the conservation status derived from Rare or Threatened Australian Plants list (Briggs and Leigh 1995) for the threatened plant species listed above and those considered likely to occur within the study area are provided in Table 3.

Table 4. Threatened flora species obtained from the NSW NPWS Wildlife Atlas recorded within a 5km radius of the Walmsley's Road site. The likelihood of occurrence of each species occurring in the site is indicated and was determined by species-specific habitat associations of Floyd (1989).

The conservation status of each species is provided as described under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth), the *Threatened Species Conservation Act 1995* (NSW) and ROTAP listings of Briggs and Leigh (1995).

TABLE 4 – THREATENED FLORA SPECIES							
Family	Species	Common name	Status			Likelihood of occurrence	
			TSC	EPBC	ROTAP	High	Low
Fabaceae (Caesalpinioideae)	<i>Cassia brewsteri</i> var. <i>marksiana</i>	Brush Cassia	E	-	2RCi	X	
Fabaceae (Mimosoideae)	<i>Acacia bakeri</i>	Marblewood	V	-	-	X	
	<i>Archidendron hendersonii</i>	White Lace Flower	V	-	-	X	
Lauraceae	<i>Cryptocarya foetida</i>	Stinking Cryptocarya	V	V	3VCi		X
	<i>Endiandra muelleri</i> subsp. <i>bracteata</i>	Green-leaved Rose Walnut	E	-	-		X
Myrtaceae	<i>Gossia fragrantissima</i>	Sweet Myrtle	E	E	3EC-		X
	<i>Syzygium moorei</i>	Durobby	V	V	2VCi		X
Orchidaceae	<i>Phaius australis</i>	Southern Swamp Orchid	E	E	3VCa		X
Proteaceae	<i>Grevillea hilliana</i>	White Silky Oak/Yiel Yiel	E	-	-		X
	<i>Macadamia tetraphylla</i>	Rough-shelled Bush Nut	V	V	2VC-	X	
Rubiaceae	<i>Randia moorei</i>	Spiny Gardenia	V	E	3ECi	X	
Rutaceae	<i>Bosistoa transversa</i>	Yellow Satinheart	V	V	-	X	
	<i>Geijera paniculata</i>	Axe-Breaker	E	-	-		X
Sapindaceae	<i>Diploglottis campbellii</i>	Small-leaved Tamarind	E	E	2E		X
	<i>Lepiderema pulchella</i>	Fine-leaved Tuckeroo	V	-	2RC-	X	
Sapotaceae	<i>Amorphospermum whitei</i>	Rusty Plum	V	-	3RCa	X	

E=endangered, V=vulnerable, R=rare, C=recorded in conservation reserve(s) with population size not accurately known, Ci=recorded in conservation reserves with less than 1000 individuals in total, Ca=recorded in conservation reserve(s) with greater than 1000 individuals in total, 2= geographic range of species is <100km, 3=geographic range of species is >100km.

Vegetation communities

Historically, the subject site was once used for intensive agriculture and is largely devoid of extensive areas of native vegetation. In both eastern and western areas below the existing cleared areas, the site drops steeply and the resulting escarpment supports a simple notophyll closed forest community with small patches of sclerophyll forest, an exotic Pine Pinus sp. plantation and Camphor Laurel Cinnamomum camphora monocultures.

Ongoing rehabilitation works by the proponent and adjoining landholders – most apparent in the form Camphor Laurel control - is evident throughout the study area. Appendix 1 lists those plant species identified during the course of site assessments. Four main floristic communities were identified (**Figure 3**) as follows:

Sclerophyll forest

- (i) Tall, open forest dominated by Turpentine Syncarpia glomulifera. This is a non-endemic community approximately 0.75 ha in size, entirely contained within the proposed development footprint and originally planted for the purposes of providing a windbreak. Understorey vegetation in this narrow strip consists of isolated shrubs and saplings to 3m tall comprised of species such as Sweet Pittosporum Pittosporum undulatum, Tuckeroo Cupaniopsis anacardioides, Native Gardenia Randia benthamiana, Crow's Ash Pentaceras australe and Camphor Laurel.
- (ii) Tall woodland dominated by Camphor Laurel, Brush Box Lophostemon confertus and Grey Gum Eucalyptus propinqua. Mid-stratum consists of mid-high to tall, mid-dense Foambark Jagera pseudorhus, Red Kamala Mallotus philippensis, Black Walnut Endiandra globosa, Red-fruited Laurel Cryptocarya laevigata, Brush Pepperbush Tasmannia insipida, Crow's Ash and Fire-wheel Tree Stenocarpus salignus. Understorey vegetation consists of native vine, grass and fern species such as Prickly Rasp Fern Doodia aspera, Lawyer Vine Smilax australis and Rough Saw-sedge Gahnia aspera.

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

- (iii) Tall open forest dominated by Camphor Laurel and Tallowwood *Eucalyptus microcorys*, the latter planted during the 1950s (Chris Roberts pers comm). Mid-stratum consists of mid-high to tall rainforest indicator species such as Bangalow Palm *Archontophoenix cunninghamiana*, Straw Tree Fern *Cyathea cooperi*, Red Kamala, Sweet Pittosporum, Foambark and Brush Cherry *Syzygium australe*. Understorey is very sparse and mostly comprised of leaf litter and native vine and fern species such as Lawyer Vine, Prickly Rasp Fern and Common Bracken *Pteridium esculentum*.

Rainforest

- This community best conforms to a regenerating, simple notophyll very tall closed forest dominated by Camphor Laurel with emergent Pink Bloodwood *Corymbia intermedia* and Brush Box, the latter more obvious in adjoining lands to the north west. Also present in some areas is an earlier successional stage of this community, again dominated by Camphor Laurel and with little or no mid-stratum. Understorey vegetation consists of shrubs and saplings to 3m comprised of rainforest species such as Sweet Pittosporum, Hairy Alectryon *Alectryon tomentosus*, and very sparse native groundcover such as Prickly Rasp Fern. Despite its young age and the presence of Camphor Laurel, a number of threatened plant species were recorded (see below), while the floristic and physiognomic attributes associated with this community further qualify it as a facsimile of the endangered ecological community (eec) Lowland rainforest in the NSW North Coast and Sydney Basin Bioregion.

Other vegetation communities present on the site include a small exotic Pine *Pinus* sp. plantation in the north east of the study area and that area described herein as “wet grassland” on the lower reaches of the catchment area immediately upstream of the impounded water body.

Threatened flora species

Eight rare and/or threatened plant species were identified during the course of field assessments:

- Marblewood *Acacia bakeri*
- Rusty Plum *Amorpha permora*¹
- Small-leaved Tamarind *Cupaniopsis newmanii*²
- Black Walnut *Endiandra globosa*²
- Fine-leaved Tuckeroo *Lepiderema pulchella*
- Rough-leaved Bush Nut *Macadamia tetraphylla*
- Spiny Gardenia *Randia moorei*
- Stinking Cryptocarya *Cryptocarya foetida*.

¹ Some individuals of this species may be referable to *Cryptocarya obovata*

² ROTAP species (2RC-), not listed for purposes of TSC Act or EPBC Act

Five of the eight species were additionally recorded within one or more of the ten formally assessed vegetation plots, within which the most frequently recorded threatened flora species was the Fine-leaved Tuckeroo (**Table 5**). Both the Black Walnut and the Rough-leaved Bush-nut were also recorded, however populations of these species were less widespread and tended to be more localized in their distribution. The remaining species were recorded less frequently and are considered to occur in the study area at lower density.

TABLE 5 – NUMBERS OF RARE AND/OR THREATENED PLANT SPECIES								
Species/Site	1	2	5	17	19	21	22	Total
<i>C. foetida</i>							2	2
<i>C. newmanii</i>				1				1
<i>E. globosa</i>	2		2			1		5
<i>L. pulchella</i>	1	2	7	3	2			15
<i>M. tetraphylla</i>		4						4

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165

Town Planning & Development Consultants

Fauna

Database records

Within a 5 kilometre radius of the study area, Australian Museum and NSW National Parks and Wildlife Service Wildlife Atlas records yielded 20 threatened bird species, one threatened amphibian species, ten threatened mammal species and one threatened reptile species. The species list and likelihood of occurrence within the study area for each species is provided in Table 3. The majority of threatened fauna derived from the Atlas search were considered unlikely to occur in the site due to a lack of specific habitat and/or breeding requirements such as mangrove swamps, ponds, sand dunes, rocky shores, woodland, native grassland, hollow-bearing trees and complex understorey microhabitats.

Survey results

Survey results indicated a generally depauperate fauna community. A list of fauna recorded from the study area is provided in **Annexure 13. Table 6** details the amount of survey effort applied to the study area:

TABLE 6 – SUMMARY OF SURVEY EFFORT FOR FAUNA UNDERTAKEN DURING APRIL AND MAY 2008		
Sampling technique	Target species	Effort
Elliot type A traps	Threatened small mammals	225 trap nights
Cage traps	Long-nosed Potoroo	27 trap nights
Pitfall traps	Coastal Planigale	27 trap nights
Hair funnels	Threatened mammals	100 funnel nights
Anabat	Threatened microchiropterans	5 nights (all night)
Harp trap	Threatened microchiropterans	1 trap night
Spotlighting	Arboreal mammals	2 hours, 1.4km

Amphibians and reptiles

Two amphibian species were recorded within the study area. The introduced Cane Toad *Chaunus marinus* was recorded opportunistically throughout the site while pitfalling resulted in one capture of the Striped Marsh Frog *Limnodynastes peronii*. No threatened amphibian or reptile taxa were recorded from the study area.

Avifauna

Fifty bird species were recorded from the site. No threatened species were recorded during site inspections, however the Rose-crowned Fruit-dove *Ptilinopus regina* (vulnerable, TSC Act 1995) has previously been recorded in the east of the study area (Chris Roberts pers. comm.).

Mammals

a) Terrestrial mammals

A total of 10 mammal captures were obtained of three species; the Bush Rat *Rattus fuscipes* (1 capture) and the introduced House Mouse *Mus musculus* (7 captures), and Black Rat *Rattus rattus* (2 captures). The majority of captures occurred in the western trapline, with the eastern trapline returning two captures of *M. musculus*. Hair funnels returned samples which were identified as *M. musculus* (n=3), Common Ringtail Possum *Pseudocheirus peregrinus* (n=1) and the Northern Brown Bandicoot *Isodon macrourus* (n=2).

b) Koalas

No evidence of koala activity was recorded in targeted searches of koala food trees within the site, nor were any koalas sighted.

c) Microchiropterans

Anabat recording sessions returned a total of 608 microchiropteran call sequences. The majority of sequences were of poor quality or inadequate length to reliably obtain a species identification, however two species and one genus of microchiropteran bat were confidently identified from calls and a further three species were identified with a confidence measure of 'probable' or 'possible'.

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

The most commonly recorded species was the Eastern Forest Bat *Vespadelus pumilus*. Species of *Nyctophilus* cannot be reliably distinguished by call characters (Pennay *et al.* 2004) therefore the possibility that calls could be attributed to the threatened Eastern Long-eared Bat *N. bifax*, has been accounted for in the following section. Similarly, 'possible' or 'probable' records of the similarly threatened Yellow-bellied Sheath-tail Bat *Saccolaimus flaviventris*, Little Bent-wing Bat *Miniopterus australis* and the Eastern Bent-wing Bat *Miniopterus schreibersii oceanensis* are interpreted with caution but approached herein as requiring consideration. Details of the species detected, location and confidence associated with each are provided in **Table 7**.

Other survey techniques

The Black Flying-fox *Pteropus alecto* and Bobuck *Trichosurus caninus* were the only species recorded during spotlighting; the former recorded flying overhead in notophyll forest in the western portion of the study area, while the Bobuck was recorded on two occasions at the western edge of forest in the east of the study area.

Table 7. Microchiropteran species identified from Anabat recordings at the Walmsley's Road site. Asterisks represent confidence level associated with record as follows. ***, definite; **, probable; *, possible.

TABLE 7 – MICROCHIROPTERAN SPECIES					
Family / Species	Common name	Location			
		A1	A2	A3	A4
Emballonuridae					
<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheath-tail Bat				*
Vespertilionidae					
<i>Chalinolobus gouldii</i>	Gould's Wattled Bat	**	***		***
<i>Miniopterus australis</i>	Little Bent-wing Bat	**	*		**
<i>Miniopterus schreibersii oceanensis</i>	Eastern Bent-wing Bat	*			*
<i>Nyctophilus</i> sp.	Long-eared Bat		*	*	***
<i>Vespadelus pumilus</i>	Eastern Forest Bat	***	*	***	***

The Ecological Assessment contains the following conclusions and recommendations.

For the purposes of the *Environment Protection and Biodiversity Conservation Act 1999* and Sec. 77 (d1) of the *Environmental Planning and Assessment Act 1979* (as amended), it is concluded that development for the purposes of creating a residential subdivision is not likely to significantly affect threatened species, populations or ecological communities. Hence neither notification of the Minister, nor a Species Impact Statement is required for this development.

Nominally and based on a review of edge effects by Murcia (1995), the DECC advocates the need for a 50m buffer to any eec such as that identified by this report. However, we consider such a buffer to be inappropriate in this instance based on the following reasoning:

- (i) for the greater part of the interface between the boundaries of the proposed residential development and that of the identified eec, the adjoining vegetation community is a grassland largely devoid of trees and hence incapable of providing an effective ecological buffer,
- (ii) the current successional stage and disturbed nature of the eec mandates long-term, active management in order for ongoing rehabilitation works (Camphor Laurel & Privet control, additional plantings and weed control) to be enacted, and
- (iii) boundary adjustments undertaken in collaboration with the adjoining landholder have already resulted in an ecological offset that will result in an additional 0.7ha of eec being included within a new 7(d) zoning.

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

As a consequence of the above considerations we propose that effective buffering in this instance can be affected by the recommended 25m APZ, within which proposed covenants will, amongst other things require endemic lowland rainforest species to be planted.

The preceding conclusions are subject to the following recommendations:

1. That prior to the commencement of development works, all rare and/or threatened flora species that occur within 25m either side of the 2(c)/7(d) zoning interface be located and appropriately identified and/or signposted such that they remain unaffected by any activities (including provision of APZs for bushfire management purposes).
2. That vegetation modification for the purposes of establishing APZs be restricted to the removal of Camphor Laurel trees only (Table 9 refers).
3. That street landscaping of the proposed development precinct make extensive use of suitable species of endemic rainforest vegetation.
4. That a Vegetation Management Plan (VMP) be prepared for the 7(d) lands within the development precinct. The VMP must be completed and submitted to the determining authority and DECC prior to the issuing of a subdivision certificate and detail measures that diminish the threat of invasive species, support ongoing restoration of the regenerating rainforest community therein and protect threatened flora species known to occur on the site, but also the means by which this will be achieved.

For the purposes of *State Environmental Planning Policy No. 44 – Koala Habitat Protection*, we further conclude given the absence of *Core Koala Habitat* that there is no need for a site-specific Koala Plan of Management to be prepared in accord with Part 3 of the policy.

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

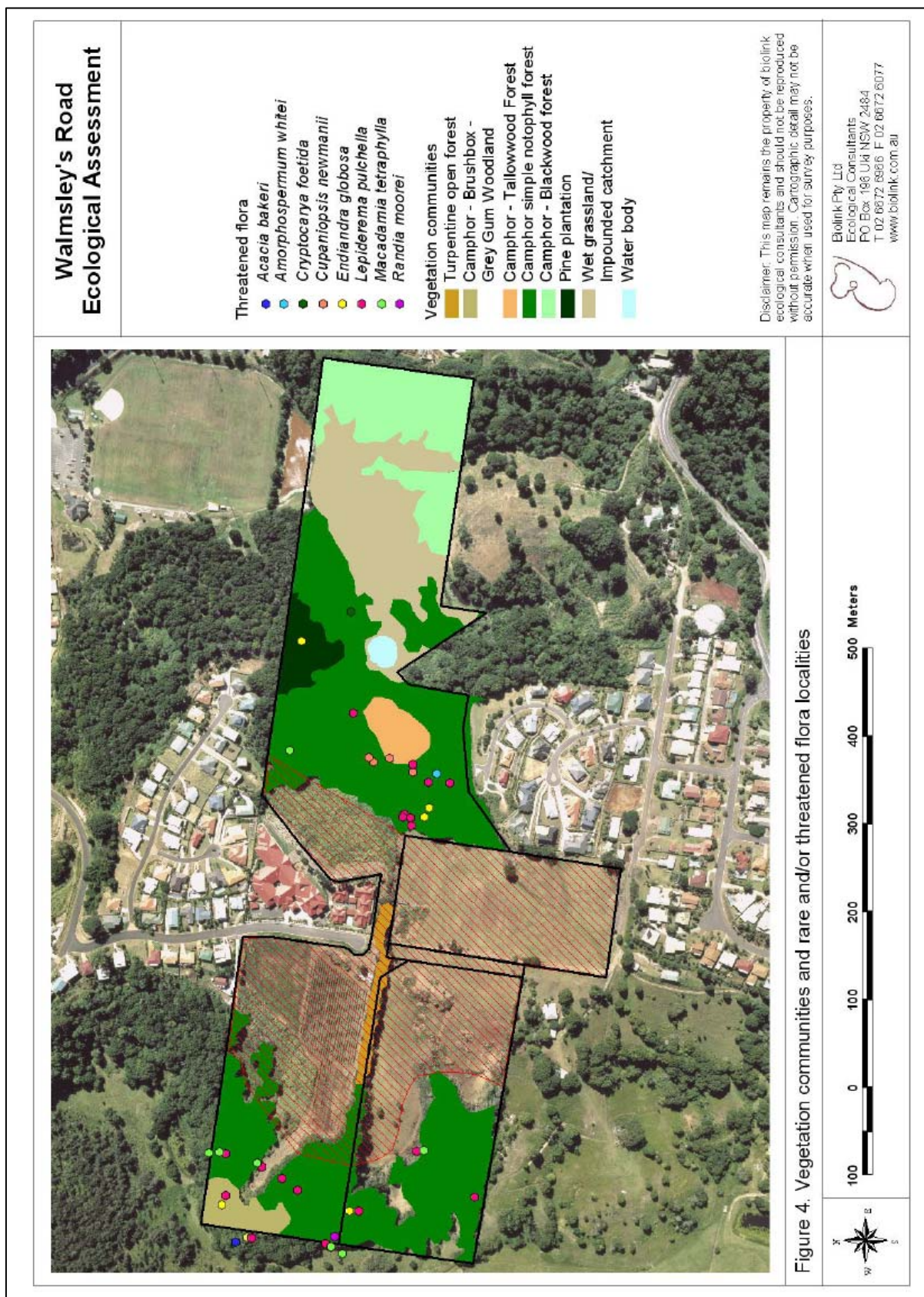


Figure 3 – Vegetation Communities and Rare and/or Threatened Flora Localities Source: Annexure 13

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

6.8 Access

Access, traffic generation, public transport and pedestrian/cycle access are addressed in detail in **Annexure 9**. In summary, the proposed subdivision has two points of access. One access to the development is proposed off Walmsleys Road via a T junction.

The other will be provided from the southern end of Stott Street. The northern end of Road No. 1 is to link directly into the existing Stott Street, thus providing a through route from Walmsleys Road to Stott Street. It is therefore concluded that the proposed development can provide suitable access for both the short and long term including potential bus routes and improved connectivity between existing and future communities.

Access to the site from the Pacific Highway is via Kennedy Drive, Scenic Drive and Piggabeen Road. Tweed Shire Council has imposed traffic capacity limits on Cobaki Bridge and Kennedy Drive. Cobaki Bridge is located at the western end of Kennedy Drive where it becomes Scenic Drive which is adjacent to the junction with Piggabeen Road.

In summary, Council at its meeting on 19 June 2007 considered a report in relation to this issue and resolved as follows:

1. *Council adopts the revised level of Service D equating to 24650 vehicles per day on Cobaki Bridge at Kennedy Drive.*
2. *The current remaining spare traffic capacity (being 1506 vehicles trips per day) to be provided to future development west of Cobaki Bridge on a first in/first served basis.*
3. *No development is approved west of Cobaki Bridge when the remaining spare traffic capacity of 1506 vehicle trips per day are consumed.*
4. *With respect to Items 2 and 3 above, a review of traffic generation and development approvals be undertaken in twelve months time.*

Based on Council's normal traffic generation rate for detached dwelling lots of 6.5 daily vehicle trips, the proposed 83 residential lots will generate approximately 550 vehicle trips per day. At the time of preparing this report, it is understood that of the 1506 remaining trips per day in June 2007, at least 550 trips remains unallocated and therefore sufficient downstream traffic capacity exists within the existing road network to enable this application to be approved.

On 28 March 2008, Tweed Shire Council advised that Major Project Application No. 05_0198 has been added to the Kennedy Drive Traffic Management Catchment (see **Annexure 20**). Therefore, sufficient capacity exists to accommodate the proposed development.

6.9 Built Form

The report at **Annexure 17** identifies the character of existing neighbourhoods as including steep topography and generally large lots with detached dwellings that capture views to the ocean and/or Terranora Broadwater to the east or the hinterland to the west. In terms of proposed residential character, the report indicates that:

"The proposed subdivision layout comprises a conventional low density residential development of 85 lots ranging from 600m² to 2000m². Lots are generally regular in shape with a few battleaxe lots and irregular shaped lots over 1000m² due to topographic constraints. Lot dimensions are generally 20m wide by 30 to 35m deep, and the areas dimensions and access are consistent with the surrounding neighbourhood.

The built form will have a contemporary style based on its natural bush setting. Buildings should be carefully placed within the lot to maximize the features of the natural environment and to create comfortable and enjoyable living environments, using the topography and terrain to the best advantage, while maximizing visual aspect, orientation and environmental principles.

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165

Town Planning & Development Consultants

The built form character will be a mix of slab on ground, split level homes and suspended floor construction. The method of construction for each specific lot will be determined by the steepness of the site and must consider methods to minimise disturbance of existing ground levels. Design guidelines will enforce few retaining walls evident from the streets and retaining elements taken up within the buildings. Single level slab on ground will only be allowed in slopes of up to 10% (1:10m). Dwellings on slopes greater than 10% (1:10m) must adopt split levels or suspended floor construction. Section 5 discusses these methods in more detail.

Design guidelines will be prepared to encourage future buyers to incorporate simple architectural design principles with articulated elements such as terraces, balconies, verandahs and pergolas to promote interest and variety to the streetscape.

The built form must be responsive to the natural environment and local climatic conditions and shall adopt a palette of colours and materials sympathetic to its environment. Roofs are to be a simple composition of shapes with the use of architectural elements to create interest to the elevations.

Houses must address their interface with public areas such as street, and adjoining open space, by attention to the design and integration of roofs, balconies, walls, ancillary structures and landscape. Roof forms, detailing, and materials visible from all public areas and adjoining properties must be complementary to the character and form of neighbouring houses. Garages and all ancillary structures must also be in harmony with the main dwelling."

To minimise landform changes, achieve compatibility with the established character of the locality and ensure that future residential amenity is of a high standard, built form controls will be implemented. A summary of those controls is provided in the following sections of this report.

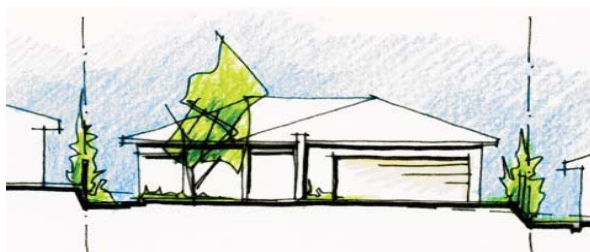
BUILDINGS ON SLOPING SITES

The method of construction for each specific lot will be determined by the steepness of the site and must consider methods to minimise disturbance of existing ground levels and to take maximum advantage of the natural slope.

Design guidelines will enforce few retaining walls evident from the streets and retaining elements taken up within the buildings. Single level slab on ground will only be permitted in slopes of up to 10% (1:10m). Dwellings on slopes greater than 10% (1:10m) must adopt split levels or suspended floor constructions.

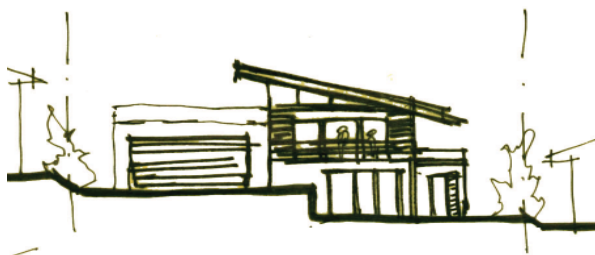
Single Slab on Ground Home (Not on grades above 10%)

- Single level slab on ground allows for minimal level change within the home.
- Not allowed for grades above 10% (1:10m) as all retaining elements occur on side boundaries.
- No level change in the home.



Partial Split Level Home (>10% and <20%)

- Split level home with garage at either bottom or mid level.
- Building form allows for up to 2m level change within building.
- This home type will still require some retaining elements outside of the home on steep sites.

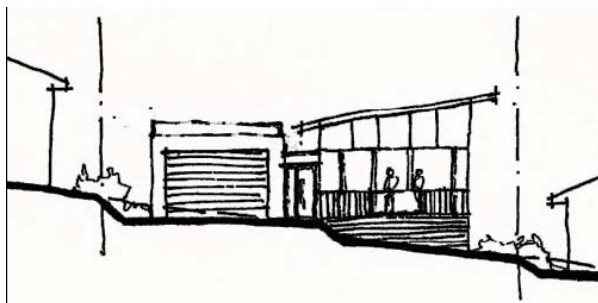


Single level home with partial slab on ground (>10% and <20%)

- Single level home that allows for a slab on ground for 50% of the dwelling. A good method to deal with slopes over 10% (1:10) with minimal retaining on lot boundaries.
- Up to 2.7m level change within the home.

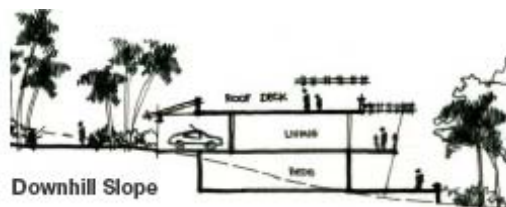
Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants



Full Split Level home (>15% and <20%)

- Split level home with 50% upper floor level and lower level to be slab on ground.
- It provides good pedestrian and vehicle access.
- 2.7m level change within the home requires minimal retaining (less than 1m) on side boundaries for 1:6 side slopes.



Suspended floor. (>15% and <20%)

- High set timber construction with minimal earthworks to allow for vehicle access under.
- Full suspended floors throughout.
- Pedestrian access to the home from the street and private open space is via stairs.



Suspended Floors. (>20%)

- Pole or light frame buildings offer a greater degree of flexibility in dealing with sloping and uneven land surfaces and solve many 'wet ground' housing maintenance problems.
- High set timber construction with minimal earthworks
- Full or partly suspended floors throughout.
- Buildings are not to be sited so that only roofs are visible from the street.
- Built form to be light weight construction with minor use of masonry with large overhangs characterised by sheet metal roofs and suspended decks.

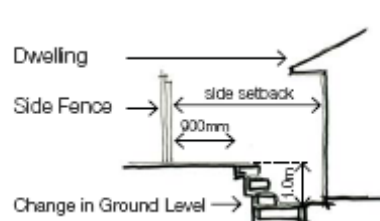


EXCAVATION AND EMBANKMENTS

Excavation and embankments must comply with The Tweed Shire Control Plan - Section A14 Cut and Fill on Residential Land.

All dwellings must avoid detrimental impact on adjoining allotments as well as to the streetscape. Excavation or fill outside of the dwelling shall not exceed 1.0 metres in height from the natural ground level of the land.

Existing levels must be maintained at all boundaries. All cut and fill faces must be kept at a minimum of 900mm clear of each boundary and must incorporate suitable garden beds and landscape solutions (shrubs & trees).



Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

BUILDINGS ON SLOPING SITES (cont.)

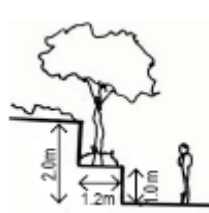
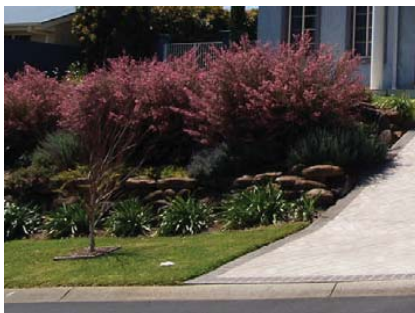
Cut and fill batters shall not exceed a slope of 1:2 (v:h) unless otherwise approved by Council. All batters are to be provided with both short term and long term stabilisation to prevent soil erosion.

Where a batter is greater than 1:2 or higher than 0.6 meters the embankment is retained by rocks, timber sleeper or other approved retaining walls.

Retaining structures are to be made of durable materials and drainage shall be provided at the foot of each embankment or retaining wall.

Retaining Walls

- Retaining walls should use materials that compliment the natural environment (ie. rocks or timber sleepers);
- Retaining walls made from metal or concrete will not be permitted;
- All retaining walls over 1.0m must be contained within the building and on driveways;
- Maximum height of any single level change external to the building is to be a maximum of 1.0m in height;
- Where retaining walls are incorporated on corner sites, they must be structured in accordance with the above mentioned requirements; and
- Any level change required exceeding 1.0m in height must be terraced with retaining walls. Retaining walls are to be a maximum of 1.0m each step with a maximum of 2 steps per terrace (as per diagram below).



Colours for all buildings should reflect the colours of the landscape. The Design Guidelines will promote the use of non-reflective, natural earthy or green colours. The specification of highlight colours on detailed building elements or feature elements can be used based on the ability to create a harmonious diversification on the built form.

All Ancillary structures, garages, carports and storage sheds are required to be complementary to the character of the main building in colour, material and form.

To promote a sense of arrival, entries to homes are to be clearly visible and identifiable from the street.

Design, appearance, external colours and materials are to be integrated with the design of the main building.

Roofs are to be a simple composition of shapes with the use of architectural elements to create interest to the elevations. Roof materials are limited to Colorbond profiled metal roofing of a low reflective finish.

Roof pitches for the main building shall be a minimum of 25 degrees for pitched roofs and 5 degrees for Skillions. All gutter and down pipe treatments must complement the dwelling design.

Low pitch roof elements may be used on secondary parts of the building such as verandahs, links and projections from the building bulk.

non-reflective,
natural earthy
colours and
highlighted colours in
detailed elements



Combination of
masonry and
lightweight materials.

non-reflective,
natural earthy
colours



Combination of
masonry and
lightweight materials.

Roof of main
building minimum 5°
for skillion
Minimum 600mm
overhangs



COLOURS AND MATERIALS

The use of warm natural materials such as timber and stone features carefully combined with masonry walls, metal feature panels, glass, aluminium and steel are encouraged to achieve streetscape variety. A maximum of 50% of external masonry will be encouraged.

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165

Town Planning & Development Consultants

Well defined entry (porch). Colours and materials are complementary to the design of the main building



Roof of main building minimum 25° for pitched roofs. Minimum 600mm overhangs



Annexure 14 also address issues relating to built form including character, amenity and engineering design standards for roads, allotment gradients, etc.

Site Characteristics

The development site is an in-fill area defined essentially by existing residential development on north, east and south perimeters, and topographical constraints westward, and to a lesser degree on the north east. It is in two ownerships but will be developed in stages as a single entity.

Design and Layout Control Factors

- Existing road connection points
- Topography
- Identified instability adjacent to the eastern boundary off Road No. 2
- Zoning demarcation per Tweed LEP 2000 and Amendment No. 21.
- Bushfire hazard protection zone requirements
- Basic services, to a lesser extent
- Access to small north-east section

1. Existing Road Connection Points

From the north the extension of Stott Street completed as a requirement for the adjoining Aged Care complex, is the only available thoroughfare, while Walmsleys Road provides the sole access southwards. Tweed Council have promoted the benefits of the connectivity from the outset, and the layout accordingly conforms.

The resultant route could be seen as a local collector road, and design provision is made for servicing by buses, although this is more likely to be school bus only.

2. Topography

With overall site variations between 10 AHD and 80 AHD and 40 and 80 AHD in the zoned development area, and some irregularity throughout, parts of some lots have steep sections. Endeavour has been made in all cases to have building envelopes available with slopes of no greater than 25%.

The design allows for road grades to meet the criteria in Tweed Development Control Plan. At the entry from Walmsleys Road, a section of Road No. 1 contains a cut batter on its west side, but this will not adversely impact the abutting holding, as it would logically be serviced, if and when developed, by extension of Walmsleys Road. Elsewhere minor side-cutting will be involved in a short section of Road No. 3.

3. Identified Instability

Within the eastern fringe of Lots 14-16 some instability restricts potential building, and for that reason, those lots have large areas with satisfactory building envelopes clear of the unstable section. Lot 13 is of course to be a local park meeting most suggested design elements in DCP (Local Parks).

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165

Town Planning & Development Consultants

4. Zoning Definition – Tweed LEP 2000

Zoning delineation is generally co-incident with topographic changes and vegetation margins although re-growth in the north-west section has progressed eastwards, leaving vegetation in the lower part of some lots. We nevertheless have taken the logical step of having lot boundaries matching the zone line.

In close liaison with Tweed Councils Environmental Officer involving onsite determination, to clarify the anomalies between the LEP and Amendment No. 21, a demarcation was adopted.

East of Lot 81, the 2(c) / 7(d) definition in LEP 2000 is not appropriate. The owner through representation to Council had the entirety of this eastern section down zoned to 7(A) on the Amendment 21. For reasons of topography, vegetation and bushfire hazard, the amended line is adopted as the development margin.

Bushfire Protection

Asset Protection Zones have been provided within Lots 14 – 17, 38, 39, 41, 42, 57, 59, 61, 62, 63, 70, 71 & 78 and lot design has identified within those lots, suitable building areas clear of the APZ's.

Lot 81 (C2 – C6) also give regard to hazard potential, where dwellings can be located sufficiently back in the blocks. These lots will be subject to Community Subdivision and regulated in the Management Statement.

Available Services

A water main within easement passes along Stott Street and through proposed Road No. 1 to Walmsleys Road. This had little bearing on subdivision format and will be upgraded in civil site works.

WASTEWATER IMPACTS AND MITIGATING MEASURES

BlueLAND Engineers advise as follows:

The wastewater generated by the proposed development is to be serviced by the existing pump stations in Bolwarra Place (Malua Estate) and Piggabeen Road. The 50 proposed allotments to the west of Stott Street would ultimately be served by the Piggabeen Road pump station via a pumped connection to the existing gravity main in Stott Street. These allotments could be serviced by either individual pump systems via a shared rising main or a single public sewer pumping station. Due to the steep nature of the site and likely access difficulties to a council pump station, we recommend provision of individual pumping systems. In either case, no access to the allotments downhill to the west of the site would be required for effluent disposal. Similarly the provision of this development would not prevent those allotments to the west of the site from providing their own effluent disposal as they have frontage to Piggabeen Road and Cobaki Road respectively. Allotments to the east of Stott Street would be serviced by a gravity fed connection to the Bolwarra Place pump station. Council officers (pers. Comm.) have advised that the downstream pump stations in Bolwarra Place and Piggabeen Road a of sufficient capacity to cater for the proposed development.

A sewer connection point installed with the adjoining subdivision abutting Lot 38 with invert level 59.6 AHD was a factor in placement of Lots 56 & 38-40, which will gravitate to the service. It is expected that Lots 41, 42, 57 and 59 will utilise individual lift pumps. Allotments east of Road No. 1 can gravitate to a pump station in the development to the east off Walmsleys road.

Access Road No. 5.

This corridor of 15m width was left by subdivision to access eastern parts of the underlying property. It is encumbered by a drainage easement within which there is an open swale drain, making it of insufficient width to form and dedicate as public road. A Private Access Way is intended, with lesser geometric standards, within the Community Scheme.

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165

Town Planning & Development Consultants

Lot Configuration

Where the terrain is regular, lots of formal rectangular shapes have been planned, being typically 20 x 33 metres and 660 m². Variations are necessary for reason outlined elsewhere, and include eleven (11) battleaxe sites. Each of these is considered acceptable as all have excellent outlook, not achievable on flat ground. The site circumstances also preclude alternate patterns to achieve desirable densities as prescribed for the zone, where the aim in the project is to minimise land forming.

The reciprocal arrangement involving Lots 70-72 is intended to double as access/drainage corridor. This and other drainage easements will be provided for conveyance of runoff from above or upstream lots.

Subdivision in DP 1117326 allowing retention of eastern and western parts by the original owner, eliminates the situation where lots were in two parts.

The sizes and shapes of all lots will allow the criteria in BASIX considerations to be met in ultimate dwelling designs.

CONCLUSION

The subdivision layout is considered as best can be achieved given the site constraints, and has been somewhat simplified by the fact that two developers have agreed on the joint project for the betterment of the overall.

Some steep sections are within, but as stated, the minimising of landforming, as also encouraged by Tweed Shire Council, has been a prime objective.

6.10 Acoustic Impacts

CRG Pty Ltd have prepared an Environmental Noise Impact Report in relation to the project. A copy of that Report is contained at **Annexure 19**.

The assessment has taken into account the effect of the increase in road traffic resulting from the proposed development, which is predicted to exceed the allowable 2 dB rise in existing noise levels by between 1.4 to 1.5 dB. Such an exceedance is not deemed significant, when it is considered that the average person cannot detect less than a 3 dB shift in sound pressure level. It is noted that we have assessed for these impacts towards the ends of Stott Street and Walmsleys Road, as the existing traffic proximate to the entry points into the subject site is non-existent, given that both streets are dead ended at present. Clearly, if noise was assessed at the existing dead end of these streets, exceedances much greater than those quoted in this report would result.

The site has two access points, thereby dispersing the traffic generated by the proposed use, which is a valid acoustical treatment cited in the NSW EPA's "Environmental Criteria for Road traffic Noise".

Potential impacts from both the earthworks phase of the development, and from the building construction phase have been assessed. As there is no set noise limit criteria in Tweed Shire Council for construction noise, Council have accepted in the past relying upon restriction of hours that works can be undertaken, generally restricting works to the following times:

- Monday – Friday: 7 am – 6pm
- Saturday: 7 am – 4 pm
- Sundays and Public Holidays: not allowable

In addition to the time restrictions, a system to manage noise impacts as much as is possible is contained in **Annexure 19**.

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165

Town Planning & Development Consultants

There is no fixed plant needed for dewatering of the site, therefore, all plant will be mobile. There will be periods when plant (and building construction) is being undertaken adjacent to the neighbouring residential property boundaries – there is little opportunity to control such impacts, apart from ensuring that all equipment is in good working order, and that mobile plant commence work as far from the dwellings as possible in the mornings."

6.11 Air Quality

The area is characterised by rural land used for grazing purposes and existing low density residential environments which do not give rise to significant dust or adverse impacts on air quality. There will be some impacts during the construction phase however these will be mitigated by way of limiting the area of disturbance, appropriate dust abatement measures and prompt rehabilitation of disturbed areas.

7.0 STATUTORY PLANNING

7.1 Environmental Planning and Assessment Act, 1979 (as amended) objects

The following table (**Table 8**) identifies the objects of the acts and demonstrates how the project is consistent with those objects.

TABLE 8 – ENVIRONMENTAL PLANNING AND ASSESSMENT ACT OBJECTS	
OBJECT	COMMENTS
(a) to encourage:	
(i) the proper management, development and conservation of natural and artificial 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,	<p>The proposed residential subdivision footprint will be limited to that part of the site zoned 2(c) Urban Expansion which is relatively unconstrained. High conservation value lands on the site will remain within Environmental Protection zones and will be contained within relatively large lots.</p> <p>The development site is identified within the Far North Coast Regional Strategy as an existing urban footprint and the site does not contain any natural resources of significance. It is therefore considered that the proposal is consistent with this objective of the Act.</p>
(ii) the promotion and co-ordination of the orderly and economic use and development of land,	<p>The 2(c) zoned land within the site has been identified since approximately 1990 as a future urban development area by way of the Tweed Shire Urban Development Strategy 1991, the North Coast Urban Planning Strategy 1995 and the Far North Coast Regional Strategy 2006 -2031. The Tweed Shire Development Program adopted on 17 December 1996 provides for an integrated and co-ordinated means of funding infrastructure to facilitate the orderly and economic use of the subject land and other land by way of appropriate contributions and infrastructure works. The site is therefore consistent with this objective.</p>
(iii) the protection, provision and co-ordination of communication and utility services,	See comments above.
(iv) the provision of land for public purposes,	The proposed subdivision will dedicate and embellish an appropriate area for passive recreation to meet the demand generated by the additional population.

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

TABLE 8 – ENVIRONMENTAL PLANNING AND ASSESSMENT ACT OBJECTS	
OBJECT	COMMENTS
<p>(v) the provision and co-ordination of community services and facilities, and</p> <p>(vi) the protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats, and</p> <p>(vii) ecologically sustainable development, and</p> <p>The Precautionary Principle</p> <p>Intergenerational Equity</p> <p>Conservation of Biological Diversity and Ecological Integrity</p> <p>Improved Valuation, Pricing and Incentive Mechanisms</p>	<p>Appropriate contributions will be paid where applicable towards the provision of community services and facilities including regional open space, cycleways/ walkways, the Council Chambers upgrade and the Eviron Cemetery upgrade.</p> <p>A detailed Ecological Assessment has been undertaken to identify the key site opportunities and constraints including the location of threatened species. The Subdivision Layout ensures that all high conservation value area will be retained in Environmental Protection zones and appropriate measures will be implemented to protect threatened species.</p> <p>The four principles of ecologically sustainable development are addressed as follows:</p> <p>Detailed investigations have been undertaken to identify the site's biophysical and geophysical opportunities and constraints. The development footprint is limited to that part of the site which is relatively unconstrained and those parts of the site which have high conservation values will be retained in their natural state in appropriate Environmental Protection zones.</p> <p>The development proposal identifies areas with natural values and retains them in their natural state with appropriate zonings. All lots will be connected to reticulated water supply and reticulated sewerage schemes and appropriate measures will be implemented to ensure that downstream water quality is not diminished as a result of the development.</p> <p>As indicated above, those parts of the site with high conservation values will be retained in Environmental Protection zones and no development will occur in those areas.</p> <p>All normal measures relation to pollution control (particularly in relation to urban stormwater) and the costs of building and servicing the development will be met by the developer and ultimately the consumers such that the proposed development is sustainable and commercially viable in the long term.</p>
(viii) the provision and maintenance of affordable housing, and	The proposal provides for a range of lot sizes to facilitate housing choice.
(b) to promote the sharing of the responsibility for environmental planning between the different levels of government in the State, and	In this case the Minister for Planning is the consent authority however the proposed development is consistent with Tweed Local Environmental Plan 2000 and relevant Tweed Shire Council Planning Policies.
(c) to provide increased opportunity for public involvement and participation in environmental planning and assessment.	The application will be advertised and publicly exhibited by the Department to enable the public to make comments on the project.

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

7.2 Threatened Species Conservation Act

The Ecological Assessment at **Annexure 13** addresses the Seven Part Test and State Environmental Planning Policy No. 44. and concludes that the proposed development will not have a significant effect and therefore a Species Impact Statement is not required. That report also recommends certain mitigation measures which are further addressed in Section 12.0.

7.3 Environmental Protection and Biodiversity Conservation Act 1999 (Commonwealth)

The Ecological Assessment at **Annexure 13** concludes that the proposed development does not give rise to a requirement for any approvals under the Commonwealth Environmental Protection and Biodiversity Conservation Act, 1999.

A copy of the Ecological Assessment was forwarded to the Commonwealth Department of Environment, Water, Heritage and The Arts on 14 January 2008. On 29 January 2008 Mr Nick Harris of the Department advised (pers. comm.) that there is no requirement to refer the project to the Department and he undertook to advise Sally Munk of the Department of Planning. Nick Harris has since left the Department.

On 1 September 2008 Petrina Alcock of the Department of the Environment, Water, Heritage and the Arts advised by email (**Annexure 20**) as follows:

"Thank you for your recent phone call regarding the outcome of the Department's enquires into the Bilambil Heights residential subdivision (Major Project Application No. 05-0198). This was in relation to obligations under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act).

As you would be aware, the Australian Government only has a role in regulating new developments that impact on certain key items of Australia's natural and cultural heritage, called matters of 'national environmental significance'. These matters are protected under the EPBC Act and include, for example, threatened ecological communities and plant and animal species listed at the national level, among others.

*Any new development involving an action likely to have a significant impact on any matters of national environmental significance requires consideration by the Department through submission of a referral form by the proponent. Surveys revealed that the listed vulnerable *Macadamia tetraphylla* (Rough Shelled Bush Nut) and listed endangered *Randia moorei* (Spiny Gardenia) were present in small numbers at and in the vicinity of the Walmsley Road site.*

Not all actions affecting matters protected under the EPBC Act will have a significant impact and require approval. I understand you have previously indicated to Nick Harris of this Department that you did not consider referral would be necessary. The Department examined this development, including the Ecological Assessment by Biolink which you provided. The outcome of this was that significant impacts on the two EPBC listed flora species at the site appeared unlikely and as such Nick called you on 28 January 2008 to advise that the Department would not be pursuing a referral for this development.

I hope this has helped clarify things. If you have any further questions please feel welcome to contact me directly, details below, as Nick has since left the Department."

7.4 Native Vegetation Act 2003

Section 5 of this Act provides that the Act does not apply to land described in Part 3 of Schedule 1. Schedule 1, Part 3, Paragraph 14 provides that land within a zone designated "residential" under an Environmental Planning Instrument is excluded from the operation of the Act. The 2(c) Urban Expansion zone is coloured pink on the Tweed Local Environmental Plan 2000 Zoning Map and is described by the numerical prefix "2" normally applicable to a residential zone. It is therefore considered that the 2(c) zone has the "substantial character" of a residential zone.

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165

Town Planning & Development Consultants

Therefore, development consent or a Property Vegetation Plan are not required under this act for the proposed clearing works within that part of the site zoned 2(c) Urban Expansion.

No vegetation removal is proposed in the environmental protection zones.

7.5 Tweed Local Environmental Plan 2000

Tweed Local Environmental Plan 2000 is the principal planning instrument controlling development within Tweed Shire generally and the subject land in particular. Under the provisions of this Plan, the land is zoned partly 2(c) Urban Expansion and partly 7(d) Environmental Protection Scenic Escarpment.

The aims of the Local Environmental Plan are as follows:

"The aims of this plan are:

- (a) *to give effect to the desired outcomes, strategic principles, policies and actions of the Tweed Shire 2000+ Strategic Plan which was adopted, after extensive community consultation, by the Council on 17 December 1996, the vision of which is:*

"The management of growth so that the unique natural and developed character of the Tweed Shire is retained, and its economic vitality, ecological integrity and cultural fabric is enhanced", and

- (b) *to provide a legal basis for the making of a development control plan that contains more detailed local planning policies and other provisions that provide guidance for future development and land management, such as provisions recommending the following:*

- (i) that some or all development should be restricted to certain land within a zone,*
- (ii) that specific development requirements should apply to certain land in a zone or to a certain type of development,*
- (iii) that certain types or forms of development or activities should be encouraged by the provision of appropriate incentives, and*

- (c) *to give effect to and provide reference to the following strategies and policies adopted by the Council:*

*Tweed Heads 2000+ Strategy
Pottsville Village Strategy, and*

- (d) *to encourage sustainable economic development of the area of Tweed compatible with the area's environmental and residential amenity qualities."*

Based on the Assessment at 7.11 it is concluded that the project is generally consistent with the Tweed 2000+ Strategic Plan and the subsequent Tweed Strategic Plan 4/24.

In addition, the project is consistent with aim (d) in the it achieves Council's urban land release objectives by providing additional housing choice to accommodate the continuing population growth within Tweed Shire.

The objectives of each zone are as follows:

"2(c) Urban Expansion

Primary objectives

- to identify land for urban expansion (which will comprise mainly residential development focused on multi-use neighbourhood centres) and to ensure its optimum utilization consistent with environmental constraints and the need to minimize residential land take.*

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

Secondary objectives

- *to allow associated non-residential development which meets the recreation, shopping, commercial, employment and social needs of future residents.*
- *to ensure that sensitive environmental areas within and outside the zone are protected from any adverse impacts of development.*
- *to enable planning flexibility to achieve the other objectives of the zone by providing detailed guidelines through development control plans.”*

“7(d) Environmental Protection Scenic Escarpment

Primary objectives

- *to protect and enhance those areas of particular scenic value to the area of Tweed, minimize soil erosion from escarpment areas, prevent development in geologically hazardous areas, and maintain the visual amenity of prominent ridgelines and areas.*

Secondary objective

- *to allow other development that is compatible with the primary function of the zone.”*

The following table summarises the range of permissible uses in each zone. The list is not exhaustive and reference should be made to the Local Environmental Plan for full details.

TABLE 9 – SUMMARY OF PERMITTED DEVELOPMENT				
USES	2(c) ZONE PERMISSIBILITY	COMMENTS	7(d) ZONE PERMISSIBILITY	COMMENTS
Dwelling Houses	Yes	Minimum 450m ² lot size	Yes	Minimum 40ha or Clause 57 lot
Multi-Dwelling Housing	Yes	See TDCP 2007 for density controls	Yes	Maximum of 2 dwellings on a 40ha lot or a Clause 57 lot
Agriculture	Yes	Item 3 use ie. must satisfy the prerequisites in Clause 8 of the LEP	Yes	Item 3 use (ie. must satisfy the prerequisites in Clause 8 of the LEP)
Shops	Yes	Item 2 use	Prohibited	
Commercial Premises	Yes	Item 2 use	Prohibited	
Recreation Areas	Yes	Includes sports fields and playgrounds	Yes	Item 3 use (ie. must satisfy the prerequisites in Clause 8 of the LEP)
Educational Establishments	Yes	ie. Schools	Prohibited	

As reflected in the objectives of each zone and the range of permissible uses, the 2(c) zone is quite flexible whereas the 7(d) zone is very restrictive.

While the 2(c) zone objectives contemplate more detailed planning through a Development Control Plan, this is not considered to be necessary in the circumstances of this case because virtually the whole of the undeveloped 2(c) land in this locality is covered by this Major Project Application. In addition, the future urban pattern for the area is largely determined by existing street networks, zone boundaries and residential neighbourhoods. The project is considered to be consistent with the provisions of Tweed Local Environmental Plan 2000.

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

The Tweed Shire Council Tree Preservation Order (1990) applies to that part of the site zoned 2(c) while the 2004 Tree Preservation Order applies to the area zoned Environmental Protection.

The proposal is entirely consistent with the objectives of the 2(c) zone in that it will achieve optimum use of the unconstrained land for residential purposes. Compliance with the objectives of the 7(d) zone is also achieved by including all 7(d) land in one lot and excluding any disturbance or landform changes.

The following Clauses of the Plan are relevant to this application:

Clause 15 – Availability of Essential Services

All normal urban services are available to the site. It is considered that the existing services have adequate capacity to service the proposed development. Accordingly, it is considered that the proposal fully complies with this Clause having regard to the Report at **Annexure 14**.

Clause 16 – Height of Building

A three storey height limit applies to this site. Any future buildings on the proposed allotments will comply with this requirement.

Clause 17 – Social Impact Assessment

In accordance with the provisions of this Clause and Tweed Development Control Plan 2007, Part A13 a Socio-Economic Impact Assessment is required to accompany this application. A separate Socio-Economic Impact Assessment report is contained at **Annexure 15**.

Clause 19 – Subdivision General

This Clause provides that development consent is required to subdivide land.

Clause 20 - Subdivision in Zones 1 (a), 1 (b), 7 (a), 7 (d) and 7 (l)

"(1) Objectives

- *to prevent the potential for fragmentation of ownership of rural land that would:*
 - (i) *adversely affect the continuance or aggregation of sustainable agricultural units, or*
 - (ii) *generate pressure to allow isolated residential development, and provide public amenities and services, in an uncoordinated and unsustainable manner.*
- *to protect the ecological or scenic values of the land.*
- *to protect the area of Tweed's water supply quality.*

(2) Consent may only be granted to the subdivision of land:

- (a) within Zone 1 (a), 1 (b2), 7 (a), 7 (d) or 7 (l) if the area of each allotment created is at least 40 hectares, or*
- (b) within Zone 1 (b1) if the area of each allotment created is at least 10 hectares.*

(3) Despite subclause (2), consent may be granted to the subdivision of land where an allotment to be created is less than 40 hectares, or 10 hectares in the case of Zone 1 (b1), if the consent authority is satisfied that the allotment will be used for a purpose, other than for an agricultural or residential purpose, for which consent could be granted.

(4) For the purposes of subclauses (2) and (3):

- (a) land is taken to be within Zone 1 (b1) if it is shown on the zone map by the marking "1 (b1)", and*
- (b) land is taken to be in Zone 1 (b2) if it is shown on the zone map by the marking "1 (b2)".*

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

Proposed Lot 63 (3.108 hectares) does not comply with the 40 hectare development standard contained in Clause 20(2)(a). However, as the parent parcels contain "split zonings" and given that the whole of the land zoned 7(d) will be contained in this lot (together with a suitable area of 2(c) zoned land on which a dwelling house can be erected) it is submitted that a variation to the 40 hectare development standard is justified in the circumstances.

Clause 26 - Development in Zone 7 (d) Environmental Protection (Scenic/Escarpment)

"(1) Objective

- to ensure that the development of land within Zone 7 (d) minimises soil erosion and will preserve or enhance the scenic quality of the land and the locality.*

(2) Unless it is exempt development, a person must not clear vegetation from, excavate or erect a building on land within Zone 7(d) except with development consent.

(3) Consent must not be granted to the erection of a building on land within Zone 7 (d) unless the consent authority is satisfied that:

- (a) the scale, height and location of the building, and*
- (b) the colour, type and reflectivity of materials to be used,*

will preserve or enhance the scenic quality of the land and the locality."

No physical works or buildings are proposed on that part of the site zoned 7(d). The whole of the 7(d) land will be contained in one lot (Lot 63) which includes approximately 1000m² of 2(c) zoned land on which a dwelling house can be located.

Clause 32 – Aircraft Noise

The site is not located on land within the 20 or higher ANEF contour and therefore this Clause is not applicable.

Clause 39 – Remediation of Contaminated Land

See comments under State Environmental Planning Policy No. 55.

Clause 39A – Bushfire Protection

The land is mapped as bushfire prone and accordingly compliance with the publication "Planning for Bushfire Protection" must be demonstrated. The Ecological and Bushfire Assessment at **Annexure 13** addresses this Policy and demonstrates compliance.

Clause 44 - Development of Land Within Likely or Known Archaeological Sites

"(1) The consent authority may grant consent to the carrying out of development on an archaeological site that has Aboriginal heritage significance (such as a site that is the location of an Aboriginal place or a relic within the meaning of the National Parks and Wildlife Act 1974), or a potential archaeological site that is reasonably likely to have Aboriginal heritage significance only if:

- (a) it has considered an assessment of how the proposed development would affect the conservation of the site and any relic known or reasonably likely to be located at the site prepared in accordance with any guidelines for the time being notified to it by the Director-General of National Parks and Wildlife, and*
- (b) it has notified the Director-General of its intention to do so and taken into consideration any comments received from the Director-General within 28 days after the notice was sent, and*
- (c) it is satisfied that any necessary consent or permission under the National Parks and Wildlife Act 1974 has been granted."*

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165

Town Planning & Development Consultants

No archaeological sites or potential archaeological sites have been identified on the land. The Cultural Heritage Reports at **Annexure 16** conclude that the site does not possess many of the geographical features commonly associated with sites of Aboriginal cultural significance.

"(2)The consent authority may grant consent to the carrying out of development on an archaeological site that has non-Aboriginal heritage significance or a potential archaeological site that is reasonably likely to have non-Aboriginal heritage significance only if:

- (a) it has considered an assessment of how the proposed development would affect the conservation of the site and any relic known or reasonably likely to be located at the site prepared in accordance with any guidelines for the time being notified to it by the Heritage Council, and*
- (b) it has notified the Heritage Council of its intention to do so and taken into consideration any comments received from the Heritage Council within 28 days after the notice was sent, and*
- (c) it is satisfied that any necessary excavation permit required by the Heritage Act 1977 has been granted."*

No known non aboriginal sites of heritage significance have been observed or identified on the development site.

Clause 45 - Development In The Vicinity of Heritage Items, Heritage Conservation Areas, Archaeological Sites or Potential Archaeological Sites

The consent authority must take into consideration the likely effect of the proposed development on the heritage significance of a heritage item, heritage conservation area, archaeological site or potential archaeological site, and on its setting, when determining an application for consent to carry out development on land in its vicinity.

No heritage items, heritage conservation areas, archaeological sites or potential archaeological sites exist on the development site based on the provision of Schedule 2 of Tweed Local Environmental Plan 2000; Schedules 1 and 2 of the North Coast Regional Environmental Plan 1988 and the findings of the Preliminary Cultural Heritage Assessments at **Annexure 16**.

7.6 North Coast Regional Environmental Plan 1988

Clause 15 – Development Control – Rivers, Streams and Wetlands

This Clause seeks to ensure that development proposals do not adversely impact on the water quality and habitat avenues of downstream water bodies.

The Infrastructure Assessment Report at **Annexure 14** includes detailed measures for the control of water quality both during the construction and operational phases such that the objectives of this Clause are complied with.

Clause 32B - Coastal Lands

Relevant provisions of this Clause are addressed in the following table.

TABLE 10 – CLAUSE 32B COASTAL LANDS	
PROVISION	COMMENT
1) "In determining an application for consent to carryout development on land to which the Coastal Policy applies, the Council shall take into account – a) The NSW Coastal Government Policy; b) The Coastline Management Manual; and	The Relevant matters for consideration in this Policy are addressed at Section 7.12 of this Statement. The land is not affected by coastal processes.

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

TABLE 10 – CLAUSE 32B COASTAL LANDS	
PROVISION	COMMENT
<i>c) The North Coast Design Guidelines</i>	The key guidelines will be included in the design of the future buildings, particularly in relation to the building form, cladding materials, solar access and energy efficiency.
<i>2) The Council shall not consent to the carryout of development which would impede public access to the foreshore area;</i>	Not applicable.
<i>3) The Council shall not consent to the carrying out of development –</i>	Not applicable.
<i>a) On urban land at Tweed Heads, Kingscliff, Byron Bay, Ballina, Coffs Harbour or Port Macquarie, if carrying out the development would result in beaches and adjacent open space being overshadowed before 3 pm mid-winter (standard time) or 6.30 pm mid-summer (daylight saving time); or</i>	Not applicable.
<i>b) Else where in the region, if carrying out the development would result in beaches or waterfront open space being overshadowed before 4 pm mid-winter (standard time) or 7 pm mid-summer (daylight saving time)."</i>	Not applicable.

Clause 43 – Development Control – Residential Development

This Clause provides that consent to development for residential purposes shall not be granted unless the consent authority is satisfied that the density of the dwellings have been maximised without adversely affecting the environmental features of the land and that road widths are not excessive.

The proposed layout achieves 84 residential allotments which results in a yield of approximately nine lots per hectare. The North Coast Urban Planning Strategy identifies a target yield of fifteen dwellings per hectare.

Without significantly impacting on landforms and the established character and amenity of the area it is not feasible to achieve the target densities and having regard to the site analysis contained in this report it is concluded that the proposed yields are optimal and consistent with this Clause.

Clause 66 – Development Control – Adequacy of Community and Welfare Services

This Clause provides that before consent for the subdivision of land intended for residential purposes the consent authority shall consider the adequacy of community and welfare services available. The site is conveniently located in relation to the town of Tweed Heads which provides for all necessary requirements in terms of community services and facilities. In addition, as indicated in Section 7.17 of this report, Council requires contributions to be paid in respect of a range of community facilities likely to be required by future residents.

7.7 State Environmental Planning Policy No. 14 – Coastal Wetlands

The land to which this Major Project application relates is not affected by the provisions of this State Environmental Planning Policy. The nearest mapped wetlands under the provisions of this Policy are located approximately 150m to the northwest of the site with an additional area located immediately north adjacent to Piggabeen Road.

The development would not have any measurable impact on downstream stormwater capacity due to the on-site storage of stormwater runoff. The potential increase in stormwater pollutants attributable to the proposed development would be reduced by introduction of treatment devices in accordance with Tweed Shire Council requirements. The Cobaki Broadwater and Terranora Broadwater are remote to the site and no measurable impacts on stormwater runoff or quality are anticipated.

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

Given the extensive buffers from the site to the mapped wetland and subject to normal water quality management measures the existing State Environmental Planning Policy No. 14 – Wetlands do not impose a significant constraint on the development potential of the site.

7.8 State Environmental Planning Policy No. 44 – Koala Habitat Protection

SEPP 44 commenced on the 13th February 1995, its aim to encourage the proper conservation and management of areas of natural vegetation that provide habitat for koalas to ensure a permanent free-living population over their present range and reverse the current trend of koala population decline:

- a) by requiring the preparation of plans of management before development consent can be granted in relation to areas of core koala habitat; and
- b) by encouraging the identification of areas of core koala habitat; and
- c) by encouraging the inclusion of areas of core koala habitat in environment protection zones.

The Tweed Local Government Area is listed in Schedule 1 of the policy as lands to which the policy applies. The site has an area of more than one hectare and is thus subject to Part 2 of the Policy (Development Control of Koala Habitats).

A. Is the land potential koala habitat?

For the purposes of SEPP 44, potential koala habitat “means areas of native vegetation where the trees of the types listed in Schedule 2 constitute at least 15% of the total number of trees in the upper or lower strata of the tree component.”

Koalas are obligate foliovores feeding on species in the genus *Eucalyptus*. Aside from the patches of rainforest, sclerophyll vegetation within the study area is restricted to scattered individuals and small clusters of trees. Within these areas, two species of koala browse were identified – *E. propinqua* and *E. microcorys*. In this respect, Potential Koala Habitat occurs in two areas within the Walmsley’s Road study area – a small patch of *E. propinqua* in the north western corner of Lot 4 DP 1054848 and a small patch of *E. microcorys* east of the property boundary of Lot 4 DP 1054848. These species constitute greater than 15% of the total number of trees in the upper strata in each respective area, but are also located in adjoining lands that will not be affected by the proposed development.

B. Is the land core koala habitat?

For the purposes of SEPP 44, core koala habitat “means an area of land with a resident population of koalas, evidenced by attributes such as breeding females (that is, females with young) and recent sightings of and historical records of a population.”

Given that the amount of Potential Koala Habitat present within the study area is small and no evidence of utilisation by koalas was recorded by formal SAT assessments in 2003 or targeted faecal pellet searches or the fauna survey in May 2008, it is concluded that for the purposes of SEPP 44, the land is not Core Koala Habitat.

7.9 State Environmental Planning Policy No. 55 – Remediation of Land

In summary, Clause 7 of this Policy provides that the consent authority must not consent to the carrying out of any development on land unless it has considered, among other things, whether the land is contaminated, based on a preliminary investigation of the land carried out in accordance with the Contaminated Land Planning Guidelines.

The Contaminated Land Planning Guidelines (Department of Urban Affairs and Planning, Environment Protection Authority, 1998) provide information relating to preliminary contamination investigations. In addition, Council has adopted a Contaminated Land Policy which contains details of the information required to be submitted with applications for development.

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165

Town Planning & Development Consultants

Soil Contamination Assessments have been prepared (Gilbert and Sutherland, September 2003 and October 2003) copies of which are attached at **Annexure 11** respectively. Those reports conclude that the land is suitable for urban development.

7.10 State Environmental Planning Policy No. 71 – Coastal Protection

The land to which this Major Project application relates is within the coastal zone as defined under the provisions of this Policy and as the development involves a subdivision for more than 25 residential lots a Development Control Plan would normally be required pursuant to Clause 18 of the Policy. However as this is a Major Project the provisions of Clause 18 do not apply.

Clause 8 of the Policy requires various criteria to be considered in assessing any development application. The relevant matters for consideration in Clause 8 are addressed in the following table.

TABLE 11 – MATTERS FOR CONSIDERATION UNDER CLAUSE 8	
MATTERS FOR CONSIDERATION	COMMENT
a) The aims of this Policy set out in Clause 2.	The proposal is consistent with the aims of the Policy.
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.	The subject land does not have frontage to foreshore reserve and therefore this consideration is not relevant.
c) Opportunities to provide new public access to and along the coastal foreshore for pedestrians or persons with a disability.	See Above.
d) The suitability of development and its type, location and design and its relationship with the surrounding area.	Development of the subject land as proposed is consistent with the zone objectives of Tweed LEP 2000 and is also consistent with ESD principles and urban consolidation objectives.
e) Any detrimental impact that the 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.	The site does not have frontage to the coastal foreshore.
f) The scenic qualities of the NSW coast, and means to protect and improve these qualities.	The site is approximately 6km from the coast and is not visually prominent.
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.	Given that the development site (ie. 2(c) zoned land) does not contain any significant native vegetation, it is submitted that impacts will be negligible.
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	Subject to normal management measures in relation to water quality and given that the site does not contain any marine vegetation, it is submitted that impacts will be negligible.
i) Existing wildlife corridors and the impact of development on these corridors.	The site is located within an area, which is urbanised. Wildlife corridors are provided by the 7(d) zoned land to the east and west of the development site.
j) The likely impact of coastal processes and coastal hazards on development and any likely impacts of development on coastal processes and coastal hazards.	The site is not subject to coastal processes.
k) Measures to reduce the potential for conflict between land based and water based coastal activities	Not applicable.
l) Measures to protect the cultural places, values, customs, beliefs and traditional knowledge of aboriginals.	The Cultural Heritage Assessments at Annexure 16 conclude that the site is lacking in features that are commonly associated with sites of cultural significance.

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

TABLE 11 – MATTERS FOR CONSIDERATION UNDER CLAUSE 8	
MATTERS FOR CONSIDERATION	COMMENT
m) Likely impacts of development on the water quality of coastal water bodies.	Subject to implementation of normal water quality management measures during the construction phase, the proposed development is unlikely to have any impact on water quality.
n) The conservation and preservation of items of heritage, archaeological or historic significance.	No items have been identified on site.
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.	Not applicable.
p) Only in cases in which development application in relation to proposed development is determined;	The project includes appropriate management and mitigation measures to ensure that cumulative impacts are minimised.
i) The cumulative impacts on the proposed development on the environment;	
ii) Measures to ensure that water and energy usage by the proposed development is efficient.	

7.11 State Environmental Planning Policy – Major Projects

Clause 6 of this Policy provides that development that, in the opinion of the Minister, is development of a kind described in Schedules 1 or 2, or described in Schedule 3, is State Significant Development, for which the Minister is the consent authority.

In correspondence dated 20 April 2006 the Director General, as delegate of the Minister, advised that the Minister has formed the opinion that the proposal is a project and that Part 3A of the Act applies.

7.12 NSW Coastal Policy 1997

The maps accompanying the Coastal Policy indicate that the site falls within the area to which the Policy applies.

Table 2 of the Coastal Policy contains a number of strategic actions relevant to development control. The following table (**Table 12**) addresses those strategies of particular relevance to this application. In summary, approval of the application would not be inconsistent with the Coastal Policy.

TABLE 12 – COASTAL POLICY COMPLIANCE MATTERS		
STRATEGIC ACTION NO.	STRATEGIC ACTION	COMMENT
1.3.2 & 1.3.8	Stormwater Quality	This issue is addressed in the Infrastructure Impact Assessment at Annexure 14 . In summary implementing pollution control structures will mitigate the potential increase in pollution attributable to development of the site. Runoff from the site flowing towards Cobaki Broadwater and Terranora Broadwater will be treated in accordance with Tweed Council requirements. As a consequence of the remoteness of the site from these downstream environments no measurable impacts on water quality are anticipated.
1.4.5	Coastal Hazards	The land is not affected by coastal processes.
2.1.4	Acid Sulphate Soils	The site is not affected by Acid Sulphate Soils.

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

TABLE 12 – COASTAL POLICY COMPLIANCE MATTERS		
STRATEGIC ACTION NO.	STRATEGIC ACTION	COMMENT
3.2.1	North Coast Design Guidelines	The key guidelines will be included in the design of the future buildings, particularly in relation to the building form, cladding materials, solar access and energy efficiency.
3.2.4	Design and Locational Principles	The subdivision design is consistent with the coastal design guidelines for NSW (Department of Planning 2003), Tweed Development Control Plan 2007, Section A5 – Subdivision Manual and the site's biophysical and geophysical opportunities and constraints, as is demonstrated elsewhere in this Environmental Assessment.
7.2.3	Surf Life Saving	Section 94 contributions apply towards the provision of life saving facilities. The contribution rates are summarised in Section 7.15.

7.13 NSW Coastal Design Guidelines, February 2003

The subject land is located within the Coastal Zone and therefore the Coastal Design Guidelines apply to the project. Following consultations with Sally Munk it was agreed that the site and development proposal are most appropriately categorised as an "Inland Coastal Centre" for the purposes of the Guidelines. Relevant provisions of the Guidelines are addressed in the following table.

TABLE 13 – COASTAL DESIGN GUIDELINES (INLAND COASTAL CENTRES)		
PART	GUIDELINE	COMMENT
PART 1 – HIERARCHY OF SETTLEMENTS		
Inland Coastal Centres – Cities, Towns and Villages		
1. Relationship to the environment.		
	The relationship of the centre to the environment ensures:	
a.	A clear relationship with the original landform and topography, the waterfront and other natural features is maintained.	Minimal change to landform are proposed. Council's Land Forming Policy will be complied with as addressed in Annexure 14 .
b.	Aboriginal and European sites and relics are protected.	The site does not contain Aboriginal or European relics (see Annexure 16).
c.	Emergencies are planned for during flood events.	The site is not flood prone.
d.	The river frontage remains in public ownership.	The site does not have frontage to a river or any waterbody.
e.	Water-based transport options are implemented, where possible	Not applicable.
f.	A positive role for the river and open space is created by refocussing redevelopment within the settlement to the river.	Not applicable.
g.	Ecological links along the river from the hinterland to the coast are established.	Not applicable.
h.	Boating and marina facilities are designed to limit impact on aquatic vegetation and discourage anchorage over these sensitive areas.	Not applicable.
i.	Mangroves and in-stream habitats are protected.	Not applicable.
j.	Setbacks are to protect the river bank from erosion and rehabilitate riparian areas and restrict vegetation clearance along the river.	Not applicable.

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

TABLE 13 – COASTAL DESIGN GUIDELINES (INLAND COASTAL CENTRES)		
PART	GUIDELINE	COMMENT
k.	Micro-climatic conditions are enhanced through landscaping.	Existing vegetated areas surrounding the urban footprint will be maintained and appropriate landscaping within the subdivision is proposed.
l.	Impacts on water quality in downstream wetlands, estuaries, coastal lakes, creeks and beaches are reduced through implementing sustainable water and waste water systems.	The site is well removed from downstream wetlands and estuaries and the water quality management measures identified in Annexure 14 will ensure that no adverse impacts occur.
2. Visual Sensitivity		
a.	Links between major open spaces within the centre to the river or lake provides visual connections.	The site is not in close proximity to a river or lake and is not visually prominent.
3. Edges to the water and natural areas in new coastal settlements.		
The relationship of the settlement to the river is improved.		
a.	Public boat launching and fishing facilities in preference to private facilities.	Not applicable.
b.	Visual and physical links between open spaces within the town centre to the river.	Not applicable.
c.	Access to the river foreshore and open space, walks and recreation areas whilst protecting the riverbanks and maintaining access from the town centre to the river or waterfront.	Not applicable.
4. Streets		
a.	The original historic street pattern and character of streets is retained and enhanced and public transport is optimised within the town and links to nearby coastal settlement.	This is a greenfield site with no historic street pattern. Stott Street and Walmsleys Road will be linked and will provide a future bus route.
b.	The street pattern is a traditional grid and contains a hierarchy of streets including: <ul style="list-style-type: none"> streets of the original and historic subdivision and topographic pattern of the settlement, whether within the centre or in residential areas, which reveal vistas through the settlement. a main social, retail and commercial street - a main access road passing through the centre of the settlement with a secondary arterial road bypassing the settlement. key cultural and urban streets that connect to landmarks, vistas, public buildings, focal points, monuments and places of Aboriginal importance within the settlement. streets with development on only one side that define public open spaces, such as parks, squares, the edges of conservation areas and the 1:100 year flood line. streets located to manage bush fires. laneways to offer ready access between streets. pedestrian and cycle pathways and networks. 	<p>Where permitted by topographic and cultural constraints a grid pattern layout is proposed.</p> <p>As this is a residential estate only rather than a town centre, the requirement is not applicable.</p> <p>There are no points of significance which need to be connected by way of proposed streets.</p> <p>Road No. 2 forms an edge into the proposed public reserve (Lot 13).</p> <p>Road No. 5 has been located to provide an asset protection zone. however perimeter roads are not feasible around the whole urban footprint because of topographic constraints and cost considerations.</p> <p>All streets are connected and only one cul-de-sac is proposed.</p> <p>Contributions are applicable to Council's cycleway network.</p>
5	Buildings	
a.	Development is sensitive to the heritage character of the centres, responding to the existing scale and proportion of original buildings in the town centre.	The site is not within the town centre and the future urban and built form character of the area will be compatible with adjacent residential estates as detailed in Annexure 17 .

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

TABLE 13 – COASTAL DESIGN GUIDELINES (INLAND COASTAL CENTRES)		
PART	GUIDELINE	COMMENT
b.	Building type and form is based on whether the settlement is a village, town or a city. The heart of the centre has high quality and intact heritage buildings and streets, this is maintained and enhanced.	See comments above.
c.	The main street has a mix of building types, including heritage buildings, residential flat buildings, shop-top housing, retail, commercial and educational buildings. Surrounding the centre are heritage buildings, town houses, terraces, small houses together with retail and educational buildings.	There is no main street per se as this subdivision does not include a town centre.
d.	Large industrial, commercial and tourist developments are located to respect the environmental, urban and visual constraints of the settlement.	Not applicable.
e.	Development in the centre is encouraged.	Not applicable.
6. Height		
a.	Heights respond to the scale of the settlement, street widths and the relationship to heritage buildings and view corridors.	Buildings will generally be limited to two storeys in height as indicated in the Residential Character and Built Form Report at Annexure 17 . There are no significant view corridors within the site.
b.	Heights correspond with the settlement size, whether a village, a town or a city. Heights adjacent to or surrounding heritage and original buildings address the principles as outlined in the Burra Charter.	The site does not have any heritage values and future dwellings will be up to two storeys which is compatible with adjacent residential estates.
c.	Heights are subject to place-specific urban design studies that consider a response to the local context. New development is appropriate to the predominant form and scale of surrounding development (either present or future), surrounding landforms and the visual setting of the settlement particularly when viewed from the foreshore. Buildings avoid overshadowing of public open spaces, the foreshore and beaches in centres before 3pm midwinter and 6.30pm Summer Daylight Saving Time. Elsewhere avoid overshadowing of public open spaces, the foreshore and beaches before 4pm midwinter and 7pm Summer Daylight Saving Time.	The Urban Design and built Form Report at Annexure 17 addresses building heights and proposes generally two storey maximum, compatible with surrounding development. The buildings will not overshadow beaches and foreshores as they are approximately 5km to the east.
PART 2 – DESIGN PRINCIPLES FOR COASTAL SETTLEMENTS		
Defining the Footprint and Boundary		
Maintaining a Compact Development Footprint		
2	<p>Strategies for development within a settlement centre occur through place-specific urban design plans and development controls. As a minimum this results in working with the existing settlement character to have regard for:</p> <ul style="list-style-type: none"> a. the public domain, open spaces, streets and heritage b. the subdivision, block, lot and street pattern and character c. views and visual setting d. bulk, scale, height and building type e. extent and location of private open spaces f. configuration of car parking and driveways g. setbacks from the street and from side and rear boundaries h. landscaping i. materials and detailing of buildings. 	This is a greenfield site with existing residential estates to the north and southeast. These estates establish the existing character and the future Residential Character and Built Form Report at Annexure 17 addresses the future character of the proposed development.

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

TABLE 13 – COASTAL DESIGN GUIDELINES (INLAND COASTAL CENTRES)		
PART	GUIDELINE	COMMENT
Connecting Open Spaces		
Design Guidelines for the Open Space Network		
1(a)	Locate and connect new and existing open spaces which protect and maintain nature reserves, conservation areas, parklands and environmental protection areas.	It is not possible to connect the proposed public reserve (Lot 13) with any other open spaces as it is intended to provide usable casual open space for the new residents. All high conservation value vegetation to the west and east of the site will be maintained in appropriate Environmental Protection zones.
7	Establish edge open spaces with street and pedestrian pathways. These are best located within the development footprint of the settlement rather than in an open space zone.	The proposed public reserve (Lot 13) is located on the edge of the development footprint.
8	Provide pedestrian and cycle access that: <ul style="list-style-type: none"> • does not compromise the ecological values of high conservation areas • connects important places throughout the settlement • connects residential areas to commercial and retail locations without compromising the visual, aesthetic or ecological values of the foreshore. 	Because of the difficult terrain pedestrian and cycle access is challenging however paved footpaths will be provided in accordance with Tweed Development Control Plan 2007, Part A5 and contributions will be paid towards the regional cycleway network.
9	Provide a variety of large and smaller open spaces to serve a range of different active and passive recreational roles, eg: <ul style="list-style-type: none"> • playing fields; • playgrounds and small pocket parks; • walking and cycling connections; • places and activities for people with physical disabilities. 	Proposed Lot 13 will be a public reserve which will serve as a playground and small pocket park. It will be suitably embellished and meets the size and locational standards required by Tweed Development Control Plan 2007, Part A5. The size of the estate does not justify onsite playing fields and contributions in lieu are proposed in accordance with Council's normal open space strategy.
Protecting the Natural Edges		
Design Guidelines for the Natural Edge		
1	Define the key characteristics and functions of public spaces along the foreshore with particular regard for sites of significant social and cultural importance.	The site does not have frontage to a foreshore area.
2	Maintain foreshore areas and setbacks in public ownership	
4	Provide pedestrian access to and along the foreshore with provision for those with less mobility.	
8	Design and locate foreshore facilities such as car parks, toilet blocks and picnic areas to reduce their visual intrusion on the foreshore, view corridors and vistas.	
19	Set new development back from the foreshore edges of the ocean, lakes and other waterways to protect visual amenity and create opportunities for public access.	
20	The design of buildings and other structures adjoining the foreshore complements the function and character of the foreshore.	
21	Setbacks in public ownership wherever possible, allow opportunities for public access and have limited development including no roads, private allotments, infrastructure and retaining walls in these locations.	

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

TABLE 13 – COASTAL DESIGN GUIDELINES (INLAND COASTAL CENTRES)		
PART	GUIDELINE	COMMENT
Reinforcing the Street Pattern		
Design Guidelines for Reinforcing the Street Pattern		
1	Building on the original and established street and block patterns in terms of the pattern of circulation, access to lots and uses.	This is a greenfield site where the only existing street pattern is Walmsleys Road and Stott Street which will be linked to improve connectivity and permeability. Pathways will be provided throughout the estate.
10	Reinforcing main streets as the commercial and social heart of the settlement	
14	Establishing a system of pedestrian pathways throughout the settlement and between settlements	
Appropriate Buildings for a Coastal Context		
Design Guidelines for Appropriate Buildings in a Coastal Context		
Built Form Guidelines for all Sites		
2	Reinforce the clarity of the settlement structure with new buildings that are appropriate in terms of location, uses, scale, height and site configuration.	Annexure 17 comprises a Future Residential Character and Built Form Report addressing these considerations. The Report will form the basis of design guidelines for the estate to ensure that appropriate buildings for a coastal context are achieved.
3	Reinforce the desired future character of the settlement.	
4	Consider the appropriateness of new buildings within the whole streetscape rather than each building as a stand-alone object.	
5	Maintain consistent street setbacks and street edge configurations.	
6	Ensure buildings address the street by providing direct and on-grade entries to the street for residential, commercial and retail purposes.	
8	Protect views from public places and streets by maintaining consistent setbacks along streets and not placing buildings in view corridors.	
9	Protect local views and vistas throughout and surrounding the settlement from public places by relating new buildings to the topography, reducing heights to maintain views of the surrounding landscape and maintaining consistent height, bulk and scale with the street and local context	
11	Ensure development and neighbouring properties have: <ul style="list-style-type: none">♦ access to daylight♦ access to natural ventilation♦ visual privacy and acoustic privacy♦ private open space♦ a pleasant micro-climate	
12	Achieving amenity relates to the design of individual buildings and, in particular to: <ul style="list-style-type: none">♦ building orientation depth;♦ the size of the lot;♦ open space location, size and connection with the inside of the building;♦ car parking location and access;♦ pedestrian access from the street;♦ street edge configuration and building separation;♦ mature trees, vegetation and soil areas.	

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

TABLE 13 – COASTAL DESIGN GUIDELINES (INLAND COASTAL CENTRES)		
PART	GUIDELINE	COMMENT
Built Form Design Guidelines for Specific Locations within a Settlement		
2	Ensure development (or redevelopment) on these sites is no bigger in scale, depth, floor space ratio, height and footprint than existing buildings on the site unless urban design control generates an alternative solution which responds to the site's significant characteristics and the desired future character of the area. This is particularly important for visually prominent sites such as headlands, cliff edges and prominent coastal ridges.	See comments above.
3	Create a public interface to the site and ensure development does not degrade the public nature of the site or the public open spaces adjoining or surrounding the site by: <ul style="list-style-type: none">• reinforcing public and active uses;• setting development back a sufficient distance to ensure adjoining public open spaces are not effectively privatised;• ensure building edges adjoining public spaces reinforce public uses along and within public land.	See comments above.
4	Mitigate overshadowing of public open space and the foreshore by applying the standard, no overshadowing before 4.00pm midwinter and 7.00pm summer daylight saving time.	Future buildings will not overshadow foreshore open space.
5	Define the boundaries of the site with a public edge, such as pedestrian pathways, public laneways or public streets, that connect to the street hierarchy.	Because of topographic and cost constraints it is not feasible to define the boundaries of the site with pathways, laneways or streets.
6	Ensure buildings have well articulated and scaled elevations.	Appropriate building designs are addressed in the Residential Character and Built Form Report at Annexure 17 .
Along the Settlement Edge		
1	Prevent the privatisation of public open space by ensuring development adjacent to the edge maintains public access. Generally the boundary between public and private land may be defined with pedestrian pathways, public laneways or public streets that connect to the street hierarchy. The transition from private to public uses should be designed to consider security and privacy for residential uses.	Proposed public reserve (Lot 13) will be defined by the street frontage and appropriate fencing and/or landscaping of side boundaries. Adjacent lots are of sufficient size to achieve appropriate designs to address the public reserve (see Annexure 17).
3	Design buildings to address open spaces and edge roads.	
In Settlement Centres Adjacent to the Coastal Edge or the Foreshore Reserve		
1	Complement and co-ordinate the centre's hierarchy of built form with lower buildings adjacent to the foreshore and higher buildings away from the foreshore.	The site is well removed from the coastal edge and does not have frontage to any foreshore reserve and therefore these considerations are not applicable.
2	Mitigate overshadowing of public open spaces and the foreshore by applying the standard no overshadowing before 3.00pm midwinter and 6.30pm summer daylight saving time.	
3	Reinforce the visual amenity of public places and streets throughout the settlement by ensuring development does not build into important vistas or view corridors.	

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

TABLE 13 – COASTAL DESIGN GUIDELINES (INLAND COASTAL CENTRES)		
PART	GUIDELINE	COMMENT
4	Create a public interface to the street and ensure development creates an edge to adjacent public open space by: <ul style="list-style-type: none"> ♦ reinforcing public and active uses especially on the ground floor of buildings adjacent to streets and public open spaces, either public or private on the ground floor; ♦ ensuring the ground floor of the building is level with the street. 	
5	Where there is no existing street between the site and the coastal edge, define this boundary with a publicly accessible edge, such as pedestrian pathway, public laneway or public streets, connecting to the street hierarchy.	
6	Ensure buildings have well articulated and scaled elevations.	
7	Support building types that locate car parking at the rear of sites accessible from laneways or secondary streets or locate car parking under and in line with the building's footprint so that the ground floor has active street level uses.	

7.14 Tweed 2000+ Strategic Plan and Tweed Strategic Plan 4/24

Following lengthy community consultation, Tweed Shire Council adopted the Tweed 2000+ Strategic Plan in December 1996.

Clause 114 of the Tweed 2000+ Strategic Plan (as amended) is as follows:

"Long Term Urban Release – The Bilambil Heights release area has major infrastructure impediments and requires a comprehensive planning approach. No development approvals for the release of land for residential development will be granted until such times as the Tugun Bypass and the Cobaki Parkway are commenced to provide appropriate access to the regional road network."

Walmsleys Road and Stott Street are existing constructed public roads which provide access to the site from the south and north respectively.

Having regard to contemporary urban design principles relating to permeability and connectivity, it is obviously desirable that these two streets are connected. Connection is in fact required by Tweed Shire Council and achieved by the preferred development option (**Annexure 10**).

Tweed Local Environmental Plan 2000 and Section 94 Plan No. 4 provide for a proposed road to the west of the site connecting Scenic Drive and Piggabeen Road (and ultimately linking with Cobaki Parkway). It is not feasible to link the proposed streets with this future road because of the difficult terrain (slopes over 33°) and sensitive environmental values of the vegetated area west of the 2(c) land.

In relation to downstream traffic capacity, Council at its meeting on 19 June 2007 resolved that the current remaining spare traffic capacity of 1506 vehicle trips per day be allocated to future development west of Cobaki Bridge on a first in/first served basis. This Major Project Application generates approximately 540 vehicle trips per day.

On 28 March 2008, Tweed Shire Council advised that Major Project Application No. 05_0198 has been added to the Kennedy Drive Traffic Management Catchment (see **Annexure 20**). Therefore sufficient capacity exists to accommodate the proposed development.

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

Clause 118 of the Strategic Plan is in the following terms:

"Before any land is released in an urban release area, detailed integrated local area planning must be undertaken. Council will require the following to effect release of these areas, unless other arrangements satisfactory to Council are made (eg. Master Plan);

- *An Infrastructure Plan, including proposed works and funding sources, and any Council liability.*
- *A Water Quality Management Plan.*
- *A Development Control Plan.*
- *A Section 94 Contribution Plan.*

These plans are to be prepared at the proponent's expense and are to co-ordinate all landowners."

In relation to this issue, a Structure Plan for the whole of the Bilambil Heights Release Area has been prepared and submitted to Council and that Plan will form the basis of a future Development Control Plan and Section 94 Contribution Plans for the Release Area.

The site of this Major Project application is on the immediate urban fringe and represents a logical expansion of the street network and built form in the area. All necessary infrastructure is available or can be readily made available. To supplement all existing Section 94 Contribution Plans, the developers would be prepared to enter into a Planning Agreement, if necessary, in relation to any other relevant contributions.

A Water Quality Management Plan is included with the Infrastructure Impact Assessment Report at **Annexure 14**.

In summary, it is considered that, in the circumstances of this case, the proposal is not inconsistent with the objectives of Clause 118.

In summary, Clause 119 of the Strategic Plan provides as follows:

"Integrated Planning – Urban Release Areas shall be designed to provide for housing choice, make the best use of available resources and provide for diversity and social interaction. The design of Urban Release Areas will require:

- *Meeting any requirements of the Housing Strategy.*

Council is yet to adopt a Housing Strategy.

- *The provision of suitable land for employment opportunities.*

Given the location of the site, its topography, accessibility and predominantly residential character, it is not appropriate as employment land).

- *Design to facilitate an efficient bus route system.*

Connecting Stott Street and Walmsleys Road provides an opportunity for a through bus route and improved connectivity in the local road network.

- *Upfront provision of easily accessible community services and facilities which are Council's responsibility.*

Normal Section 94 Contributions will be applicable and in addition, usable passive open space will be dedicated and embellished on the site prior to release of the final Plan of Subdivision).

- *Provision of a range of residential densities.*

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

Because of the established character of the surrounding area, the topographic features of the site and the location of the development, there is limited potential to provide for densities greater than those proposed.

- *Protection and enhancement of environmental values of adjacent land.*

All land adjoining the development site to the east and west which is zoned Environmental Protection will be retained as one allotment and managed in accordance with the objectives of each zone.

- *Provision of appropriate open space for residents at local, neighbourhood and regional level.*

Passive open space will be dedicated and embellished on site in accordance with the quantitative and qualitative requirements contained in Council's Subdivision Manual. Contributions in lieu will be paid towards the provision of active open space (playing fields) in accordance with Council's normal policy for relatively small urban subdivisions.

Clause 120 is in the following terms:

"The detailed planning for Bilambil Heights is to include the following principles:

- *Commitment by the landowners for funding of Scenic Drive diversion (to the Piggabeen Road intersection).*

This Major Project together with other significant developments proposed at the western extremity of the Bilambil Heights Release Area (Pacific Highlands Estate comprising approximately 2000 dwellings/lots) will provide funding towards the construction of this diversion. Normal Section 94 Contributions under CP No. 4 apply to the Scenic Drive diversion.

- *Water and sewerage provisions so that there is no unnecessary duplication of mains and pump stations.*

The Infrastructure Report at **Annexure 9** indicates that the waste water generated by the proposed development is to be serviced by the existing pump stations in Bolwarra Place and Piggabeen Road. That Report further states that Council officers have advised that the downstream pump stations in Bolwarra Place and Piggabeen Road are of sufficient capacity to cater for the proposed development.

In relation to water supply, Council officers have advised that the existing 150mm diameter main traversing the site can adequately provide water reticulation to the proposed development.

- *Completion of investigations into clearway provisions for Kennedy Drive.*

It is understood that Council has completed these investigations and implemented a strategy.

- *Defined areas of potential dual occupancy and medium density development.*

For the reasons identified above and having particular regard to the existing and desired future character of the area, as identified in **Annexure 17**, it is considered that dual occupancy and medium density precincts are not appropriate.

- *Collector road access to all properties.*

Road No. 1 being the connector road between Walmsleys Road and Stott Street will be defined as a neighbourhood connector road which is considered to achieve the objectives of this provision.

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165

Town Planning & Development Consultants

- *Consideration of current 1(c) zoned land for urban density development if the land is hazard free, if it can be economically serviced with water and sewer, and if there are no unacceptable impacts on water quality and scenic values.*

There is no 1(c) zoned land on the subject site.

- *Houses not permitted on prominent ridgelines.*

As indicated at Section 6.3 the subject land is not visually prominent and its development as proposed is not inconsistent with the Council's Scenic Evaluation Report of November 1995.

- *Commitment to the funding of Kirkwood Road and Lakes Drive bridge.*

It is understood that Council has abandoned this road infrastructure.

Insofar as the Tweed Strategic Plan 2004/2024 (adopted by Council September 2004) is concerned, Section 1 indicates that the Tweed 04/24 is a new whole of Shire whole of Council Strategy to replace the Tweed Shire 2000+ Strategic Plan prepared a decade ago. It sets forward directions for the next two decades and provides a framework for more detailed plans and policies. The previous Strategic Plan (Tweed 2000+) was heavily concerned with managing urban expansion. The Tweed 04/24 retains the framework of the Tweed 2000+ Strategic Plan but places greater emphasis on sustainability and locality planning.

The following table summarises and comments on the key provisions of this Strategic Plan.

TABLE 14 – TWEED STRATEGIC PLAN 2004/2024		
ELEMENT	STRATEGY	COMMENTS
Sustainability	Retain the special character of the Tweed. Sustainability as an over-arching, guiding principle for all decision-making. Introduce sustainability indicators and a new annual 'State of the Shire' report.	As indicated in the Future Residential Character and Built Form Report at Annexure 15 , the proposed subdivision is compatible with the character and built form of the surrounding area. The project also incorporates key sustainability principles including retention of all parts of the site containing significant stands of native vegetation and which are zoned Environmental Protection; provision of rainwater tanks and water efficiency devices for future dwellings; compliance with BASIX and NatHERS requirements for future dwellings; management of stormwater to ensure that water quality in downstream receiving waters is not diminished.
Triple Bottom Line	Balance economic, social and environmental objectives. A leadership role for Council in tackling the full range of issues facing the Tweed.	It is considered that this project achieves the objectives of this element in that it will deliver a range of housing types to satisfy continuing growth and demand for dwelling houses in this locality, incorporates contemporary environmental management and impact mitigation measures and ensures that all necessary social infrastructure is provided (or contributions in lieu paid) for a development of this type.

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

TABLE 14 – TWEED STRATEGIC PLAN 2004/2024		
ELEMENT	STRATEGY	COMMENTS
Community Values	Reflect the needs and values of the existing community. Safeguard quality of life and the character of towns and villages. Stability and consistency in policies and decision-making. Effective community involvement in planning.	The character of the existing area has been identified and the design, density and layout of the proposed subdivision are compatible with the existing character and urban form of the locality.
Economic Growth	A concerted program to generate more local jobs, tackle youth unemployment, offset the decline in rural industries, and balance the population mix by attracting residents in the 30-55 age groups. Link economic growth to education and to the Tweed's environmental quality.	The project will implement the Government's Far North Coast Regional Strategy and provide jobs during the construction and operational phase as identified in the Socio-Economic Impact Statement at Annexure 10 .
Environmental Quality	Continued improvements in environmental management, including establishment of a Regional Open Space System. Strengthen coastal zone management.	The development footprint will not impact on existing areas of native vegetation which are zoned Environmental Protection and threatened species will also be conserved. Appropriate management measures are planned to mitigate potential adverse impacts and contributions will be paid by way of Section 94 towards the regional open space system.
Water Resources	Conserve water resources. Maintain and improve water quality in rivers and estuaries. Complete Integrated Water Cycle Management Study and promote use of recycled and 'grey' water. Upgrade Clarrie Hall dam.	Stormwater management during both the construction and operational phases will be managed to ensure that water quality objectives are achieved. An Integrated Water Cycle Management Plan also accompanies this application. Future dwelling houses will incorporate water efficiency devices including rainwater tanks.
Rural Change	A 'Rural Partnership' to address problems associated with the decline of rural industries. A Rural Settlement Strategy to guide rural subdivision and expansion of villages, consistent with protecting landscape values.	Not applicable.
Social Support	A new Social Plan. Greater emphasis on the needs of the elderly, disabled, youth and Indigenous people. A stronger framework for social planning and integrated provision of community services.	Development of this site as proposed is not inconsistent with Council's social objectives insofar as it implements the Tweed Residential Development Strategy 1991 and the Far North Coast Regional Strategy 2006-2031. It will provide a range of housing choices together with all normal urban infrastructure required by a project of this type.
Housing Affordability	New measures to provide more housing for both purchase and rental within the reach of lower and middle income groups.	The project involves a range of lot sizes together with five community title allotments to enable housing choice and greater affordability to be provided for prospective purchasers.

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

TABLE 14 – TWEED STRATEGIC PLAN 2004/2024		
ELEMENT	STRATEGY	COMMENTS
Urban Development	Implement current plans for urban expansion including Cobaki and Bilambil Heights. Complete assessments of Terranora 'Area E' and Kings Forest. Retain green belts or buffers between settlements.	The project is entirely consistent with this provision as it implements the current plans for urban expansion at Bilambil Heights.
Land Use Structure Plan and Urban Design Framework	A new Structure Plan to set out more detailed proposals for urban and rural land use. Revised guidelines to promote the highest possible standards of urban and landscape design.	It is understood that Council has not completed this Structure Plan.
Infrastructure	A new Tweed Community Infrastructure Program and other measures to ensure adequate provision of infrastructure to both new and existing areas. Minimise the cost to government of servicing new development.	It is understood Council has not completed the new Community Infrastructure Program.
Locality Plans	Detailed plans for local areas prepared in conjunction with the community to guide physical, economic and social development, environmental management, infrastructure and services.	Council has commenced preparing some locality plans however the Bilambil Heights area has not yet been commenced.
Partnerships	Council to form partnerships with government agencies and other parties to tackle priority issues eg Tweed Heads revitalisation. Expert Advisory Panels to help implement key components of the strategy	Not applicable.
Regional Links	Closer integration with planning for the Gold Coast and South East Queensland. Continued involvement with the Northern Rivers Region and Premier's Department coordination group.	Not applicable.
Council Management	Strategic Directions and Four Year Priorities to be pursued through Council's Management Plan and budget. Further adjustments where necessary to Council's organisation structure.	Not applicable.

7.15 North Coast Urban Planning Strategy, 1995

Under the provisions of this Strategy, the site is identified as a “committed urban area”. Development of the site for residential purposes is consistent with the provisions of this Strategy.

7.16 Tweed Shire Council Residential Development Strategy, 1991

The Bilambil Heights Release Area is defined as “an existing urban area” under the provisions of this Strategy. Development of the site is also consistent with this Strategy.

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

7.17 Exhibited Draft Tweed LEP Amendment No. 21 – Vegetation Management

This Draft Local Environmental Plan was publicly exhibited from 8 December 2004 to 25 March 2005. In summary, the Draft Plan proposes:

- Replacing the current 7(d) Environmental Protection (Scenic Escarpment) zoning with a 7(a) Environmental Protection (Significant Natural Vegetation and Wildlife Habitat) zone;
- Relocating the 2(c)/7(a) zone boundary to the west on that part of the site east of the Aged Care complex;
- Back zoning of the eastern part of Lot 4 DP 1054848 (proposed Lot 6 DP 1117326) from 2(c) to 7(a);
- Relocating the 2(c)/7(a) zone boundary on the south eastern corner of the site to the west.

This Major Project Application is not inconsistent with the exhibited Draft Plan. The Proposed Subdivision Plan at **Annexure 6** shows the subdivision layout and the proposed zoning boundaries. No lots will be created within that part of the land to be zoned 7(a) under Draft Local Environmental Plan Amendment 21.

As the eastern part of Lot 6 DP 1117326 is proposed to be rezoned to 7(a) and as the current owners have no objection to the rezoning (and indeed have requested it) there is no need to extend this Major Project Application to include the current 2(c) land within Lot 6.

7.18 Section 94 Contribution Plans and Section 64 Contributions

On site casual open space will be dedicated and embellished in accordance with the standards in Tweed Development Control Plan 2007. No site specific Section 94 Plans apply but the following Shire wide plans are relevant:

TABLE 15 – SECTION 94 CONTRIBUTION PLANS					
PLAN NO.	PLAN NAME	QUANTUM OF CONTRIBUTION (per lot)	PURPOSE	NO. ADD'N LOTS	TOTAL PAYABLE \$
4	Tweed Road Contribution Plan	\$10940.00	This Plan enables the Council to collect contributions towards upgrading of the distributor road network to accommodate additional traffic resulting from population growth and urban expansion. The Works Program accompanying the plan includes Cobaki Parkway, Bilambil Connector Road, Scenic Drive Diversion, McAllisters Road, Piggabeen Road and Kennedy Drive. All of these roads directly relate to the development site and the project.	79	864,260
5	Open Space Contributions (Structured)	\$780.00	This Plan enables Council to collect contributions for the acquisition and embellishment of structured open space playing fields where dedication and embellishment on site is not appropriate and not consistent with Council's normal policy.	79	61,620
6	Street Tree Planting in Residential Areas	\$297.00	This Plan enables Council to levy contributions towards the planting of street trees within the footpath adjacent to each residential allotment. Where street trees are planted by the proponent Council would normally allow a credit against the contribution.	79	23,463

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

TABLE 15 – SECTION 94 CONTRIBUTION PLANS					
PLAN NO.	PLAN NAME	QUANTUM OF CONTRIBUTION (per lot)	PURPOSE	NO. ADD'N LOTS	TOTAL PAYABLE \$
11	Library Facilities	\$688.00	This Plan enables the Council to levy contributions towards the cost of upgrading and improving existing library facilities at Tweed Heads, Murwillumbah and Kingscliff.	79	54,352
12	Bus Shelters	\$26.00	This Plan enables Council to levy contributions towards the cost of constructing public bus shelters on roads and streets in accordance with normal Surfside Bus route requirements.	79	2,054
13	Eviron Cemetery/Crematorium Facility	\$131.00	This Plan enables Council to levy contributions towards the cost of providing and expanding the existing Eviron Cemetery and Crematorium facility to meet additional demand generated by population growth.	79	10,349
16	Emergency Facilities (Surf Lifesaving)	\$200.00	This Plan enables Council to levy contributions towards the cost of providing surf lifesaving facilities at various beaches throughout the Tweed Shire.	79	15,800
18	Council Admin Offices and Technical Support Facilities	\$1997.00	This Plan enables Council to levy contributions towards the cost of alterations and additions to the Council offices at Tweed Heads and Murwillumbah and the Council's Technical Support facilities (Works Depots) to meet the additional demand generated by growth.	79	157,763
22	Cycleways	\$352.00	This Plan enables Council to levy contributions towards the cost of providing cycleways in accordance with Council's Cycleway Strategy, throughout the Shire.	79	27,808
26	Shire Wide Regional Open Space (Structured)	\$1521.00	This Plan enables Council to levy contributions towards the cost of providing a new regional sporting facility at Arkinstall Park, to meet demand for active open space activities in addition to those normally require at sports fields (see Section 94 Plan No. 5)	79	120,159
26	Shire Wide Regional Open Space (Casual)	\$855.00	This Plan enables Council to levy contributions towards the cost of regional casual open space such as beach foreshore areas, river foreshore areas and the like to meet the demand generated by growth, in addition to casual open space parks which might be dedicated and embellished on a particular development site.	79	67,545

83 residential lots will ultimately be created however contribution credits apply to the 4 existing lots and therefore contributions are only applicable to 79 lots.

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

Section 64 Headworks Contributions

Sewer

The current contribution is \$4972.10 per equivalent tenement. One equivalent tenement is nominally equivalent to one lot. The contributions are required to fund conveyance, treatment and disposal of sewerage generated by the project (Total 79 Lots x \$4972.10 = \$392,795.90).

Water

The current contribution is \$10346.90 per equivalent tenement. One equivalent tenement is nominally equivalent to one lot. The contributions are required to fund storage, treatment and conveyance of water supply required by the development (Total 79 Lots x \$10346.90 = \$817,405.10).

7.19 Far North Coast Regional Strategy

The Strategy was adopted by the Minister on 17 January 2007 and the site is identified as "existing urban" on Sheet 1 of the Town and Village Growth Boundary Map contained in the Strategy.

An additional 60,400 people are predicted to be living in the region by 2031. To accommodate the additional population the Strategy identifies the need for an additional 19,100 dwellings with the Tweed Local Government Area. The proposal is consistent with the Strategy in that it will contribute 83 dwellings in a timely manner to satisfy continuing demand reflected in recent population growth figures.

7.20 Northern Rivers Farmland Protection Project

The final maps pertaining to this project identify the 2(c) zoned land on the subject site as "*committed urban uses and rural residential zones*." Those parts of the site which are zoned Environmental Protection are identified as other rural land.

Annexure 3 shows the spatial relationship between the subject land and the nearest area of mapped significant farmland. That map indicates that at its closest point, the mapped significant farmland is approximately 200m to the northwest of the site on land which is somewhat lower and separated by forested, elevated ridgelines. It is therefore concluded that the proposed development, because of its spatial separation and the nature and scale of the development is unlikely to have any impact on the mapped state and regionally significant farmland areas to the northwest.

The proposed residential lots are confined to the 2(c) zoned land and therefore the project is not inconsistent with the provisions of the Northern Rivers Farmland Protection Project.

8.0 DEVELOPMENT CONTROL PLANS

8.1 Tweed Development Control Plan 2007, Part A2 - Site Access and Car Parking Code

The car parking rates specified by Tweed Development Control Plan 2007 for dwelling houses indicate that on site parking is to be provided in accordance with the following table:

TABLE 16 – CAR PARKING						
Land Use	Public Transport, Bus Stop Seating	Bicycle Parking	Delivery, Service Vehicle Parking (50% must be truck size)	Resident/ Visitor Parking	Staff Parking	Customer Parking
Dwelling House	Nil	Nil	Nil	1 per dwelling + provision for driveway parking for another vehicle	Nil	nil

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

The size, design and shape of each of the allotments are such that compliance with this code requirement can be readily achieved in the design and construction of future dwellings on the proposed lots.

8.2 Tweed Development Control Plan 2007, Part A3 - Development of Flood Liable Land

That part of the site zoned 2(c) within which the residential lots are proposed is not subject to flooding.

8.3 Tweed Development Control Plan 2007, Part A5 – Subdivision Manual

Section A5.3 of this Development Control Plan provides planning and design information relating to subdivisions. Relevant provisions are addressed in the following tables.

TABLE 17 – TDCP 2007 PART A5 – SUBDIVISION MANUAL	
PROVISION	COMMENTS
Master Plans	
The subject site is located within the coastal zone and involves more than 25 lots and therefore a Master Plan would normally be required under the provisions of State Environmental Planning Policy No. 71. However, as this is a Major Project to which Part 3A applies a Master Plan is not required under State Environmental Planning Policy No. 71.	It should be noted that a Master Plan under the provisions of this Policy was in the course of being prepared when State Environmental Planning Policy (Major Projects) 2005 was introduced. As the Minister is now the consent authority and Part 3A applies the Master Plan was converted into the Part 3A Environmental Assessment Report.
However, this Section of the Development Control Plan provides that a Master Plan is still required for more than 25 lots and, where the urban pattern (street and open space network, neighbourhood structure, etc.) is not determined by: <ul style="list-style-type: none"> • Development and street/neighbourhood development patterns; or • An existing site specific section that determines the general street and neighbourhood layout. 	As indicated on the Proposed Subdivision Plan at Annexure 5 , the existing street network largely defines the urban pattern, as do existing zone boundaries and the extent of urban development on adjoining land to the north and adjoining land to the east and south. Given the scale and nature of the development and as it is compatible with the existing neighbourhood structure it is submitted that a Master Plan should not be required in the circumstances of this case.
Subdivision Design	
Site investigation, survey and analysis	In preparing the proposed layout, all relevant site opportunities and constraints have been identified as reflected elsewhere in this Environmental Assessment Report and the subdivision layout proposed reflects those site opportunities and constraints.
Statutory and Council requirements	Integrated development provisions do not apply to Part 3A Major Projects.
Subdivision design trial layouts and optimisation	Given the need to connect Walmsleys Road and Stott Street and having regard to cultural constraints imposed by existing zone boundaries, property boundaries and ecological constraints imposed by native vegetation and some threatened species, there are limited options in terms of subdivision layout. The proposal is considered to optimise lot yields whilst having due regard to existing and desired future character considerations and limiting ecological impacts.
Pre-application consultation	As indicated in the consultation section of this Environmental Assessment Report, the matter has been discussed with Council's Development Assessment Panel. A Planning Focus Meeting involving key State Agencies and further consultations in 2007 with other key State Agencies have also been undertaken.

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

Urban Design Guidelines and Development Standards

The following table summarises the key guidelines contained in this Section. In this regard it should be noted that Section A5.4.2 provides that in respect of infill subdivisions, they may be constrained by an existing urban structure that may make it difficult to comply with some of the urban design objectives and criteria in this Manual. Infill subdivisions will therefore be exempt from these requirements where their application is so constrained. This development proposal is an "infill subdivision" and there are constraints imposed by existing biophysical and cultural features which limit compliance in some cases.

TABLE 18 – URBAN DESIGN GUIDELINES	
PROVISION	COMMENTS
Physical Constraints	
In summary, this section provides that prior to detail Master Planning of a site, the physical constraints of the site must be identified, mapped and constraint issues resolved.	Constraints relating to slope, geotechnical stability, bushfire, contamination and threatened species have been identified in the various plans and annexures and the subdivision layout reflects those constraints and the site's opportunities.
Environmental Constraints	
Contaminated land.	Annexure 11 comprises soil contamination assessments for the site. The reports conclude that the site is suitable for the proposed residential development.
Landslip or subsidence.	Annexure 12 comprises geotechnical reports which conclude that geotechnical and slope constraints are relative and subject to appropriate design and mitigation measures they do not preclude residential development of the land zoned 2(c).
Bushfire risk.	The Ecological Assessment and Bushfire Assessment (Annexure 13) does not identify bushfire threats as an absolute constraint.
Threatened species, population or ecological communities or their habitats.	Annexure 13 comprises an Ecological Assessment addressing all relevant statutory provisions under the Threatened Species Conservation Act. The report concludes that the proposed development does not result in a significant effect and a Species Impact Statement is not required for the development.
Koala habitat.	The Ecological Assessment concludes that for the purposes of State Environmental Planning Policy No. 44 there is no requirement for a Koala Plan of Management.
Significant vegetation.	The Ecological Assessment at Annexure 13 concludes that the proposal does not require removal of native vegetation and that the site will not result in the removal and/or modification of habitat and threatened species will be unaffected by the development.
Landscape visual character.	As indicated at Section 6.3 the landscape values of the land as identified by Council's Scenic Evaluation Report of November 1995 are not of such values as would give rise to the potential for significant adverse impacts on the scenic quality of the locality.
Acid Sulphate Soils.	The land which is the subject of the proposed development is elevated and will not result in the disturbance of Acid Sulphate Soils.
Heritage or cultural items of Aboriginal or European origin.	This issue is addressed in the Cultural Heritage Reports at Annexure 16 and in Section 6.6.

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

TABLE 19 – LAND FORMING	
PROVISION	COMMENTS
Land Forming	
A. General Criteria	
<p>1. Significant Natural Features</p> <p>Site regrading is not to take place on:</p> <ul style="list-style-type: none"> • topographical features that are significant to the character of the site or locality. • existing or natural watercourses with catchment areas of 100ha or more. • riparian zones (see Table A5-5) associated with above. 	<p>Figure 4.0 of Annexure 14 shows the extent of cut and fill proposed. The site does not contain any significant topographic features, natural watercourses or riparian zones.</p>
<p>2. External & Perimeter Issues</p> <p>(a) Cross Boundary Drainage;</p> <ul style="list-style-type: none"> • Runoff from the subject land to other land shall not be significantly increased; • Runoff from upstream or upslope of the subject land shall be conveyed unimpeded across the land; • Public infrastructure in land to be regraded shall be preserved and if necessary for its continued viability be reconstructed to suit the new landform. Public infrastructure continuity shall be preserved at external boundaries. • Alteration of the locations of cross boundary stormwater drainage/watercourse discharge should be avoided. If alterations are proposed, then the written agreement of all effected downstream landowners is required. <p>(b) Perimeter levels;</p> <p>Pre development levels must be preserved at external (perimeter) boundaries of a subdivision, preferably without the use of boundary (or within 3m of the boundary) retaining walls exceeding 1.2m in height. The application of this criteria may be varied in infill subdivisions in flood liable areas where there is general filling to provide flood immunity.</p>	<p>Earthworks will be required to grade out local irregularities and to facilitate vertical and horizontal alignment of proposed roads and allotment gradients. No earthworks are proposed to occur outside of the 2(c) zone line.</p> <p>The proposed earthworks are to incorporate cut and fill operations that will reshape the existing landform to provide accessible lots and to facilitate road construction.</p> <p>Earthworks preliminary design has been carried out to conform to the criteria of Tweed Shire Council Development Control Plan 2007, Part A5–Subdivision Manual and Development Design Specification D6 – Site Regrading v1.3.</p>
B. Mass Landform Change Criteria	
<p>1. Residential, includes residential subdivisions in Village, Urban Expansion and Rural Living zones.</p> <p>The proportion of a subdivision site (plan area) that contains cut or fill areas with finished surface levels that depart from natural surface levels by more than 5m shall not exceed 10%. Variations up to 15% of site area may be considered if such variations have a demonstrated environmental benefit (eg. avoidance of importing borrowed fill off site).</p> <p>2. Industrial, Business and Mixed Use Subdivision, includes industrial, business and mixed use subdivisions in Village and Urban Expansion zones.</p>	<p>In particular the natural landform has been generally preserved with site regarding being limited to the minimum required to provide suitable road grades and practical residential lots. Figure 4.0 of Annexure 14 indicates the site areas with cut or fill greater than 5m from existing levels. This area represents approximately 3% of the site area and is less than the</p>

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

TABLE 19 – LAND FORMING	
PROVISION	COMMENTS
Land Forming	
<p>The proportion of a subdivision site (plan area) that contains cut or fill areas with finished surface levels that depart from natural surface levels by more than 8m shall not exceed 20%.</p> <p>For the purpose of this Section "subdivision site" includes the parcels of land created for private sale and formal parks, and does not include undeveloped areas, areas retained for environmental purposes, roads, or residual allotments. If a subdivision contains a mix of urban and rural/rural residential uses, the rural/rural residential areas must be excluded from the urban areas for the purposes of complying with this Clause.</p>	<p>10% required by the DCP.</p> <p>The longitudinal sections of the preliminary road design demonstrate the design generally corresponds with the existing landform with cut and fill operations generally limited to that which would be required to obtain suitable grades and a volume balance. The majority of site boundaries have been preserved at pre-development levels with the perimeter boundary walls greater than 1.2m in height limited to Road 5.</p> <p>Pre-development drainage patterns have also generally been preserved.</p> <p>Vegetation and site clearing should generally be limited to within five metres of the extent of earthwork lines as determined in the detailed engineering design. Unsuitable fill materials identified in geotechnical assessments may need to be removed from the site. Preliminary calculations indicate a cut to fill deficit, with fill volume of approximately 95,000m³ and a cut volume of approximately 55,000m³. Actual quantities will be determined at the detailed design stage. With a bulking factor of 20% approximately 48,000m³ of clean imported fill will be required to achieve the proposed site levels. Figures 4.0 indicate the proposed depths of cut and fill operations.</p>
<p>C. Shape/Surface Criteria</p> <p>1. Residential and Rural Living Subdivision, includes residential subdivisions in Village and Urban Expansion zones:</p> <ul style="list-style-type: none"> The finished landform shape (concave/convex, rolling, stepped etc) of the subdivision site should mimic existing and local surrounding natural topography. Except as provided in Note 1 below, no sharp changes of gradient (eg associated with batters or retaining walls) are permitted at or near inter lot boundaries or within lots. Batters and retaining walls are not permitted for the purpose of creating terraced lots. Sharp changes of gradient are permitted at road and public land boundaries. See Figure 4.2.2. <p>Note 1: A retaining wall or batter of maximum "combined height" (as defined in Section E) of 1.2m at or adjacent to inter lot boundaries may be permitted to ease lot gradients, where lot longitudinal or cross gradient would exceed 10% in the absence of such retaining wall or batter.</p>	
<p>2. Industrial, Business and Mixed Use Subdivision, includes industrial, business and mixed use subdivisions in Village and Urban Expansion zones:</p> <ul style="list-style-type: none"> Terraced lots with sharp changes of gradient associated with retaining walls or batters are permitted. <p>Sharp changes of gradient (ie associated with batters or retaining walls) are permitted at or near lot, road and public land boundaries. Sharp changes of gradient are permitted within lots.</p>	
<p>D. Plans Criteria</p> <p>Site regrading proposals must be accompanied by the plans specified in Development Design Specification D13 – Engineering Plans (Subdivisions) clause D13.03 5(a).</p>	
<p>E. Retaining Walls and Batters Criteria</p> <p>1. Definitions:</p> <p>"retaining wall" is defined as a structure required to retain soil, rock and other materials. It includes retaining and revetment structures as defined in clause 1.1 of AS 4078 - 2002.</p> <p>"batter" is defined as the sloping surface of artificial cuttings and embankments that have a gradient exceeding 25%. It excludes natural slopes.</p>	

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

TABLE 19 – LAND FORMING																																										
PROVISION				COMMENTS																																						
Land Forming																																										
"Combined height" is defined as the vertical height difference at or adjacent to the boundary between top of batter or retaining wall and bottom of batter or retaining wall. Adjacent to a boundary includes any batters or retaining walls that lie either wholly or partly within a distance of 5m measured horizontally from the allotment boundary.																																										
2. Criteria																																										
(a) The combined height of retaining walls or cut/fill batters on an allotment boundary shall not exceed the following																																										
<table><tr><th colspan="5">MAXIMUM PERMISSIBLE COMBINED HEIGHT OF RETAINING WALLS OR BATTERS</th></tr><tr><th rowspan="2">Type of Subdivision</th><th rowspan="2">Perimeter boundary of subdivision</th><th colspan="3">Boundaries of lots created within subdivision</th></tr><tr><th>Side and Rear Boundaries</th><th colspan="2">Street Boundary</th></tr><tr><th></th><th></th><th></th><th>Above Street Level</th><th>Below Street Level</th></tr><tr><td>Residential</td><td>1.2</td><td>1.2 see Note 1 of Table A5-3(C)(1)</td><td>1.8</td><td>2.4</td></tr><tr><td>Industrial</td><td>1.2</td><td>5</td><td>2.5</td><td>5</td></tr><tr><td>Business</td><td>1.2</td><td>5</td><td>1.2</td><td>2.4</td></tr><tr><td>Rural Living</td><td>1.2</td><td>Nil</td><td>1.2</td><td>2.4</td></tr></table>					MAXIMUM PERMISSIBLE COMBINED HEIGHT OF RETAINING WALLS OR BATTERS					Type of Subdivision	Perimeter boundary of subdivision	Boundaries of lots created within subdivision			Side and Rear Boundaries	Street Boundary					Above Street Level	Below Street Level	Residential	1.2	1.2 see Note 1 of Table A5-3(C)(1)	1.8	2.4	Industrial	1.2	5	2.5	5	Business	1.2	5	1.2	2.4	Rural Living	1.2	Nil	1.2	2.4
MAXIMUM PERMISSIBLE COMBINED HEIGHT OF RETAINING WALLS OR BATTERS																																										
Type of Subdivision	Perimeter boundary of subdivision	Boundaries of lots created within subdivision																																								
		Side and Rear Boundaries	Street Boundary																																							
			Above Street Level	Below Street Level																																						
Residential	1.2	1.2 see Note 1 of Table A5-3(C)(1)	1.8	2.4																																						
Industrial	1.2	5	2.5	5																																						
Business	1.2	5	1.2	2.4																																						
Rural Living	1.2	Nil	1.2	2.4																																						
(b) Where retaining walls or batters are utilised to create a level difference between adjacent allotments or an allotment and a road and the retaining wall is located in the lower allotment, the top of batter or top of retaining wall shall be located a minimum 0.5m horizontally from the boundary																																										

TABLE 20 – STORMWATER	
Stormwater Runoff, Drainage, Waterways and Flooding	
PROVISION	COMMENTS
Water Sensitive Urban Design	<p>Annexure 14 addresses this issue as follows:</p> <p>"The rolling nature of the terrain on the site results in longitudinal road grades of up to 12-16% on the proposed roads. Grades of this magnitude are not conducive to provision of grass swales in lieu of kerb and gutter due to high flow velocities resulting in scouring and erosion.</p> <p>With the introduction of the BASIX model by the Department of Infrastructure, Planning and Natural Resources in July 2005, all single dwellings are required to meet particular water sensitive and energy efficient design criteria. A number of design measures are required to achieve criteria including the following:</p> <ul style="list-style-type: none"> • Eaves and shading to windows • Native vegetation • Wall, ceiling and floor insulation • Gas appliances

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

TABLE 20 – STORMWATER	
Stormwater Runoff, Drainage, Waterways and Flooding	
PROVISION	COMMENTS
	<ul style="list-style-type: none"> • 3A rated toilet and showerhead • Gas boosted solar hot water system • Light coloured roof • Rainwater tank connected to toilet and garden irrigation • Grey water recycling <p>The BASIX model aims to achieve a 40% reduction in mains potable water consumption across the state. Dwellings constructed on the proposed allotments will be required to meet the BASIX criteria and water sensitive design measures will be incorporated.</p> <p>Adequate allotment sizes are proposed that allow for construction of a dwelling with sufficient area to provide a rainwater tank. The provision of this tank and other water sensitive urban design practices would be required to be implemented at the dwelling construction stage."</p>
Erosion and Sedimentation Control	<p>Annexure 14 addresses this issue as follows:</p> <p>"The bi 1 and 2 soil types have a fines (soil particle size <0.02mm) fraction of 70-90% (Morand 1996). A number of measures or best management practices (BMP) should be implemented to reduce soil erosion and achieve discharge water quality in compliance with Tweed Shire Council's Tweed Urban Stormwater Quality Management Plan.</p> <p>These measures include hay bales, filter fences, cut-off drains, mulching of slopes and sediment/water quality control ponds which should be placed in accordance with the proposed management plan during both the construction and revegetation phases. Disturbed areas should generally be controlled to drain to these water features. Runoff from undisturbed areas should be diverted away from erosion control structures. A shakedown area would be required at the site entry / exit on Walmsleys Road and at the entry / exit from Stott Street in accordance with TSC Design Specification D7 (2004).</p> <p>The management plan should be implemented according to the Landcom Manual "Managing Urban Stormwater, Soils and Construction" (2004).</p> <p>The soil type has a high fines content and type D and F sediment basins, as described in the manual are required.</p> <p>Preliminary calculations indicate a maximum potential sediment volume of approximately 315m³, assuming application of wood chip mulch to disturbed areas at a rate of 16 tonnes per hectare and ground cover regeneration after three months.</p>

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

TABLE 20 – STORMWATER	
Stormwater Runoff, Drainage, Waterways and Flooding	
PROVISION	COMMENTS
	<p>The sediment volume has been based on the Revised Universal Soil Loss Equation (RUSLE) with the development area fully disturbed. This volume is approximate and dependent on the size of disturbed catchment. Trapped sediment should be recovered and redistributed over the site. The settlement volume required would be 2823m³ for the 9.86ha of disturbed area. A total basin volume of 3634m³ would be required for the entire site. Due to the topography of the site we recommend a number of basins be provided at a rate of 369m³/disturbed ha.</p> <p>Figure 6.0 of Annexure 14 indicates a general erosion control management concept plan. The detailed design will be determined and incorporated within the engineering design drawings required for a construction certificate.</p> <p>The implementation and maintenance of erosion control measures would result in manageable impacts on the downstream water system."</p> <p>The impact of transported sediment would be ameliorated by utilising the proposed sediment ponds and construction of a perimeter silt fence around the site. Specific storage requirements would be determined at the detailed design stage. However, management practices such as staging construction encouraging revegetation or undertaking regular desilting operations would reduce the required storage volumes."</p>
Permanent Stormwater Quality Facilities	<p>Annexure 14 addresses this issue as follows:</p> <p>"Roof water from allotments is to drain into Inter-Allotment Drainage (IAD) pits. IAD pits will connect directly into the stormwater drainage network as it is considered by TSC to be suitably clean water. The runoff from driveways and paved areas on the proposed allotments would flow across grassed areas following the natural drainage path to the IAD pits. Alternatively driveway runoff could flow back onto the road stormwater system. Road runoff would be collected and treated by proprietary Gross Pollutant Traps, such as a Humeceptor.</p> <p>The deemed to comply requirements from Tweed Shire Council Design Specification D7 – Stormwater Quality are an 11m³ storage volume per impervious hectare for a Humeceptor or equivalent. This consists of 9m³ storage for sediments and 2m³ storage for oil and grease per impervious hectare. The required proprietary device sizings are given in the following table.</p>

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

TABLE 20 – STORMWATER					
Stormwater Runoff, Drainage, Waterways and Flooding					
PROVISION			COMMENTS		
			Catchment	Road Area (m ²)	Sediment Storage Requirement (m ³)
			A	3059	2.75
			B	0	-
			C	0	-
			D	0	-
			E	1254	1.13
			F	7152	6.44
			Oil Storage Requirement (m ³)	Suitable Humeceptor Model	
				0.61	STC 5
				-	N/A
				-	N/A
				-	N/A
				0.25	STC 2
				1.43	STC 9
			<p>The stormwater treatment measures are specified in accordance with Design Specification D7. The performance of the devices would achieve the performance criteria set by Tweed Shire Council, specified in the Tweed Urban Stormwater Quality Management Plan (2000).</p> <p>It is noted that the development would result in the removal of the existing passionfruit plantation. This would result in a reduction in nitrogen, phosphorous and sediment runoff."</p>		
Drainage (lawful point of discharge)			<p>Annexure 14 addresses this issue as follows:</p> <p>"Where facilitated by the terrain, excess runoff will flow to grass or to the internal road system. Runoff from Road 1 will flow along kerb and gutter into inlet pits and along Road 2 to a treatment device before being discharged to the existing creek. Runoff from Road 3 and 4 will flow along the kerb and gutter to inlet pits. Road runoff will be treated via a treatment device before being discharged to the residual lot. Roof water from allotments will drain into inter-allotment drainage pits connecting into the stormwater drainage network where suitable. Roof water from allotments 33-56 will drain through the proposed IAD lines to level spreaders in the residual lot. The proposed drainage network is shown in Figure 15.0 of Annexure 14."</p>		
Riparian Buffer Widths			The development site does not have frontage to any waterway.		

The following table summarises the key principles applicable to urban structure.

TABLE 21 – URBAN STRUCTURE	
Requirement	Compliance
No more than 15% of lots fronting cul-de-sac.	Complies – 9 lots out of 83 front cul-de-sacs (ie. 11%).
<p>Maximum cul-de-sac length 100m serving no more than 12 dwellings with clear view for full length of cul-de-sac.</p> <p>Where constrained by landform alteration limits the maximum length of culs-de-sac may be increased to 200m and 24 dwellings.</p>	<p>Complies – the proposed public road (No. 4) cul-de-sac is less than 100m long and serves 5 dwellings. The community property access to the community title lots is not a public road and therefore the 100m maximum does not apply. The fact that this access is more than 100m long is one of the reasons for adopting a community title arrangement to this part of the site. But in any case, the proposed community property access complies with the 200m standard.</p>
Linking access for pedestrians and cyclists.	Complies.

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

TABLE 21 – URBAN STRUCTURE	
Requirement	Compliance
Bus route/stops should be located at an average spacing of 300 – 400m.	Complies – bus stop likely to be near junction of Stott Street and Road 3. All lots generally within 300m with suitably located footpaths.
Street design to achieve target street speeds.	Complies – width and alignment designed to discourage high speeds (see plans). Traffic calming devices can be provided on the connector road.
Cycleway network required.	Complies – cycleway proposed on connector street.
Dedication of environmentally sensitive areas.	No dedication is proposed as the zoning and current land uses protect these areas.
Casual parks – 1.13 hectares/1000 population (11.3m ² /person). Desirable minimum area 2500m ² – 4000m ² .	Complies – 83 lots equates to approximately 218 persons @ 11.3m ² /person = 2467m ² required. The proposed park has an area of approximately 3645m ² and has a 76m road frontage.
95% of residences within 400m walking distance of casual parks.	Complies – all lots are within 400m walking distance – see Annexure 9 .
Land form of casual park – slopes less than 8%.	Complies – see Annexure 14 .
Access from more than one local road.	Complies – park is in a crescent and links with the proposed collector road.
Road frontage – 50% of perimeter.	Substantially complies – proposed Lot 13 (public reserve) only has one street frontage of approximately 80m and passive surveillance is therefore achieved. Surveillance will also be achieved from future adjacent dwellings. The proposed park is accessible and within 400m of all proposed dwellings and the area is suitable for a park rather than residential because of relative geotechnical constraints. A variation to the normal 50% frontage requirement is therefore justified in the circumstances.
Embellishment.	Complies – all necessary services will be provided including play equipment and landscaping in accordance with development design specification D14 – Landscaping Public Space.
Sports playing field – 1.7 hectares/1000 persons.	Contribution in lieu is applicable. Piggabeen Sports Complex exists approximately 500m northeast of the site. This facility is accessed from Piggabeen Road and Carama Drive and the complex includes playing fields, amenities block, car parking and flood lighting. Council currently levies contributions through Section 94 Plan No. 5 on developments within this catchment towards upgrading and embellishment of these playing fields.
	In view of the convenient location of this existing facility; the unsuitability of the terrain on the site for sports fields and the fact that a demand for only approximately 3660m ² (ie. less than one playing field) is generated by the development proposal, a contribution in lieu of on site provision of playing fields is appropriate and consistent with Section 94 Plan No. 5 and Table A5-8.3 of Tweed Development Control Plan 2007, Section A5 which requires a minimum area of 5 hectares.

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

TABLE 21 – URBAN STRUCTURE	
Requirement	Compliance
Minimum residential lot size of 450m ² and 10 x 15m building envelopes for dwellings.	Complies lots range from 542m ² – 3591m ² with frontages of generally 20m.
Dual occupancy lots minimum 900m ² or 1000m ² for corner lots.	N/A.
Solar access – 70% of lots oriented from 340° to 20° or 70° to 120°.	Complies – approximately 80% of lots have predominantly north/south or east/west axes.
Generally rectangular shaped lots.	Complies – see application plans.
East – west lots must have a minimum width of 14m.	Complies – see plans, all lots generally 20m wide.

TABLE 22 – SUBDIVISION INFRASTRUCTURE REQUIREMENTS			
Infrastructure Required	Where Required	Standard of Infrastructure	Comments
Sealed road frontage with kerb and gutter both sides	All lots for private occupation, community facilities lots and public open space lots	See Development Design Specification D1	Complies see Section 7 of Annexure 14 .
Landform			Complies see Section 6 of Annexure 14 .
Water Supply	All lots for private occupation, community facilities lots, sports fields, parks, play areas, other utility facilities (pump stations etc.)	See Development Design Specification D11	Complies see Section 9.0 of Annexure 14 .
Sewerage	as above	See Development Design Specification D12	Complies see Section 10 of Annexure 14 .
Electricity	as above	Must be underground and provided in accordance with suppliers and Australian standards. Verge service location is to comply with Development Design Specification D1	Complies see Section 11 of Annexure 14 .
Telecommunications	All lots for private occupation, community facilities lots and sports fields. As required for other utility facilities).	As above, service must be such that standard connection is available to local/national/overseas networks	Complies see Section 11 of Annexure 14 .
Gas	Optional	as above	Not applicable.
Drainage system	Must provide Q100 local flooding immunity for all lots for private occupation and community facilities.	See Development Design Specifications D5 and D7.	Complies see Section 8 of Annexure 14 .

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

TABLE 22 – SUBDIVISION INFRASTRUCTURE REQUIREMENTS			
Infrastructure Required	Where Required	Standard of Infrastructure	Comments
	Major/minor system required, roads public open space may (subject to other development standards) be used for Q100 overland flow paths. Must be equipped with stormwater treatment facilities to meet Chapter 3, PC7.15 standards		
Flood Immunity	All lots for private occupation must have surface levels above the Q100 level for regional creek/river flooding. See section 4.26 of this chapter for public open space standards.	See Section A3 - Development of Flood Liable Land for detailed requirements.	Complies see Section 8 of Annexure 14 .
External Connections and/or upgrades	The subdivider must provide all external connections required to connect subdivision infrastructure and upgrade external infrastructure to cater for the additional subdivision load. See also D1, D5, D7, D11, D12		Complies see Annexure 14 .

TABLE 23 – LOCAL PARKS - DEVELOPMENT STANDARDS		
Small intimate space used for children's play and adult respite		
OPEN SPACE DESIGN ELEMENT	DEVELOPMENT STANDARDS (See also Development Design Specification D14 - Landscaping and Open Space)	COMMENTS
AREA DISTRIBUTION	Area of 0.25 to 0.4ha. The number and distribution of these parks is to be such that 95% of residents are located within a 400m walking distance.	Complies – proposed Lot 13 has an area of 3645m ² and all lots are within 400m.
CONFIGURATION SHAPE	Contain a central activity zone of 400m ² for play areas and equipment (with a 20m buffer to residential boundaries), balance of area to be for passive use. The length/width ratio shall not to exceed 3:1	Can be complied with. Details to be provided with Construction Certificate.
LANDFORM	>80% of area to have slopes <8%. Site well drained with surfaces grassed, landscaped, paved or provided with soft fall. In floodplain areas must be filled to at least, Q100 -1m. To be considered for detention basin dual use must have at least Q1 flood immunity.	Complies – see Figure 7.1 of Annexure 14 .

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

TABLE 23 – LOCAL PARKS - DEVELOPMENT STANDARDS Small intimate space used for children's play and adult respite		
ACCESS	Vehicular access from local roads (preferably more than 1, but internally configured to discourage through traffic) in locations that are permeable to the catchment with adequate access for garbage collection and maintenance. Safe and easy access to bicycle/pedestrian networks.	Complies – Access is from Road No. 2 which is a local street.
ROAD FRONTAGE	>50% of perimeter.	Substantially complies – proposed Lot 13 (public reserve) only has one street frontage of approximately 80m and passive surveillance is therefore achieved. Surveillance will also be achieved from future adjacent dwellings. The proposed park is accessible and within 400m of all proposed dwellings and the area is suitable for a park rather than residential because of relative geotechnical constraints. A variation to the normal 50% frontage requirement is therefore justified in the circumstances.
AMENITIES	Appropriately embellished with play equipment, soft fall surfaces under play equipment, kick about area, paving for ball games, seating with shade, landscaping, drinking fountains, general shade and lighting. Play areas appropriately fenced from balance of park area to delineate changed use.	Will be complied with. Details to be provided with Construction Certificate.
SERVICES	Access for garbage collection, regular maintenance, water, electricity.	Complies – all services will be available to Lot 13.

8.4 Tweed Development Control Plan 2007, Part A13 – Socio-Economic Impact Assessment

Section A13.5.1 of this Development Control Plan nominates development and land use types for which any application must be accompanied by a formal Socio-Economic Impact Assessment. Development for the purposes of a residential subdivision creating more than fifty lots is included in Section A13.5.1 and therefore a formal Socio-economic Impact Assessment is required.

In accordance with the provisions of this Clause a Socio-Economic Impact Statement is attached at **Annexure 15**.

9.0 CONSULTATIONS AND THE PUBLIC INTEREST

On 17 January 2003 the proposal for Walmsley's land was discussed with Tweed Shire Council's Development Assessment Panel, particularly in relation to the implications of the Tweed 2000+ Strategic Plan. The Panel advised that spare traffic capacity existed at that time on Cobaki Bridge/ Kennedy Drive that would enable the project to proceed (however it is understood that the spare capacity has now been consumed). A copy of the Development Assessment Panel minutes is attached at **Annexure 20**.

A Planning Focus Meeting (including a site view) was held on 11 May 2004, involving key state agencies and Tweed Shire Council. No absolute constraints to development of the site were identified at the meeting. A copy of the meeting notes is attached at **Annexure 20**.

Subsequently, the site was inspected by Mr Pradesh Ramiah of the Department of Infrastructure, Planning and Natural Resources (Coastal Team, Urban Assessments) on 15 June 2004 following which Mr Ramiah provided the comments at **Annexure 20**.

Having regard to the scale and nature of the application and given the strategic context of the site, no specific community consultations have been undertaken. In accordance with normal requirements, the application would be advertised and notified and any submissions received from the community would be assessed by the consent authority. Details of consultations with relevant State Agencies are contained in the following table.

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

TABLE 24 – CONSULTATIONS		
STATE AGENCY	ISSUES	COMMENTS
Department of Primary Industries Annexure 20	On 1 August 2007 the Department advised that there are no additional agricultural issues and there are no mineral issues. The Department also advised that Fisheries issues are being confirmed and that it is possible that there may be aquaculture and SEPP26 issues and NSW Department of Primary Industries will confirm as soon as possible.	No further advice has been received from DPI Fisheries and in any case, the proposal does not give rise to any issues relating to SEPP26 or aquaculture.
Department of Environment and Climate Change Annexure 20	The Department responded on 23 July 2007 and advised that the Department originally responded to the Department of Planning on 17 July 2006 (DGEARs) and the Department does not need to amend aspects of the key information requirements raised in that correspondence.	The matters identified in the DGEARs have been addressed in this Revised Environmental Assessment Report.
Department of Planning (Grafton Regional Office) Annexure 20	The Department responded on 12 July 2007 and advised concerns in relation to:	
	The steepness of some of the land.	This issue is addressed in Sections 5.0 and 6.4 of this Revised Environmental Assessment.
	The impact of SEPP14 Coastal Wetlands upstream of the site.	This issue is addressed in Section 7.7 of this Revised Environmental Assessment.
	Contamination issues arising from previous agricultural activities.	This issue is addressed in Sections 6.5 and 7.9 of this Revised Environmental Assessment.
	The extent of development on the eastern part of Lot 4 (now Lot 6 DP 1117326).	No development is proposed on the eastern part of Lot 6 as indicated on the Revised Subdivision Layout Plan at Annexures 9 and 10 . Council proposes to back zone the whole of the eastern part of the site to Environmental Protection and the current landowners propose to maintain that area in its natural state.
	The considerable vegetation that still exists on the site.	No significant vegetation exists within the area which is the subject of the proposed residential subdivision. As indicated in the Ecological Assessment at Annexure 13 no native vegetation or threatened species will be removed by the proposal.

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

TABLE 24 – CONSULTATIONS		
STATE AGENCY	ISSUES	COMMENTS
	The impact on adjacent regionally significant farmland to the north.	The plan at Annexure 3 shows the spatial relationship between the development site and the area of mapped regionally significant farmland to the north. The site is separated from the mapped regionally significant farmland by a distance of some 200m together with significant topographic and vegetation buffers and therefore potential impacts are most unlikely.
Roads and Traffic Authority Annexure 20	The RTA responded on 20 September 2007 and advised that Walmsleys Road is an unclassified road under the care and control of Council and that discussions should be held with Council in the first instance. The RTA further advised that in accordance with SEPP11 the proposed residential subdivision is classed as a Schedule 2 development and will require consideration in due course by the Council Development Committee.	The Infrastructure Assessment Report at Annexure 14 addresses traffic issues and in addition it is a matter for the consent authority as to whether or not this Major Project application is in fact referred to the Council Development Committee for advice. SEPP11 has now been repealed and replaced by State Environmental Planning Policy (Infrastructure) 2007. Clause 104 provides that certain traffic generating development identified in Schedule 3 of the Policy must be referred to the RTA for comment prior to determination of the application. Schedule 3 includes in Column 2 subdivisions of greater than 200 allotments and in Column 3 subdivisions greater than 50 allotments with access to a classified road. The development only proposes 83 allotments and the site does not have access to a classified road or connect to a classified road within 90m. Therefore referral of the application to the RTA is not required.
Tweed Shire Council Annexure 20	Council responded on 13 July 2007 (email) and advised that Council's previous comments to the Department of Planning are still relevant with the exception of the Kennedy Drive catchment comments in view of Council's Resolution of 19 June 2007.	This issue is addressed in Section 6.8 of this Revised Environmental Assessment Report.
	New land forming provisions of Tweed Development Control Plan 2007, Section A5 (former DCP16) will need to be addressed given slopes and earthworks.	This issue is addressed in Annexure 14 of this Revised Environmental Assessment Report. Other matters relating to site contamination, erosion control, flood lighting and noise are also addressed in relevant sections of this Revised Environmental Assessment Report.

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

TABLE 24 – CONSULTATIONS		
STATE AGENCY	ISSUES	COMMENTS
Rural Fire Service Annexure 20	The Rural Fire Service responded on 10 January 2007,	The Rural Fire Service have not provided detailed comments on the Bushfire Assessment contained at Annexure 13 but have indicated that they will do so when the matter is formally lodged for their consideration.
Department of Natural Resources Annexure 20	The Department responded on 31 October 2006 and advised that:	
	Tweed Wetland Mapping - The Department supports retention of the wetland in the easterly section of Lot 4 DP 1054848.	No development is proposed on this part of the site and indeed it is intended to be back zoned to Environmental Protection by way of LEP Amendment No. 21.
	Vegetation Management - The application documentation should detail how the vegetation values within the zone will be protected including the provision of buffers and the possible dedication of these areas as public open space should be explored with Council.	Details in relation to vegetation management are addressed elsewhere in this assessment including, in particular, at Annexure 13 . Dedication of these areas has not been explored specifically with Tweed Shire Council and is not proposed as part of this application as the current owner wishes to retain and rehabilitate these areas.
	Drainage - The Department recommends that the project layout ensures the retention of natural drainage patterns.	This issue is addressed in detail in Annexure 14 .
	Other Matters - The future road layout would seem to potentially involve an extension to Warra Place.	It is not clear what is meant by this comment as there is no Warra Place in the locality. It appears to refer to Bolwarra Place which is located to the east of the site, however there are no opportunities to extend that road network into the subject land because of land ownership, topographic and environmental constraints as indicated on Annexure 5 .
Tweed Byron Local Aboriginal Land Council	In accordance with the Director General's Environmental Assessment Requirements, a letter was forwarded to the Tweed Byron Local Aboriginal Land Council on 28 September 2006 together with copies of an aerial photograph of the site and concept plans showing the proposed lot layout.	On 26 October 2006 the Land Council was contacted and a message was left requesting Mr Clarence Phillips, of the Land Council, to contact Darryl Anderson Consulting Pty Ltd. No response was received. On 2 November 2006 Mr Phillips was again contacted and requested to confirm that he had in fact received the letter of 28 September 2006 and would be in a position to respond. Mr Phillips advised that he would try to locate the letter and phone back or respond in writing. To date no response has been received.

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

TABLE 24 – CONSULTATIONS		
STATE AGENCY	ISSUES	COMMENTS
		The Cultural Heritage Assessment Reports at Annexure 16 further addresses this issue.

9.1 Community Consultation Strategy

No formal community consultations have been undertaken to date however it is intended, if required, to arrange and conduct a public meeting at an appropriate local venue during the formal public exhibition process for the Major Project Application. This will enable stakeholders, residents and other interested parties to clarify any issues and provide comments on the project.

10.0 ALTERNATIVES CONSIDERED AND STAGING

10.1 Do Nothing Option

The subject land has been identified strategically for urban development for approximately sixteen years and has been zoned to facilitate urban residential development for a similar period. All necessary urban infrastructure to facilitate residential development of the site has been provided or can be readily provided with relatively minor augmentation. Grazing is currently undertaken on the site on an informal basis. The land is not currently used for any economically viable land use and indeed is closely abutted by existing urban development which makes intensive agricultural uses a potential nuisance.

It forms an integral and important part of Council's Urban Release Strategy and is intended to satisfy continuing demand for residential lots in the north eastern sector of the shire. Planning and augmentation of existing infrastructure is based on urbanisation of this site, including:

- Augmentation of Banora Point Sewerage Treatment Works to provide additional treatment capacity;
- Upgrading of the sewer rising main under Cobaki Creek to provide additional conveyance capacity;
- Obtaining contributions under Section 94 Plan No. 4 towards construction of the Scenic Drive/Piggabeen Road connection road, Cobaki Parkway and the Boyd Street interchange at the proposed Tugun Bypass.

To do nothing would effectively sterilise what is otherwise suitably zoned and serviced land with demonstrated urban capabilities. It would also have adverse implications for the funding of committed infrastructure upgrading in the locality. This option would also be inconsistent with the objects of the Environmental Planning and Assessment Act and the public interest and is therefore not an appropriate option to pursue.

It is therefore considered that the do nothing option is not a feasible or sustainable option having regard to all of the circumstances applicable to the site.

10.2 Medium Density Option

Tweed Local Environmental Plan 2000 permits, with consent, development for the purposes of multi-dwelling housing in the 2(c) zone. Densities for this form of development are determined by Tweed Development Control Plan 2007, Section A1 – Multi-dwelling Housing, based on minimum landscaped areas, floor space ratios, setbacks, car parking and open space, among other design elements.

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

On relatively unconstrained sites it is generally possible to achieve yields of up to 30 dwellings per hectare, although 15 to 20 dwellings per hectare is more typical on greenfield sites. Given the established low density nature of adjoining urban areas (characterised by predominantly detached dwellings on 700m² to 800m² lots); limited access to public transport and the relative remoteness of the area from community facilities, multi-dwelling housing is not considered to be an appropriate option.

It would also result in more significant landform changes, increased traffic generation on existing residential streets (with resulting diminished amenity) and built form which would be more visually prominent. For these reasons, it is also considered that medium density development is not an appropriate option to pursue.

10.3 Low Density Residential Option

Based on the urban capability of the site resulting from the Site Analysis at Section 5.0 and having regard to the existing and desired future character of the area, it is concluded that a low density residential development comprising approximately nine dwellings per hectare of 2(c) zoned land is the most efficient and sustainable option.

In accordance with the provisions of Tweed Development Control Plan 2007, Section A12 up to 20% of the lots could be nominated for dual occupancy development in which case a slight increase in the overall yield to approximately ten dwellings per hectare may be feasible.

11.0 SUITABILITY OF THE SITE AND JUSTIFICATION FOR UNDERTAKING THE PROJECT

As identified in Section 6.0 of this Environmental Assessment in particular, detailed investigations have been completed in relation to the site's biophysical and geophysical constraints.

Those investigations have not revealed any absolute constraints to development of that part of the site zoned 2(c) Urban Expansion and indeed the investigations reveal that the site is suitable to an appropriately designed form of residential development to achieve compatibility with the established and desired future character of the area.

The proposed subdivision layout reflects the site opportunities and constraints and achieves compatibility with the existing adjacent subdivisions in terms of density and also provides for an important linkage in the local road network such that residents of the area have alternative access routes to Tweed Heads via Stott Street and Piggabeen Road or Walmsleys Road and Scenic Drive.

All urban infrastructure can be readily provided to the site by way of minor extensions and augmentation. Sufficient capacity exists on Cobaki Bridge and Kennedy Drive to accommodate the additional traffic generated by this project.

Development of the site is consistent with the various residential strategies applicable to the Bilambil Heights Release Area generally and there is an established demand for residential allotments in this area as reflected in continuing growth rates within the Tweed Shire and the northeast sector in particular.

It is therefore concluded that the site is suitable for the proposed development and the development is justified in terms of social, economic and environmental considerations.

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165

Town Planning & Development Consultants

12.0 DRAFT STATEMENT OF COMMITMENTS

TABLE 25 – DRAFT COMMITMENTS	
SOIL AND WATER MANAGEMENT	
OBJECTIVE	ACTION
To ensure that runoff discharge into the existing water bodies achieves the standards adopted by Tweed Shire Council.	<ul style="list-style-type: none"> ♦ Install appropriate erosion and sedimentation control devices (filter fences, hay bales, catch drains, etc.) prior to commencing construction and any other site works. ♦ Discharged hardstand areas to lawns and gardens. ♦ Runoff from road pavements will be collected and treated by proprietary gross pollutant traps such as Humeceptor.
TRAFFIC	
OBJECTIVE	ACTION
To ensure that safe and efficient vehicular and pedestrian access is provided to the site.	<ul style="list-style-type: none"> ♦ Connect Stott Street and Walmsleys Road as part of Stage 1.
UTILITIES	
OBJECTIVE	ACTION
Protect existing utilities in and adjacent to the site.	<ul style="list-style-type: none"> ♦ Clearly mark the location of underground utilities with permanent markers. ♦ Notify relevant utility authorities if any damage occurs. ♦ Ensure that power, telephone, water and sewer reticulation is provided to each allotment in accordance with Tweed Shire Council's normal policies.
FLORA AND FAUNA	
OBJECTIVE	ACTION
Protect existing threatened species of flora.	<ul style="list-style-type: none"> ♦ Final subdivision design shall demonstrate that the rare and/or threatened flora species (<i>A. whitei</i>, <i>E. globosa</i>, <i>L. pulchella</i> and <i>M. tetraphylla</i>) that occur in close proximity to the 2(c)/7(d) boundary are located and appropriately identified and/or signposted such that they remain unaffected by any activities (including provision of any asset protection zones for bushfire management purposes) associated with development of the site. ♦ A Vegetation Management Plan (VMP) will be prepared for 7(d) zones within the study area and submitted to the Consent Authority for endorsement. The VMP will be developed in consultation with the NSW Department of Environment and Climate Change and will be completed within six months from date of approval. The VMP will detail not only measures that diminish the threat of invasive species, facilitate the removal of Camphor Laurel and other weed species, support restoration of the rainforest communities and protect threatened flora species and remnant vegetation on the site, but also the means by which this will be achieved.

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

TABLE 25 – DRAFT COMMITMENTS	
CONSTRUCTION IMPACTS	
OBJECTIVE	ACTION
Minimise nuisance to adjacent residents and adjoining properties.	<ul style="list-style-type: none"> ♦ Prepare Construction Management Plan for approval by the Department of Planning prior to the issue of a construction certificate. ♦ Limit construction times to 7.00am to 6.00pm Monday to Saturday.
Construction traffic and parking (employees)	<ul style="list-style-type: none"> ♦ Designate a suitable area for a construction compound (including worker's amenities and employee parking), on the construction certificate drawings.
Dust	<ul style="list-style-type: none"> ♦ Ensure that small areas only are disturbed at any one time and are promptly revegetated following completion of earthworks. ♦ Ensure that appropriate dust abatement measures are implemented during the construction phase including appropriate use of water carts.
Noise	<ul style="list-style-type: none"> ♦ Ensure that all plant and equipment is suitably muffled and acoustically treated. ♦ Limit construction work hours to those normally permitted by Tweed Shire Council. ♦ Ensure that all employees are suitably inducted in relation to noise mitigation measures.
Vibration	<ul style="list-style-type: none"> ♦ Ensure that vibratory compaction equipment is not used within 100m of existing dwelling houses.
Water Quality Management	<ul style="list-style-type: none"> ♦ Prepare a Water Quality Management Plan prior to commencing work. ♦ Ensure that the Water Quality Management Plan is complied with.
Damage to Existing Buildings During Construction	<ul style="list-style-type: none"> ♦ Prior to construction commencing ensure that an inspection of existing buildings adjacent to the construction site is completed and any existing faults are documented.
Waste Materials	<ul style="list-style-type: none"> ♦ Ensure that waste materials suitable for recycling are stockpiled and suitably disposed of.
Public Safety	<ul style="list-style-type: none"> ♦ Ensure that appropriate signage is installed at the entry points to the site. ♦ Ensure that all employees are suitably inducted on OH & S responsibilities.
GENERAL	
OBJECTIVE	ACTION
Occupational Health and Safety	<ul style="list-style-type: none"> ♦ Ensure that all obligations under the Occupational Health and Safety Act are complied with.
Design Guidelines	<ul style="list-style-type: none"> ♦ The proponents will develop design guidelines in consultation with Tweed Shire Council and in accordance with the Future Residential Character and Built Form Report (BDA Architecture, 18/10/07).

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

TABLE 25 – DRAFT COMMITMENTS	
Walmsleys Road	<ul style="list-style-type: none"> The proponents will upgrade Walmsleys Road from the end of the existing bitumen to proposed Road No. 1 (Walmsleys Road/Stott Street connection) in accordance with Tweed Shire Council standards.
Rainwater and Effluent Disposal	<ul style="list-style-type: none"> Rainwater tanks will be provided for all future dwelling houses on each lot. The lots west of Stott Street shall be serviced by individual pumping systems
CULTURAL HERITAGE	
OBJECTIVE	ACTION
Ensure That Cultural Heritage Material Is Appropriately Managed	<ul style="list-style-type: none"> If any cultural heritage material is discovered during construction the Department of Environment and Conservation must be notified and appropriate approvals/studies must be undertaken.
GEOTECHNICAL STABILITY	
OBJECTIVE	ACTION
Ensure That Each Lot Is Suitable for the Erection of a Dwelling House	<ul style="list-style-type: none"> <u>Ground Improvement Techniques – eastern depressions</u> The existing ground conditions at this area can be rectified as follows: <ul style="list-style-type: none"> Excavate the colluvium and stockpile the material. Remove cobbles, boulders and oversize rocks from the stockpile. Backfill with sorted material (less the oversize rocks, cobbles and boulders). The backfill shall be placed in layers not exceeding 0.5m (uncompacted) and compacted to at least 100% standard dry density ratio. Each layer should be tested. Full-time supervision of the earthworks operation is strongly recommended. Along the top of the slope, the construction of the proposed road should involve removal of the colluvium. The new pavement should be established over the bedrock. The Southern Slopes Buildings should be limited to lightweight pole homes. Foundations should be either steel posts or reinforced concrete piers. They should extend at least 1.0 metre past the toe of the slope, or be socketed into bedrock. The rock socket length shall not be less than 50% of the total post or pier length. The Deep Gully Area The existing colluvium at the deep gully should be removed. The area may be backfilled with suitable material to the design formation level. The fill shall be placed at slopes of not steeper than 1 in 2.5, and compacted to standard dry ratio of at least 100%.

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

TABLE 25 – DRAFT COMMITMENTS

	<ul style="list-style-type: none"> ♦ Other Areas The ridge crest and adjacent slopes are adequately stable for normal residential development. Independent soils tests and site classifications are recommended for the individual allotments. ♦ General The factors of safety against failure of the existing slopes are generally in excess of 2.0 and hence, adequate for the proposed development to proceed. The following specific issues, however, need to be addressed to ensure adequate stability of the entire site. ♦ Organic fill – Site A The organic fill identified at the areas of test pits 6, 6A & 7 should be removed and replaced with compacted clay fill. The imported fill shall be of low to medium plasticity clays/gravelly clays/sandy clay, and should be compacted to dry density ratio of not less than 100% (standard). ♦ Stockpile – Site B The existing stockpile between the subject site and the aged care facility is not likely to be stable in the long-term. It is, however, understood that the entire stockpile shall be removed upon completion of the age care facilities. It is recommended that this office be contacted for the inspection of the excavation works to ensure that adequate stable batter slopes are maintained. ♦ Ground Improvement Techniques: Eastern Depressions It is recommended that existing colluvium over the area identified as the “eastern depression” should be removed. The material may be excavated and discarded or stockpiled for re-use, following removal of the boulders, cobbles, and oversize materials. The backfill shall be placed in layers not exceeding 0.5m (uncompacted), and compacted to at least 100% standard dry density ratio. Bulk earthworks, including road works, are to be conducted under engineering supervision by this office. Preparation of the proposed access road subgrade should include an excavation of, at least, 1.0m of the existing formation. The subgrade replacement shall comply with Tweed Shire Council specification. The material shall be placed and compacted to, at least, 100% standard dry density ratio. ♦ Ground Improvement Techniques: The Southern Slopes Buildings over the designated Southern Slopes should be limited to lightweight pole homes. Foundations should be either steel posts or reinforced concrete piers. They should extend at least 1.0 metre past the toe of the slope and be socketed into bedrock. The rock socket length shall not be less than 1.0m.
--	---

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants

TABLE 25 – DRAFT COMMITMENTS

	<ul style="list-style-type: none"> • Ground Improvement Techniques: The Filled Gully The existing sections of the site situated within the gully are considered unsuitable for residential building construction due to presence of fill. The proposed subdivision allotments 37 to 42 are mostly affected. The area can, however, be engineered to improve on the stability and, consequently, its suitability for residential development. As part of the re-engineering exercise, existing fill should be removed, and the area presented for re-assessment. It is unlikely that existing fill shall be suitably for re-use as structural fill. The excavated material may, however, be stockpiled for further assessment. Certification of the suitability of the re-engineered site for residential development by an experienced geotechnical engineer should be required, prior to the issue of a subdivision certificate. • Ground Improvement Techniques: Ridge-tops & Adjacent Slopes The ridges and adjacent slopes are adequately stable for normal residential development. Footings for these buildings should be adequately socketed into bedrock. Each subdivision allotment should be independently engineered for the intended structure. Full geotechnical investigation should be insisted. Routine “soil test” for the classification of the site, as defined in AS2870-1996, may be inadequate.
BUSHFIRE	
OBJECTIVE	ACTION
	<ul style="list-style-type: none"> • A minimum 25m asset protection zone must be located wholly within the boundaries of the lots within the 2(c) zoned area. • A Section 88B Covenant shall be created requiring the asset protection zone area to be maintained as a mowed lawn with any plantings restricted to endemic lowland rainforest species such that no more than 20% of the asset protection zone area is covered by tree canopy or tree crowns to be separated by a minimum distance of 2m to 5m. • Where canopy thinning is required, tree removal is restricted to camphor laurels only. • Rear fencing of residential allotments abutting the 7(d) zoned areas must include a gate to facilitate access for fire fighting purposes.

13.0 CONCLUSION

This Assessment identifies the site's opportunities and constraints and evaluates likely adverse impacts arising from the project and proposed mitigation measures. The Assessment does not reveal any significant adverse impacts which would give rise to the project not proceeding and therefore it is concluded that approval of the Major Project Application, subject to appropriate conditions, would be both sustainable and consistent with the public interest.

Darryl Anderson Consulting Pty Ltd

A.C.N. 093 157 165
Town Planning & Development Consultants